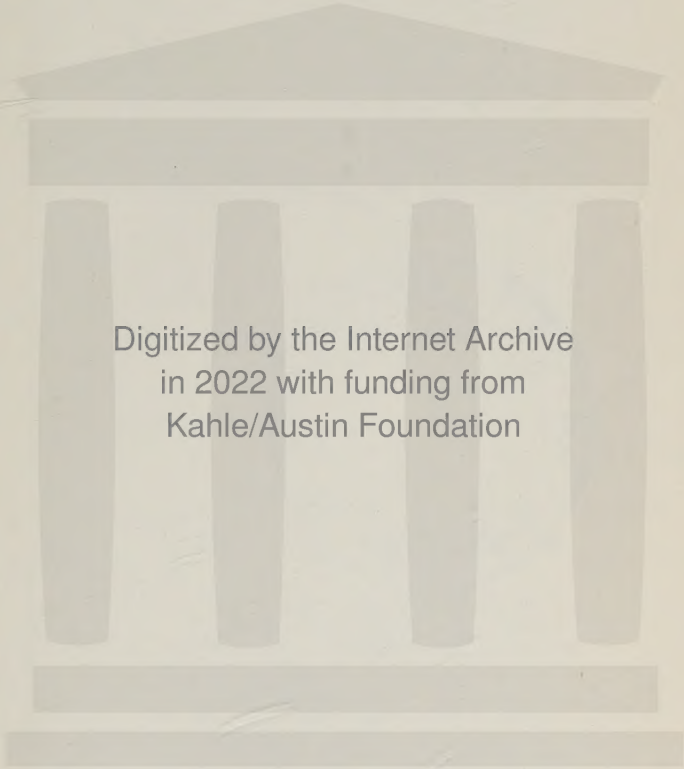


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TWENTY-NINTH
ANNUAL REPORT

OF THE

Mining Industry of IDAHO

FOR THE YEAR

1927

STEWART CAMPBELL
INSPECTOR OF MINES

57.96

TWENTY-NINTH
ANNUAL REPORT

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Mining Industry

of IDAHO

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1927

STEWART CAMPBELL
INSPECTOR OF MINES

ALICE DARRAH
SECRETARY

LETTER OF TRANSMITTAL

o His Excellency,
THE HONORABLE H. C. BALDRIDGE,
Governor of Idaho.

R:

In compliance with the provisions of section 5480, Idaho ompiled Statutes, I have the honor to transmit herewith the nual report of the inspector of mines for the year ended Decem- r 31, 1927.

Respectfully submitted,

STEWART CAMPBELL,
Inspector of Mines.

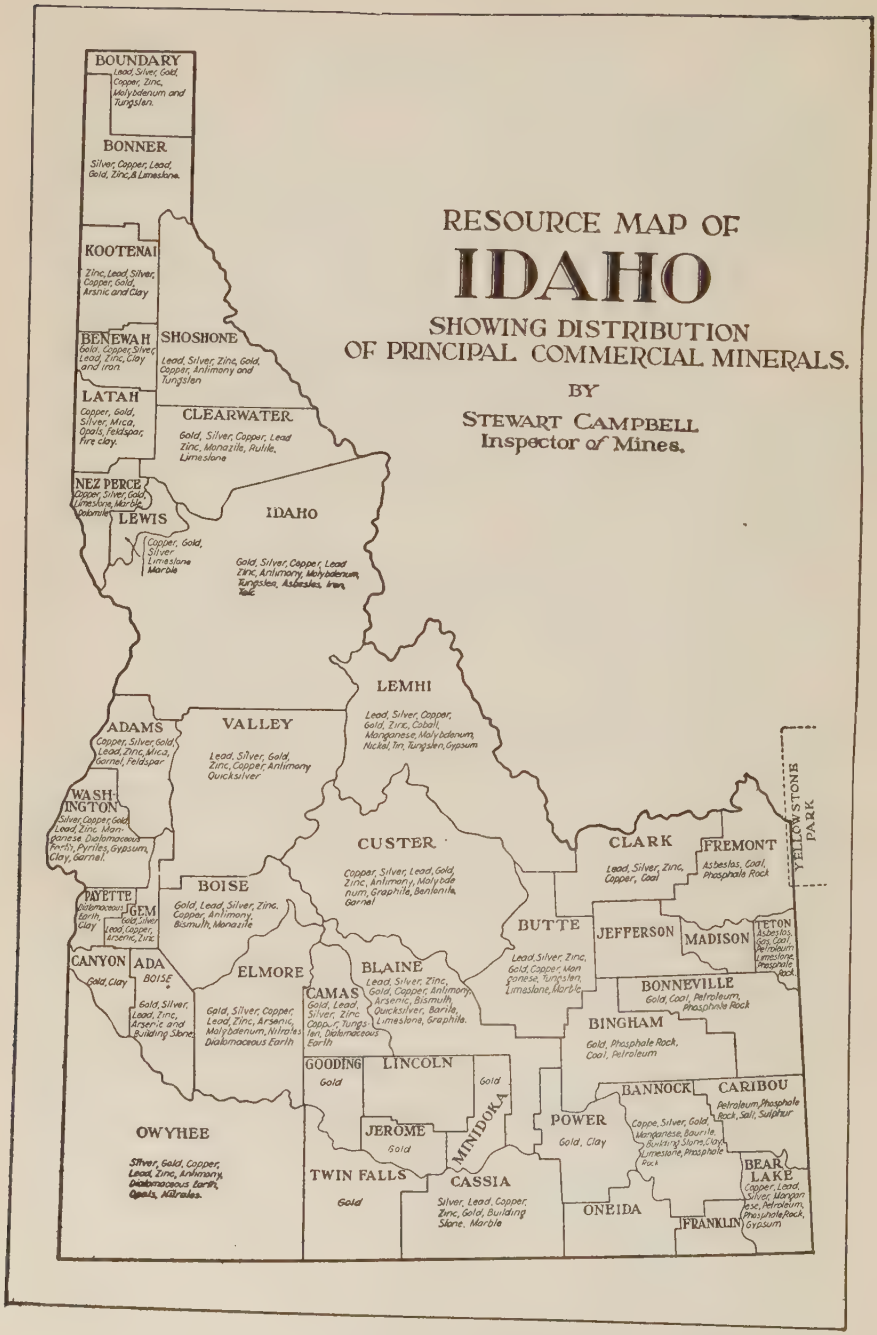
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RESOURCE MAP OF
IDAHO
SHOWING DISTRIBUTION
OF PRINCIPAL COMMERCIAL MINERALS.
BY
STEWART CAMPBELL
Inspector of Mines.
BOUNDARY
Lead, Silver, Gold, Copper, Zinc, Molybdenum and Tungsten.
BONNER
Silver, Copper, Lead, Gold, Zinc, & Limestone.
KOOTENAI
Zinc, Lead, Silver, Copper, Gold, Arsnic and Clay
BENEWAH
Gold, Copper, Silver, Lead, Zinc, Clay and Iron.
SHOSHONE
Lead, Silver, Zinc, Gold, Copper, Antimony and Tungsten
LATAH
Copper, Gold, Silver, Mica, Opals, Feldspar, Fire clay.
CLEARWATER
Gold, Silver, Copper, Lead Zinc, Monazite, Rutile, Limestone
NEZ PERCE
Copper, Silver, Gold, Limestone, Marble, Dolomite
LEWIS
Copper, Gold, Silver Limestone Marble
IDAHO
Gold, Silver, Copper, Lead Zinc, Antimony, Molybdenum, Tungsten, Asbestos, Iron, Talc
LEMHI
Lead, Silver, Copper, Gold, Zinc, Cobalt, Manganese, Molybdenum, Nickel, Tin, Tungsten, Gypsum
ADAMS
Copper, Silver, Gold, Lead, Zinc, Mica, Garnet, Feldspar
VALLEY
Lead, Silver, Gold, Zinc, Copper, Antimony Quicksilver
WASHINGTON
Silver, Copper, Gold, Lead, Zinc, Manganese, Diatomaceous Earth, Pyrites, Gypsum, Clay, Garnet
CUSTER
Copper, Silver, Lead, Gold, Zinc, Antimony, Molybdenum, Graphite, Bentonite, Garnet
CLARK
Lead, Silver, Zinc, Copper, Coal
FREMONT
Asbestos, Coal, Phosphate Rock
YELLOWSTONE PARK
PAYETTE
Diatomaceous Earth, Clay
GEM
Gold, Silver, Lead, Copper, Arsenic, Zinc
BOISE
Gold, Lead, Silver, Zinc, Copper, Antimony, Bismuth, Monazite
BUTTE
Lead, Silver, Zinc, Gold, Copper, Manganese, Tungsten, Limestone, Marble
JEFFERSON
MADISON
TETON
Asbestos, Gas, Coal, Petroleum, Limestone, Phosphate Rock
CANYON
Gold, Clay
ADA
BOISE
Gold, Silver, Lead, Zinc, Arsenic and Building Stone
ELMORE
Gold, Silver, Copper, Lead, Zinc, Arsenic, Molybdenum, Nitrates, Diatomaceous Earth
BLAINE
Lead, Silver, Zinc, Gold, Copper, Antimony, Arsenic, Bismuth, Quicksilver, Barite, Limestone, Graphite.
CAMAS
Gold, Lead, Silver, Zinc, Copper, Tungsten, Diatomaceous Earth
BONNEVILLE
Gold, Coal, Petroleum, Phosphate Rock
BINGHAM
Gold, Phosphate Rock, Coal, Petroleum
GOODING
Gold
LINCOLN
Gold
BANNOCK
CARIBOU
Petroleum, Phosphate Rock, Salt, Sulphur
OWYHEE
Silver, Gold, Copper, Lead, Zinc, Antimony, Diatomaceous Earth, Opals, Nitrates.
JEROME
Gold
MINIDOKA
POWER
Gold, Clay
Copper, Silver, Gold Manganese, Bauxite, Building Stone, Clay, Limestone, Phosphate Rock
BEAR LAKE
Copper, Lead, Silver, Manganese, Petroleum, Phosphate Rock, Gypsum
TWIN FALLS
Gold
CASSIA
Silver, Lead, Copper, Zinc, Gold, Building Stone, Marble
ONEIDA
FRANKLIN

FOREWORD

Mining is a highly specialized business, and should be recognized as such, particularly by the investing public. It requires more good judgment and more business and technical ability, coupled with honesty, than any other commercial undertaking. If the investing public would realize that these requirements are essential to a successful mining enterprise, the popular belief that mining is a gamble would be without foundation. When a mine is capably managed, the greatest hazard is eliminated, as such a management will not permit the expenditure of money on doubtful mines. Many mines require the expenditure of considerable money, either to prove or disprove them, and it can not be expected that every mining enterprise will result successfully. It has been observed that, where the investor has determined that the representations regarding the property are true and that the management is in capable and honest hands, if the venture should then fail he is satisfied because he feels that the money was properly spent and the mine intelligently operated. But how few investigate!

A merchant can not come into a strange community and establish a paying business merely through advertisement. He must acquire his trade by the offering of reliable merchandise and a continual demonstration of his responsibility and knowledge of his line. An attorney can not gain a clientele without a thorough knowledge of the law and an ability to win cases. A doctor or surgeon can not establish a practice merely upon his own word; he must gradually build a reputation by demonstrating his skill and success. An engineer—mechanical, civil, electrical, or trades—must prove his competency before he can procure the first pittance which leads to an eventual decent livelihood. But far otherwise with mining. To the mind of the public, it is an industry shrouded in mystery and governed by luck. Blinded by these false ideas, the public reposes confidence in those who are grossly ignorant of the fundamental principles of geology and mining. Someone talking a little of the mining language and calling himself a "mining engineer" or "geologist" goes forth into a strange community, either personally, through his agents, or through advertisements, seeking money for a mining or oil venture. And the usually sane business man, the same man who would investigate the standing of an attorney, a doctor, a stenographer, or an engineer before employing him, permits himself to be blinded by the lure of easily gained wealth; with the belief that luck instead of efficiency governs mining, he stakes his hundreds, perhaps thousands, without a sufficient inquiry as to the ability, record, or honesty of the management or of the promoters to whom he intrusts his money. Investments under such circumstances have usually resulted and will continue to result in bitter disappointment.

Idaho legislatures have expressed a knowledge of the foregoing facts by passing laws which do not hinder or obstruct the legitimate promoter or operator, yet which immediately expose the shady dealer if he complies with them. The enforcement of these laws is lodged with the inspector of mines, who has administered them with the dominating idea that it is his legal and moral duty to encourage and promote the development of Idaho's mineral resources, and that this can best be done by protecting the public against fake promotions and dishonest promoters. If the investing public can be impressed with the fact that Idaho is using every precaution and is particularly vigilant in preventing shady promotions, and that through this attitude fair treatment can be expected, then the prospector, the miner, the legitimate promoter, and the State will benefit by this faith. If, on the other hand, the public is excited and deceived into buying stock in fraudulent promotions, which almost invariably result in total loss, then the cause of honest mineral development is injured, and not only does the State suffer, but every legitimate miner and operator as well.

The renewed interest in mining in Idaho has attracted fraudulent promoters to the State, and this department has been forced to battle with some of the outstanding mining crooks and fake promoters of the United States. We have not sat calmly by and watched the crooked brokers, "dynamiters", "high-pressure fakers", and "financial sand-baggers" catch and rob the public with an Idaho mine as a bait. The power of the law and the press has been invoked repeatedly against these cheaters, and this department will continue to be used, so far as it is possible, as a means of destruction of crooks and fakers. Notice is served, again, that Idaho will not be a safe place for the shady dealer or his crooked schemes so long as the present incumbent remains in this office.

We shall continue in every legitimate manner possible to assist the honest promoter to interest the public in Idaho mines; because, with few exceptions, the large mining companies are not acquiring or developing prospects in a search for new mines, and the old-time prospector has vanished; so the small development companies have a useful and proper function to perform if the mining industry in Idaho is to survive and prosper. But these companies can not live unless the investor knows that Idaho is a safe place for mining investments.

There is no way to warn against all the schemes of the fakers. Fraud constantly uses new methods, and the styles change rapidly. Mine development means risk, of course, but the chances are that the mine will actually get the money if the men managing the company are honest and efficient. These facts can generally be ascertained without much trouble, and, as mining investments should receive the same consideration as other business ventures, it is a good rule for the investor to "investigate before investing".

ANNUAL REPORTS

The first report submitted by the present inspector, in 1921, was largely an experiment. It introduced much miscellaneous matter never previously printed in such a report and presented detailed information concerning Idaho mining companies in the form of a directory. It was, in fact, a handbook rather than a formal report. It received such favorable press comment, notably by the Engineering and Mining Journal, the foremost mining magazine of the United States, that the same plan was followed in subsequent reports. As these proved equally popular with the mining public of Idaho and other states, the 1927 report is offered in the same form.

It is a cause for great satisfaction that it has been possible to increase the size of the report each year, without adding greatly to the expense. The 1921 issue consisted of but 150 pages; that of 1922 of 200 pages, that of 1923 of 221 pages, that of 1924 of 249 pages, that of 1925 of 270 pages, with five insert diagrams of mill flow sheets, and that of 1926 of 269 pages. As the 1923, 1924, 1925, and 1926 editions were printed more compactly, they included much more additional information than their increased bulk would indicate. The increase in size has been made possible by the growing cooperation of mining companies in the matter of filing full reports concerning their organization, property, plant equipment, and development campaigns. The reports for the years 1923, 1924, 1925, 1926, and 1927 have also been rendered more interesting by the inclusion of many pictures of various Idaho mining plants.

Idaho is the only state in the Union which is presenting the data and information relative to its mineral resources in this form. The merit and popularity of the report are proved by the continually increasing demand for copies of it, as well as by the efforts those interested in mining in other states have made toward having their state governments publish a similar report. Less than 1,000 copies of the 1921 report were distributed, while more than 2,500 of the 1926 report were required to meet the demand.

The list of prospects contained in this report has been enlarged over that of the twenty-eighth report. Many of these prospects are worthy of more prominent mention, but, as the owners failed to submit any data, it is impossible to give further information than the owner's name and address, location of his mine and its name. If the small mine-owner could realize that it would be beneficial to him if he furnished detailed information to the inspector, it would greatly assist in displaying the mining possibilities of Idaho and result in his property receiving more attention. The list published in the twenty-third annual report was the first of its kind ever compiled in Idaho and proved that the practice is worthy of continuation, as it has been a guide to those looking for mines. These lists have found extensive use and in a number of cases resulted in the prospect being examined and a sale made.

Unincorporated mines have been included in the body of this report on the same basis as the reporting mining companies, whenever their owners submitted the data. This policy will be continued in the future. The necessary form on which the data can be submitted is mailed on request to all those interested in having their properties receive a more prominent mention.

NEWSPAPERS

As pointed out in previous years, the visits which the inspector makes to the numerous mining counties are necessarily so short that they are inadequate to enable him to keep directly in touch with all mining activities, so that it is always necessary that he supplement his personal information by that gleaned from the press. Most of the publishers located in mining communities have been very willing to furnish gratuitous subscriptions of their newspapers to the office of the inspector. This courtesy is greatly appreciated, and has been of much assistance in enabling the inspector to keep abreast of the mining news. Accordingly, the State of Idaho, through the mine inspector, extends its thanks to the following:

Idaho County Free Press	Grangeville
Kellogg-Wardner News	Kellogg
Lemhi County Recorder Herald	Salmon
The Mackay Miner	Mackay
Mining Truth	Spokane
Mullan News	Mullan
Pend d'Oreille Review	Sandpoint
Priest River Times	Priest River
The Salt Lake Mining Review	Salt Lake City
The Wallace Miner	Wallace
Wallace Press-Times	Wallace

MINERAL MARKET INFORMATION

As there has continued to be a demand for possible markets for uncommon minerals and metals, the lists prepared in 1921, which include the names and addresses of the purchasers or users, have been brought up to date wherever it has been possible to obtain the information. The office will be glad to furnish copies of the list for any particular mineral or metal upon request. The following are listed:

Antimony	Fullers Earth	Radium
Arsenic	Graphite	Silica Sand
Asbestos	Gypsum	Sodium
Barytes	Magnesium	Strontium
Bauxite	Magnesite	Talc
Bismuth	Manganese	Tin
Cadmium	Mica	Titanium
Chromium	Molybdenum	Tripoli
Cobalt	Monazite	Tungsten
Diatomaceous Earth	Nickel	Uranium
Feldspar	Platinum	Vanadium
Fluorspar	Pumice	

LIBRARY

The library, which was started by the present mine inspector during 1921, and which now consists of over 3,500 volumes, is believed to be the largest library of its kind in the State. It contains virtually every publication of the U. S. Geological Survey and U. S. Bureau of Mines, most of the U. S. Mint Reports, numerous volumes published by the geological surveys of other states, and many volumes of journals dealing with mining and geology.

Except a few articles published in old issues of the various journals, everything of importance dealing with the mining industry of Idaho, including geology, mineralogy and mineral resources, is contained in the library. Whenever requests are made for any of the missing articles, photographic copies are procured from the publishers or from some large research library.

The following magazines are regularly received: Engineering and Mining Journal; Mining Review; Mining Truth; The Mining Congress Journal; Mining and Metallurgy; Rock Products; Compressed Air Magazine; The Explosive Engineer; Economic Geology; and Asbestos. Complete files of these magazines are being preserved for reference use. Although most of them have been received only since 1921, the file of the Engineering and Mining Journal is virtually complete for the past 20 years, the present mine inspector having donated to the State his personal files of this journal for the years 1911 to 1920, inclusive.

The library is equipped with the U. S. Geological Survey Finding List of States, Areas and Subjects, which makes it possible to locate quickly and completely all publications of the U. S. Geological Survey concerning the geology and mineral resources of any state of the United States or concerning any particular mineral.

Visitors are always welcome to consult the books of the library or to read the magazines. The office is open from 9 a. m. to noon and from 1 p. m. to 5 p. m. In the absence of the inspector, the secretary will be glad to assist visitors in finding desired information.

In order to accommodate readers who find it inconvenient to consult books in the library at the inspector's office, the practice of lending books for a period of not over two weeks has been established, and they are mailed out to all responsible persons within the State upon request. A few rare volumes, now out of print, and of which the library contains no duplicates, and books frequently called for at the office, cannot be mailed out. Individuals not personally acquainted with the inspector, when writing in for books, should accompany their requests by letters of introduction or recommendation from some reliable person in their community personally known to the office, or by a letter from the nearest public library.

MINING LAWS

In May, 1923, the inspector caused to be published a new edition of the State mining laws; and as the 1925 Legislature passed a few amendments to them, a supplement containing these changes and a few extracts from the corporation law was published in 1925. These two pamphlets contain all of the Idaho mining laws as well as extracts from the United States mining laws, and amendments. The pamphlets are for free distribution, and will be mailed to anyone interested on request.

BIBLIOGRAPHIES

Much information concerning the geology, mineralogy and mineral resources of Idaho has been collected and published by the U. S. Geological Survey, the U. S. Bureau of Mines, and the Idaho Bureau of Mines and Geology. Much is also contained in the various reports of the inspector of mines and in journals dealing with mining and geology. In order to make this information readily available to the public, in 1921 the inspector indexed this material according to counties and subjects and published it in his report. The indexing has been kept up to date, and so far as is known, each county bibliography contains references to all material of any importance that has ever been published concerning that county. Publications relating to specific minerals found in the State are listed also under the "General Bibliography" in the back of the report. The usefulness of the bibliographies has been further increased by including publishers' addresses and information as to whether each particular reference can be procured or not. Symbols have been added as a guide to facilitate explaining this information. Practically all of the publications listed are found in the inspector's library, and arrangements have been made so that copies of those not on file can be procured when requested. However, **these publications may be consulted in all large libraries.**

ABBREVIATIONS AND SYMBOLS USED IN BIBLIOGRAPHIES

Am. Geology.....American Geology†
Am. Jour. Sci.....American Journal of Science
Tuttle, Morehouse & Taylor Co., 123 Temple St., New Haven, Conn.
Am. Mineralogist.....American Mineralogist
Princeton, N. J.
California Jour. Tech.....California Journal of Technology
University of California, Berkeley, Calif.
Canada Geol. Survey Ann. Rept.....Canada Geological Survey Annual Report
Ottawa, Canada.
Colorado Sci. Soc. Proc.....Colorado Scientific Society Proceedings†
Columbia School of Mines Quart.....Columbia School of Mines Quarterly
Columbia University, New York City.
Compressed Air Mag.....Compressed Air Magazine
Bowling Green Bldg., 11 Broadway, New York City.
Econ. Geology.....Economic Geology
University of Illinois, Urbana, Ill.
Eng. and Min. Jour.....Engineering and Mining Journal
Tenth Ave. & 36th St., New York City.
Franklin Inst. Jour.....Franklin Institute Journal
15 South 7th St., Philadelphia, Pa.

Geol. Soc. America.....Geological Society of America
Museum of Natural History, Columbus Ave. & 77th St., New York City.
Idaho Bureau of Mines and Geology, Moscow, Idaho.
Jour. Canadian Min. Inst.....Journal of Canadian Mining Institute
Drummond Bldg., Montreal, Quebec, Canada.
Jour. Geology.....Journal of Geology
University of Chicago Press, Chicago, Ill.
Min. Con. Journal.....Mining Congress Journal
American Mining Congress, 841 Munsey Bldg., Washington, D. C.
Min. and Eng. World.....Mining and Engineering World†
Mining and Metallurgy
American Institute of Mining and Metallurgical Engineers, Inc.,
29 West 39th St., New York City.
Mines and Minerals.....Mines and Minerals†
Mining Magazine.....Mining Magazine†
Min. and Sci. Press.....Mining and Scientific Press†
Min. Reporter.....Mining Reporter†
Min. World.....Mining World†
Nat. Geog. Mag.....National Geographic Magazine
National Geographic Magazine Society, Hubbard Memorial Hall,
Washington, D. C.
No. ..... Number
Northwest Min. News.....Northwest Mining News†
Pacific Miner.....Pacific Miner†
p., pp.....page, pages
pt. ..... part
Proc. Int. Min. Cong.....Proceedings International Mining Congress
International Mining Congress, Washington, D. C.
Salt Lake Min. Review.....Mining Review
Walker Bank Bldg., Salt Lake City, Utah.
Sci. Amer. Suppl.....Scientific American Supplement
New York City.
ser. ..... series
sess. ..... session
Trans. Am. Inst. Min. Eng. .....
Transactions American Institute of Mining and Metallurgical Engineers
29 West 39th St., New York City.
Trans. New York Acad. Sci.....Transactions New York Academy of Science
New York Academy of Science, New York City.
U. S. Bureau of Mines Bull.....U. S. Bureau of Mines Bulletin¶
U. S. Geol. and Geog. Survey.....U. S. Geological and Geographical Survey†¶
U. S. Geol. Survey Ann. Rept.....U. S. Geological Survey Annual Report†¶
U. S. Geol. Survey Bull.....U. S. Geological Survey Bulletin¶
U. S. Geol. Survey Geol. Atlas.....U. S. Geological Survey Geologic Atlas¶
U. S. Geol. Survey Mon.....U. S. Geological Survey Monograph¶
U. S. Geol. Survey Prof. Paper....U. S. Geological Survey Professional Paper¶
U. S. Nat. Mus. Proc.....U. S. National Museum Proceedings¶
Univ. of Idaho.....University of Idaho, Moscow, Idaho
vol. ..... volume
Washington Acad. Sci. Jour.....Washington Academy of Science Journal
211 Church St., Easton, Pa.

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*.....Available in libraries only. Publication out of print.
**.....Can be procured from publisher.
§.....Not available for general distribution; may possibly be procured from publisher.
‡.....Can be purchased from Superintendent of Documents, Government Printing Office, Washington, D. C.
†.....Publication suspended.
¶.....Address: Washington, D. C.

GENERAL REVIEW AND 1927 ACTIVITIES

The year 1927 closed with the mining industry in Idaho witnessing a very prosperous year. Excepting the Star mine of the Sullivan Mining Co., which was idle, and one large producer which curtailed production about 25 per cent during the latter part of the year, capacity production was maintained at all the producing mines, and in a few instances output was increased over that of 1926. All the large mines conducted active development work throughout the year, which proved the extent of their ore bodies at greater depth and laterally. The increased ore reserves and the improvements added to mine and mill plants have greatly enhanced the physical condition and future life of all these mines. Many new companies were organized and much new mining work was undertaken. The majority of these enterprises were started in the southern part of the State, although the increase in the Coeur d'Alene district exceeded that of the previous year.

In addition to the new enterprises, new discoveries and improved conditions at the producing mines, there were also many inquiries and investigations by those seeking mines and mining investments. These inquiries were made by large mining companies, promoters, and individual investors. Many of the properties examined satisfied the requirements of the investigators and in a few instances mines were acquired under favorable terms. Others making examinations were well impressed and would have recommended the properties, had it been possible to procure them under satisfactory conditions. Many prospectors and small companies, who are unable to finance the development of their own mines yet refuse to option them under favorable terms to others who are able to do so, are responsible for retarding much new development work.

As Idaho offers unequalled opportunities in mining and as the diversity of its mineral wealth exceeds that of any other State of similar size in the Union, its substantial growth during 1927 should be maintained in the future. The strong, healthy condition of the mining industry at the close of the year was largely due to the numerous developments which fall into five classes:

1. Increased resources of producing mines.
2. New dividend-paying mines.
3. New ore disclosures of importance.
4. New reduction plants and dredges.
5. New enterprises, including new mine plants and principal activities.

Increased Resources of Producing Mines

The principal producing mines in which the ore reserves were increased by new development work during the year were: The Bunker Hill mine of the Bunker Hill & Sullivan M. & C. Co.; the Hecla mine of the Hecla Mining Co.; the Morning and Page mines of the Federal M. & S. Co.; the Tamarack mine of the Tamarack-Custer Consolidated Mining Co.; the Stratton and Panhandle mines of the Strattons Mines Co.; the Sidney mine of the Sidney Leasing Co.; the Sunshine mine of the Sunshine Mining Co.; the Gold Hunter mine of the Gold Hunter Mines, Inc.; the Galena mine of the Callahan Zinc-Lead Co.; the Jack Waite mine of the Jack Waite Mining Co.; the Constitution mine of the Constitution Mining & Milling Co., all of which are located in the Coeur d'Alene district in Shoshone County; the P-I mine of the United Idaho Mining Co., in Lemhi County; and the Wilbert mine of the Wilbert Mining Co., Ltd., in Butte County.

New Dividend-Paying Mines

Companies which entered the ranks of dividend payers during the year were: The Sunshine Mining Co., at its Sunshine mine; and the Sidney Leasing Co., at the Sidney mine, both in Shoshone County. Mines which were placed on a profitable operating basis during the year were: The Galena mine of the Callahan Zinc-Lead Co.; the Page mine of the Federal M. & S. Co., both in Shoshone County; the Triumph mine of the Triumph Development Co., in Blaine County; the Allie mine, at Gilmore, of the Gilmore Mercantile Co., in Lemhi County; and the Belshazzar mine of the Idawa Gold Mining Co., in Boise County.

New Ore Disclosures of Importance

The principal new ore disclosures and new discoveries of importance were those at the Tamarack mine of the Tamarack & Custer Consolidated Mining Co.; the Dickens mine of the Dickens Consolidated Mines Co.; the Sherman mine of the Sherman Lead Co.; the Douglas mine of the Douglas Mining Co.; the Alameda mine of the Alameda Mining Co.; the Golconda mine of the Golconda Lead Mines, all in Shoshone County; the Allie mine of the Gilmore Mercantile Co., and the Pope-Shenon mine of the Pope-Shenon Mining Co., in Lemhi County; the Belshazzar mine of the Idawa Gold Mining Co., in Boise County; the Wilbert mine of the Wilbert Mining Co., Ltd., in Butte County; the Triumph mine of the Triumph Development Co.; the Vienna mine under operation by A. F. Peery; and the new disclosures at the Mathews property, in Blaine County; the Whitedelf mine of the Whitedelf Mining & Development Co. in Bonner County; and the Hall-Interstate mine of the Bunker Hill & Sullivan M. & C. Co. in Valley County.

Excepting the Triumph and Mathews disclosures in Blaine County, all of these represent an increase in the resources of operating or producing mines. Results at the Triumph were a reward for having the courage to reopen a property which had been abandoned for over 30 years. The Mathews disclosure was a discovery which was made during the early spring months of the year. A large amount of surface trenching was done on the vein, opening it to a sufficient extent to permit the discovery to be classed as one of importance.

The substantial result of the development work at the Douglas mine during the year was the outcome of a new policy adopted by the Bunker Hill & Sullivan M. & C. Co. in financially assisting the development of mines in the vicinity of its smelters without obtaining control of the company or a voice in its management.

New Reduction Plants and Dredges

The most important new construction work maintained throughout the year was at the electrolytic zinc plant at Kellogg, which is being built by the Sullivan Mining Co. to treat the zinc-lead ores of the Coeur d'Alene district. (See page 33) The Sullivan Mining Co. is owned jointly by the Bunker Hill & Sullivan M. & C. Co. and the Hecla Mining Co. This plant is designed for a capacity of 150 tons of metal daily, in three units of 50 tons capacity each. It is based on the Tainton-Pring process, which is characterized by the use of strong acid in the leaching circuit and high-current density in the electrolysis.

The Hercules mill at Wallace, owned by the Hercules Mining Co., was rebuilt, a zinc flotation unit added, and converted into a custom mill which now offers milling facilities for small mines without mills in the vicinity of Wallace.

The mill on Big Creek which was formerly owned by the Big Creek Mining Co., Ltd., whose property was acquired under foreclosure proceedings by the Bunker Hill & Sullivan M. & C. Co., was entirely rebuilt to treat the ore from the Bunker Hill's Crescent mine. This mill is now known as the Crescent.

The Cedar Creek Mining & Development Co., Ltd., constructed a new mill at its property in the Summit district. The design of this mill followed that of the Galena mill of the Callahan Zinc-Lead Co. and includes fine grinding with lead and zinc units.

All of the foregoing are in Shoshone County. The principal new mill, mine plant, and dredge construction in other counties was:

The 100-ton flotation mill and 250-horsepower hydroelectric plant being constructed by the Bunker Hill & Sullivan M. & C. Co. at its Hall-Interstate mine in Deadwood Basin, Valley County.

The small mill constructed by the Owyhee Gold Mining Co. in Owyhee County, consisting of amalgamation followed by flotation.

Enlarging of the mill at the Pope-Shenon mine in Lemhi County and the addition of a flotation unit.

The Seafoam Mines Corporation, in addition to installing complete mining equipment, constructed a small mill and a hydroelectric power plant; and the Clark Mining Co., at Clayton, constructed a small concentrating mill. These are both in Custer County.

The Lincoln Mine Operating Co. in Gem County completed the construction of its mill—fine grinding, flotation, and table concentration—which was started in 1926.

The American Gold Dredging Corporation on Meadow Creek near Triangle, Owyhee County, and the Crooked River Mining Co. on Crooked River, northeast of Idaho City, Boise County, both constructed small flume-type dredges.

New Enterprises, Including New Mine Plants and Principal Activities

The outstanding new enterprises, developments, construction, mine plant installation, and principal activities can best be reviewed through an outline by counties:

Ada County

During 1927 the mines and prospects in this county witnessed a little increase in attention and development over that of the previous year, in addition to which there was a decided activity in promoting oil development enterprises and legendary "White Metal".

Adams County

During 1927 this county witnessed more mine development and more new mine plant installation than at any time since the "boom days" of the Seven Devils. At the Red Ledge mine the Idaho Copper Co. constructed a complete and modern mine camp and mine buildings; installed a 600-cubic-foot Ingersoll-Rand compressor, driven by a 120-horsepower Diesel engine, and complete mining equipment including underground mechanical loaders; and started work on their tunnel from Eagle Bar which has a projected length of approximately 6500 feet, of which about 700 feet was completed. In addition to the foregoing, the company performed about 4000 feet of diamond drilling on Deep Creek.

At the South Peacock mine, the Idaho Copper Corporation (over 98 per cent of whose stock is owned by the Idaho Copper Co.) purchased second-hand boilers, a steam-driven compressor, and hoist, and moved them to the property, where they were partly installed in a new building. A small amount of development work was performed, and a few tons of low-grade copper ore were marketed.

On November 4 all mining operations were suspended at the Red Ledge and South Peacock mines, and on November 25 the Idaho Copper Co. was placed in receivership. The complaint for receivership was filed by the Boise Association of Credit Men, and alleged disagreements between the Cooley Butler faction (originally Idaho Copper Co., Ltd.) and the George Graham Rice faction (originally Idaho Copper Corporation).

James Glass and associates, of Butte, Montana, acquired the Peacock mine under a lease and option. They reconstructed the camp buildings and commenced development work. Kleinschmidt Bros., of Helena, Montana, repaired the mine buildings and commenced work at the Blue Jacket group. The Lime Peak Copper Co., on Snake River, maintained work throughout the year. Prospectors in the Hornet Creek and Indian Creek sections were active. Also, the mica deposits in the Council Mountain district received more attention than in previous years.

Bannock County

During the year, the Idaho Manganese Mining Co. produced and marketed a large tonnage of high-grade manganese ore, in addition to performing considerable development work. A small amount of development work was performed by lessees on the property owned by the Cleveland Mining Corporation. The Lava Manganese Mining Co. and William Godfrey developed their manganese properties during the summer months.

Bear Lake County

The San Francisco Chemical Co. was the only phosphate mine in the county which was active during the year. This company operated its mine for nine months and produced a large tonnage of rock which was shipped to San Francisco, California, where it was converted into superphosphate in a plant owned by the company.

One of the most outstanding publications issued by the U. S. Geological Survey in recent years is Professional Paper 152, by G. R. Mansfield: "Geography, Geology, and Mineral Resources of Part of Southeastern Idaho". This appeared during 1927; it is profusely illustrated with pictures, maps, and diagrams, and describes in detail the subjects mentioned in its title, dealing especially with the immense areas of phosphate rock found in this county.

Blaine County

The two most noteworthy events during 1927 were the reopening by the Triumph Development Co. of the old Triumph mine, which adjoins the North Star of the Federal M. & S. Co., and the Mathews discovery on Kelly Mountain, west of Hailey. The success of the Triumph was a reward to a small organization for having the courage to reopen a mine which had lain dormant for over 30 years and had been rejected by some large mining companies. After the mine was unwatered, new buildings and head-frame were constructed; mining equipment was installed, the shaft repaired, and production started at the rate of 50 tons per day; this was later increased to 75 tons. The ore is shipped to a custom milling plant at Salt Lake City, Utah, where two concentrates are made—a lead-silver and a zinc. The reopening and subsequent profitable operation of this mine were made possible by selective flotation, whereby mixed lead-zinc ores can now be treated which could not be separated by gravity concentration methods.

The Mathews disclosure was a new discovery made during the early part of the year. The large amount of surface trenching which was done on the vein opened it to a sufficient extent to permit this discovery to be classed as one of importance. After the trenching was completed, the property was incorporated as the Liberty Gem Mines, Inc. Camp buildings were constructed; mine equipment was installed; and work was started on a 100-foot vertical shaft.

In addition to the Triumph Development Co. and the Liberty Gem Mines, Inc., new companies and enterprises which started during the year were: The Homestake Mines Corporation, at the Homestake group north of Ketchum; the Daisy Mining & Milling Co., Ltd., west of Hailey in the "gold belt" district; and the large number of new locations and subsequent prospecting in the vicinity of the Mathews discovery.

The Independence mine, owned by the Federal M. & S. Co., was operated throughout the year by lessees who marketed a large tonnage of high-grade hand-sorted ore, in addition to developing new ore in the mine. The Hailey Bonanza Mining Co. further explored its mine in search for the continuation

of the oreshoot. Others who continued to develop their mines throughout the year were: The Idaho Democrat Mine, Inc., at the old Democrat mine and at a prospect near the Mathews discovery; the Wood River Mining Co., on Trail Creek west of Ketchum; the Eureka Development Co., Ltd., at the Eureka and Idahoan groups in the Bullion district; F. B. Felt, at the Parker mine near Ketchum; Peter L. Kent, at the Lone Pine group on Deer Creek and at the Tungad group near the Liberty Gem Mines, Inc.; M. T. Rowland, on the Smuggler group in the Muldoon section; and A. F. Peery, who is operating under lease the famous old Vienna mine in the Sawtooth district and reports encountering some excellent high-grade silver ore. Harold Boericke, who was operating the Norris-O'Connor group in the Muldoon section, continued active development work for four months, after which the enterprise was abandoned and the equipment removed. The famous Minnie Moore mine, which was the scene of the most extensive prospecting campaign in the county during the years 1923 to 1927, was abandoned in 1927.

The Radiore process of electrical exploration was applied to two properties in December, after which steps were taken toward starting mine development work based on the findings of these surveys.

Boise County

During 1927 this county witnessed a large increase in new mine plant installations, new development work, and new enterprises; also many of the old companies expanded their operations over those of the previous year. Much scouting by large companies and others looking for new mines was in evidence throughout the year, and two important transactions would have taken place, had it been possible for the intending purchasers to procure the properties under favorable terms.

The largest new construction was the small dredge built by the Crooked River Mining Co. at its Kempner Ranch property on Crooked River. However, as the dredge was not properly designed or constructed, it ended in a miserable failure and an almost total loss of the money invested.

The principal new event of importance was the acquisition of the Gold Hill & Iowa mine at Quartzburg by the Talache Mines, Inc. After negotiations were completed in March, new pumps were installed and unwatering of the mine continued to completion. In addition to this, a large amount of work was performed on the 100-foot level. After unwatering to the 600-foot level was completed, new sinking equipment was installed and work started on sinking a winze to the 750-foot level. Besides proving the mine at this additional depth, the company proposes to perform a large amount of exploratory work on the upper levels.

The Idawa Gold Mining Co. maintained capacity production at its Belshazzar mine throughout the year, in addition to greatly improving its mine camp, buildings, and equipment. The amount of gold produced by this company gives it the rank of the largest gold-producing mine in the State, as well as proving that the "old" mines in this county still offer excellent opportunities.

In October the Ideal Mining Co., a new organization, acquired the old Osborne mine near Horseshoe Bend. The camp buildings were repaired, mining equipment was installed, and unwatering and rehabilitation of the shaft started.

The Gold Dredging and Power Corporation changed its dredge from steam to electrically driven, and conducted dredging operations for a period of seven months.

In addition to performing considerable underground work, the Mineral Mining Co. conducted a large amount of investigation on the flotation of its ores. Practically all the equipment from its mill, which was completed in October, 1926, was removed, preparatory to installing new milling methods after further financing.

The Boise Placer Co. conducted mining operations for 108 days during the high-water period, after which its mine plant and equipment were overhauled and repaired in preparation for the next year.

In December D. W. Southworth acquired a lease and option on the Mountain Chief mine, owned by the National Mining & Development Co., Ltd., and commenced repairing and retimbering the principal tunnels.

Bonner County

The discovery of high-grade lead-silver ore in 1906 near Clark Fork by the Whitedell Mining & Development Co. was further developed in 1917 and proved to be one of the important new discoveries to be made in the State in recent years. During the year a three-mile electric transmission line was constructed, a large electrically-driven compressor and new shaft sinking equipment were installed, and new mine buildings completed. A large amount of mine development work was done, and a substantial tonnage of ore produced and marketed, the principal part of which was taken out by lessees. The excellent manner in which this property is responding to exploration progresses has been responsible for attracting a large amount of new development work and prospecting to this section of the county.

Numerous prospectors were busy throughout the year, and a number of new companies were organized and commenced operations. The principal one of these was the Hope Mining Co. which acquired the Lucky K mine. Additional mining equipment was installed, a large amount of development work done, and a number of carloads of high-grade lead-silver ore were shipped, some of which was taken out by lessees. In addition to large new companies, the Lawrence Consolidated Mining Co. conducted operations throughout the year, so as a whole this section of Bonner County witnessed an active and prosperous year.

The International Portland Cement Co. Ltd. at its limestone quarry near Lakeview continues to be the largest mining operation in the county. During 1917 the mine plant and equipment were greatly enlarged. A large tonnage of rock was mined and shipped to Spokane, Washington, where it is used in making Portland cement. This company's mine and plant are the most important of their kind in the State.

Another important enterprise in the Lakeview district is that of the Idaho Tower Mines, Inc. Throughout the year this company maintained active development work with a large crew of men. The work consisted of sinking the shaft to the 1,150-foot level and performing other lines of development on intermediate levels. Three substantial bodies of ore were developed, and at the close of the year the mine was being put into shape for active production.

Prospectors and small development companies in the Priest Lake district were active throughout the year, the principal ones being the Kootenai Mining Co., F. F. Vandeveer and J. W. Beardmore at the Inez Grace, and Joseph Sacramanna at the Silver King. Many others increased their lead-silver work, and there continues to be an active search for new mines.

Boundary County

The year 1917 witnessed little improvement in this county. No new discoveries were made, the operating companies did not expand their work, and no new enterprises were started. The Continental mine at Porthill, owned by the Idaho Continental Mining Co., was operated throughout the year by the Idaho Continental Co. On an average about 40 men were continuously employed, and a large tonnage was produced and marketed. This mine is one of the largest lead producers in the State, and its continuous operation and output are big factors in the prosperity of the county.

The Leonia Gold Mining Co., which is a reorganization of the Idaho Gold & Ruby Mining Co., maintained a pay-roll of approximately forty men during the year and performed considerable new work, but where the money was derived from stock assessments.

The Brush Lake Mines Co., the Golden Sceptre Mining Co., Ltd., the Monte Gold-Copper M. & M. Co., Ltd., and the International Molybdenum Co. expended their development operations over those of the previous year.

Butte County

Butte is one of the principal lead-silver producing counties in southern Idaho, yet its diversified mineral resources and favorable geological conditions are such that it warrants more extensive development and exploration than it has been receiving during the past few years. However, the county witnessed a large increase in lead-silver production and a small increase in new activities during 1927, as compared with the previous year.

The Wilbert Mining Co., Ltd., which was the fourth largest lead-silver producing mine in southern Idaho during 1927, maintained production throughout the year. The largest part of its ore was derived from a depth of 1200 feet on the vein. This company also performed a large amount of new development work. Its mine is in the Dome district, 42 miles northeast of Arco. The Badger Mines Co. was active throughout the year; and Lew Johnson installed a small gas-driven compressor at his property, preparatory to driving a 900-foot tunnel. Both these properties are near the Wilbert mine.

The Horn Silver Consolidated Mines Co., controlled by the Dahle brothers, who perform all work done by this company, extended its crosscut tunnel 1200 feet during the year. These men are deserving of success for their hard work and the intelligent manner in which they are developing their mine, which is located in Lava Creek district. Others who were active in this district throughout the year were two new companies whose organization is unknown, also P. J. McGinniss at his Silver Bell group, and the Butte Antelope Mining Co. at the Foot Wall mine on Antelope Creek.

Camas County

The mines in the Carrietown section of the Little Smoky district have a good production record to their credit, and their latent possibilities still offer excellent opportunities for profitable mines, either through the apparent possibility in some mines for finding the ore beyond the faults which caused a suspension of operations in the early nineties, or, in other mines, of adapting modern flotation methods to the large bodies of proven low-grade ore.

During 1927 this county witnessed more new mine development and new enterprises than at any time in the past 10 years. Many of these are based on substantial mine foundations with excellent possibilities for profitable mines. An important factor in furthering mineral development in this county was the seven-mile extension which the Sawtooth National Forest Service made to its Fairfield-Carrietown highway, of which only five miles toward Carrietown remain to be constructed. This work was done in cooperation with the Idaho Lead Co. and the county commissioners of Camas County.

The principal new enterprises were: The Consolidated Mines Syndicate at the Princess-Blue Ribbon group; the Idaho Lead Co. at the Silver Star; the Richard Allen Mines Co. near Soldier; the development of the Stormy-Galore group by Robert Leaper and associates; and the drilling of the placer mines on the South Fork of the Boise River by a Spokane, Washington, company.

Lessees at the Carrie Leonard mine, Fletcher and Hosac at the Horn Silver mine, and the Perseverance Mines Co., Inc., at the Five Points mine were active throughout the summer months.

Caribou County

The Anaconda Copper Mining Co. maintained production throughout the year at its phosphate mine at the rate of 200 tons per day, in addition to constructing a large number of new homes for its employees. This company's mine plant is the largest in the State, and possibly in the United States, for the mining of this mineral. The rock mined is shipped to Anaconda, Montana, where it is converted into concentrated phosphatic fertilizer, the finished product being known as Anaconda treble superphosphate.

During the year, the Great Western Oil Co., whose property is located in the eastern part of the county near the Wyoming line, deepened its well a few feet under contract. At the close of the year, it had reached a total depth of about 2700 feet.

development work, which resulted in exposing considerable additional ore, and constructed a small concentrating mill; the Sulphide Mining Co., on Salmon River about two miles below Clayton, drove its projected 900-foot tunnel about 400 feet; the Mule Shoe Mining Co., on the opposite side of the Salmon River from the Sulphide Mining Co.'s property, employed three men throughout the year in driving a lower tunnel; and the Golden Center Mining Co., which acquired the Black Rock group at the head of Big Lost River near the Blaine County line, constructed about four miles of new road at a high cost and purchased two small gas-driven compressors with complete mining equipment, but were unable to complete the road and install the equipment before winter set in. Prior to commencing operations at the Black Rock, this company performed a large amount of development work on the Williams-Dryden group in the Bay Horse district near Clayton.

The Empire mine at Mackay, owned by the Idaho Metals Co., continues to hold first place as the largest copper mine in the State. Active mining and milling operations were maintained throughout the year under the leasing system. This system does not permit the further development work which is necessary and fully warranted.

The MacGinniss-Walker Metals Co. employed six men throughout the year in development work on the Phi Kappa group near the head of Big Lost River. Press reports averred that a large body of ore was disclosed by this work.

Lessees on the Blue Jay mine near Mackay, owned by the White Knob Mining Co., and on the Ramshorn, Pacific, and Beardsley-Excelsior mines near Bay Horse were active throughout the year, all of them producing and marketing a substantial tonnage of high-grade lead-silver ore.

The Kay Development Co., Ltd., which is operating the Horse Shoe mine of the Horse Shoe Copper Co., Ltd., near Mackay, conducted active operations during the early part of the year. This work disclosed a large body of complex lead-zinc ore.

Elmore County

The South Park Dredging Co. at Featherville continues to be the largest mining enterprise in the county. The dredge was operated the greater part of the year, and the tailing stacker and digging ladder were lengthened to permit digging at a greater depth. The record this enterprise is making is a big factor in the welfare of the district and is attracting attention to the mineral resources and possibilities of this part of the State.

The Rocky Bar district witnessed a little improvement over that of the previous year in the starting of new enterprises, although no work of any importance was performed.

The Atlanta district was more active, witnessing more investigations and the beginning of more new enterprises than at any time during the past 10 years. Two old deep mines resumed operations under new organizations, and plant construction on a hydraulic placer mine was maintained by the La Trinidad Mining Co. throughout the summer months.

The Franklin Consolidated Gold Mines Co. at the old Franklin mine in the Pine Grove district was idle during most of the year, on account of litigation.

The Omo Mines Corporation at the Mountain View mine and the S. E. Mining Co., both at Pine; the Apex Gold Mining Co. and the Blake's Gulch Gold Mining Co., both at Rocky Bar, actively developed their mines throughout the year.

Gem County

The Pearl district, once a famous gold-producing camp, and a few undeveloped sections where a small amount of prospecting has been done are the only mineralized areas in Gem County. The principal minerals occurring in these districts are gold, silver, lead, zinc, copper, and arsenic. Gold predominates, and occurs in a free-milling quartz and combined with the sulphides of lead, zinc, and iron. The deposits containing the complex

sulphide ore are of commercial importance but have not been mined, as transportation and the metallurgical methods in use at the time the Pearl district was active prevented profitable operations. The sulphide ores are amenable to modern flotation methods, and, as there is a large tonnage in many of the old mines that are lying dormant, they will again become profitable operations when properly equipped, financed, and managed.

During the year much publicity was given to the possibility of finding petroleum in this county. A preliminary investigation of conditions was made by geologists of the Idaho Bureau of Mines and Geology in 1926. These men collected a large amount of fossil material, which was examined by the U. S. Geological Survey. The Bureau summarized its findings with: "* * * It appears that the hoped-for evidence of marine strata, with which oil throughout the world is associated, has not yet been found."

The Lincoln Mine Operating Co., which acquired the old Lincoln mine in 1926 and commenced its rehabilitation, was active throughout the year. The reconstruction of the mill was completed and a few tons of high-grade concentrate were marketed, the ore being derived from the upper part of the vein through a small secondary shaft. After the removal of this ore, mining operations were suspended and work was started on reopening the main shaft.

Idaho County

The gradual return to a more normal condition, under which gold mining is again becoming profitable, was reflected in this county during the year by a small, though substantial, increase in mining operations, investigations, and new enterprises. The most important of these was an investigation of the so-called dikes—low-grade free-milling gold ore—in the Elk City district by two large mining organizations. These investigations extended over a period of 60 days, and it was reported that the properties examined were favorably recommended.

The Empire Metals Co., owning 27 claims, built about four miles of road, constructed new cabins, installed a laboratory, and drove about 2000 feet of open cuts and tunnels. Seven other companies that are holding large acreages on the "dike zones" performed the necessary annual labor.

Mining in the Ten Mile district witnessed a decided impetus during 1927, in anticipation of the completion of the Elk City highway to Huston's in 1928, which will give an outlet to the mines in this district. Four new companies were organized and commenced operations; a large number of new claims were located; more work was performed; and the influx of prospectors and others was sufficient to justify the re-establishment of the post office at Golden and the mail route into it. The principal new companies and operations were: The Buffalo-Idaho Mining Co. at the Mackey group, where a new gas-driven compressor was installed and active development work started; the Golden Mining & Power Co., whose property was optioned late in the year and work started; Miller & Sons, at the Yellow Pine group, who conducted work throughout the year which resulted in the development of some high-grade ore; and the optioning of the Pioneer Hill group at Newsome, owned by Timin and Braig, to Seattle, Washington, interests. A. S. Johnson at the Franklin mine; F. O. Muller of Clarkston, Washington, at the Lone Pine group; the Sphinx Gold Mining Co.; and William Huntley of Spokane, Washington, at the New York mine, were active throughout the year; Huntley's activities included milling operations.

Prospecting and development work in the Orogrande district exceeded that of 1926. Drilling operations to test the placer deposits on Crooked River were started, and one company conducted a small amount of hydraulicking. Discovery of new veins containing high gold values was reported by Frank Peck, a prospector, and by the Una Mine Co.

In the Dixie district the Mammoth Mine Corporation resumed operations with a small crew; Henry S. Hazlitt at the Pacific group operated his mill for a few weeks; and a new discovery by George L. Esh and associates caused considerable attention to be directed toward the district.

The American Eagle mine, owned by the Homestake Gold Mining Co., was operated for a few months by lessees; and the discovery of lead-silver ore in Success Gulch was reported. Some work was done also at the Black Pine group. These properties are all in the Elk City district.

The Florence district was more active than at any time in the past few years. There was an increase in company operations, as well as in prospecting, and one new discovery was reported.

The Garner Electric Range Co. was a new entry into the county. This company is interested in the development of the talc deposits on Little Salmon River near Riggins. Two grades of talc were being developed: The massive, which is carved into various shapes for use in electrical appliances; and the powdered variety.

The Warren district witnessed but little new work during the year, although it was reported that the Unity Gold Mines Co. at Warren, which was idle throughout 1926, resumed operations.

The Marshall Lake district was a little more active than in 1926. Two companies, whose organization is unknown, and the Old Kentuck Mining & Milling Co., a new company, conducted prospecting operations during the summer months. The Holte Mining Co. performed a little maintenance work in addition to the annual labor requirements.

Several placer mines in the Simpson district along the Salmon River, near Lucile and Riggins, were the scene of active operations and of small plant installations. The funds for this work were derived from active stock-selling campaigns. The Irbis Placer Co. constructed a 200-horsepower hydroelectric plant and new camp buildings, and installed power-driven pumps for hydraulicking; the Ruby-Gold Development Co. constructed a small gas-driven concentrating mill, designed to recover the "black sands" contained in its gravel deposit.

Kootenai County

During the year surveys for a logging railroad were run up the Little North Fork River. The completion of this railroad will greatly stimulate mining and encourage the resumption of activities at those mines where the ore has been proved but operation has been impossible, on account of transportation difficulties. The companies in the Little North Fork section were idle throughout the year. Those on the West Fork of Pine Creek, near the Shoshone County line, performed the necessary annual labor.

One new lead discovery was reported in the Fourth of July Canyon section of this county, and much additional interest was shown by the old companies in the properties they were operating. The greater part of the work was confined to the sections adjacent to Coeur d'Alene Lake, particularly the Wolf Lodge and Beauty Bay districts, in which the Caribou Mining Co., Ltd.; the Beauty Bay Mining Co.; the Silver Tip Mining Association; and the Blue Bird Mining Co. were the most active.

Latah County

During 1927, the Troy Mica Co., a new organization at Avon, conducted a small amount of work, and produced and marketed a few tons of mica. The Idaho Ceramic Materials Co., at Troy, was organized to exploit the feldspar deposits in that vicinity.

A small amount of work has been done on the copper deposits in the Hoodoo district, from which several carloads of copper ore have been marketed. The heavy overgrowth and deep soil have hindered prospecting and development work, but the discoveries that have been made and work done on them have proved that the deposits justify development, and that there are still possibilities for the discovery of additional veins. The Copper Mountain Mining Co. and the Gold Nugget Mining Co. performed a small amount of development work during the year.

Lemhi County

In point of production and men employed, Gilmore is the most active mining camp in Idaho, outside the Coeur d'Alene district. The Pittsburgh-Idaho mine of the United Idaho Mining Co., a subsidiary of the United States Smelting, Refining & Mining Co., is the largest lead-producing mine and maintains the second largest payroll in southern Idaho. During the year this company performed a large amount of development work and improved its mine plant, in addition to producing a large tonnage of high-grade direct-shipping ore, some of it being obtained by lessees. Part of the ore mined under company operation was derived from the 800-foot level, the greatest depth ever attained in the Gilmore district. The Allie mine, owned by the Gilmore Mercantile Co. and operated by lessees throughout the year, is developing into one of the largest lead mines in southern Idaho. A large amount of new ore was exposed and opened during the year and a substantial tonnage, derived principally from development work, was shipped. A few lessees at the Latest Out mine maintained development work throughout the year. Much of the new ore developed in this district during 1927 was a result of successfully solving a faulting problem which had previously been interpreted as a termination of the ore.

The Spring Mountain and Nicholia districts, whose supply point is Gilmore, witnessed a little increase in activity over that of the previous year. The Spring Mountain Mining Co., a new organization at the Big Windy mine, repaired the mine buildings, performed a small amount of development work, and produced and marketed a small tonnage of lead-silver ore. Lessees at the old Viola mine were active the entire year.

The Leadore district witnessed a large amount of scouting and mine examination by people seeking new lead-silver mines, but, except for their necessary annual labor, practically all of the mines were idle.

In the vicinity of Salmon there was a marked improvement in mining conditions. More new companies were organized and started operations and there were more investigations than at any time during the past few years. All of the old companies were active the greater part of the year.

In the Leesburg district the principal new activities of importance were concerned with the revival of hydraulic placer mining. Two new enterprises constructed ditches, dams, and flumes, installed mining equipment and commenced hydraulicking. These were: The Bonanza Placers, Inc., and H. F. Byram at the McNutt placers on Moose Creek. One other company purchased some hydraulic equipment which it proposes to install during 1928. The number of new locations filed on placer claims exceeded that of any other year during the past decade.

The Harmony Mines Co. was active for a period of three months in the early part of the year; during this time new ore-bins and a sorting plant were added to the mill, the construction of a new aerial tramway was completed, further underground exploration work was done, a small tonnage of ore was produced and the resultant concentrate marketed, after which operations were suspended pending further financing through the sale of bonds.

During the first part of the year the Pope-Shenon mine was developed through the lower or No. 6 tunnel, by lessees. This work was successful in opening considerable new ore, after which the lease was organized as the Winder-Stillman Copper Co. The reconstruction of the mill was financed, and at the close of the year the mine and mill were ready for continuous production.

The Uncle Sam Mining & Development Co., Ltd., near Tendoy, which is owned and financed by local people, actively prosecuted the driving of a lower tunnel throughout the year.

A new entry into the county was the Gold Ore Mines of Idaho, Inc., at the old Queen of the Hills mine eight miles northeast of Salmon. During the year the mine plant and mill, which were installed in 1909, were rehabilitated; a small amount of new equipment was added; part of the old mine workings were reopened; and a small amount of new development work was performed.

In the Shoup district, the Kentuck Mining Co. performed its necessary annual labor. Also the Western Reward Mining Co., a new organization at the old Monolith, now known as the Merry Widow, conducted a small amount of exploratory work during the early part of the year.

The Patterson Mines Corporation, which was incorporated during the year, acquired under lease and option the Ima mine on Patterson Creek, repaired the power plant and mill, and commenced development work in December.

Owyhee County

Owyhee County continues to attract prospectors and investigators seeking new enterprises. The fact that this county still offers excellent opportunities was proved during 1927 by the number of engineers who visited the county, as well as by the new construction and new enterprises which were initiated.

The largest expenditure which has been made on new construction in this county for over five years was that of the American Gold Dredging Corporation on its new flume-type dredge, new mine camp, and four miles of electric transmission line, at its property on Meadow Creek near Triangle. The dredge was designed, manufactured, and erected by the Yuba Manufacturing Co. It is equipped with 2½-cubic-foot close-connected buckets, and is electrically driven and controlled.

New mills to be constructed during the year were those of the Owyhee Gold Mining Co., on War Eagle Mountain, and the Idaho Development Co., at the Evans mine on Poison Creek. Each of these companies completed its mill buildings, purchased and partly installed the machinery, but neither was ready for operation at the close of the year. In addition to the mills, new camp buildings were erected. The Idaho Development Co. installed a gas-driven hoist and compressor, and complete mining equipment.

The Golconda group in the South Mountain district, owned by the Golconda Group Mining Co., was under option for a few months, during which time a small gas-driven compressor and complete small mining equipment were installed. The geology and mineral resources of the district in which this mine is located are fully described in a new publication issued by the Idaho Bureau of Mines and Geology: Pamphlet No. 22, "The Geology and Ore Deposits of the South Mountain Mining District, Owyhee County, Idaho," by Robert E. Sorenson.

The Great Western Mines Co., whose property is on War Eagle Mountain, maintained active development work throughout a large part of the year. This company is deserving of success for the honest and persistent effort it has been displaying in developing its mine for the past seven years.

The Never Sweat Mining Co. operated its mill for a few days on ore which was extracted under contract. The Hoosier Leasing Co., on the Alpine vein in the Trade Dollar, produced and marketed a small amount of high-grade ore. The Castle Creek Mining & Milling Co. resumed operations the latter part of the year, after perfecting a reorganization of the company.

New companies entering the county during the year were: The Afterthought Mining Co., on the Afterthought; the Big Four Development Co., on the Cumberland; and the War Eagle Mining & Milling Co., on the Red Jacket group. All these are located on War Eagle Mountain.

Drilling for "platinum" in the Bruneau section, in the artesian basin of Little Valley, was active during the early part of the year. Press reports indicated that results were discouraging, and that practically all of the enterprises were abandoned.

Payette County

The only known mineral resources of this county are diatomaceous earth; various clays of excellent quality; and gas, which has been developed at Payette.

Late in 1926 the Idaho Petroleum Co. at Payette acquired the property and equipment owned by the Idaho Oil & Gas Co., whose well was 1100 feet deep. Work was then started sinking the well to a further depth and was

carried on intermittently throughout 1927, until a total depth of 1800 feet was gained. The encountering of gas was reported at the depths of 1485 and 1550 feet.

Power County

The most active development work done in this county during the year was that of the Independent Mining Co. at its lead-silver prospect near Rockland. The mine is equipped with small machinery, and nine men were employed in sinking a shaft.

The Gem State Petroleum Co. extended its well 325 feet; and the Rockland Valley Oil Co. added 450 feet to its bore.

A few placer mines along the Snake River produced and marketed a small amount of placer gold.

Shoshone County

During 1927 this county witnessed more new development, the starting of more new enterprises, more new dividend-paying and profitably operating mines, and a larger production than at any time since the peak of wartime activities. As many of the new enterprises are based on substantial mine foundations, the possibility for adding additional new producers to the present long list of profitable operations is greatly increased. All the large mines conducted active development work throughout the year which proved the extent of their ore bodies at greater depth and laterally. The increased ore reserves and the improvements added to mine, mill, and smelting plants have enhanced the physical condition and future life of the mines, as well as insuring a long period of prosperity for the Coeur d'Alene district.

The principal producing mines in which the ore reserves were increased by new development work during the year were: The Bunker Hill mine of the Bunker Hill & Sullivan M. & C. Co.; the Hecla mine of the Hecla Mining Co.; the Morning and Page mines of the Federal M. & S. Co.; the Tamarack mine of the Tamarack & Custer Consolidated Mining Co.; the Stratton and Panhandle mines of the Strattons Mines Co.; the Sidney mine of the Sidney Leasing Co.; the Sunshine mine of the Sunshine Mining Co.; the Gold Hunter mine of the Gold Hunter Mines, Inc.; the Galena mine of the Callahan Zinc-Lead Co.; the Jack Waite mine of the Jack Waite Mining Co.; and the Constitution mine of the Constitution Mining & Milling Co.

Companies which entered the ranks of dividend payers during the year were: The Sunshine Mining Co. at its Sunshine mine; and the Sidney Leasing Co. at the Sidney mine. Mines which were placed on a profitable operating basis were: The Galena mine of the Callahan Zinc-Lead Co.; and the Page mine of the Federal M. & S. Co.

The principal new ore disclosures and discoveries of importance were those at the Tamarack mine of the Tamarack & Custer Consolidated Mining Co.; the Dickens mine of the Dickens Consolidated Mines Co.; the Sherman mine of the Sherman Lead Co.; the Douglas mine of the Douglas Mining Co.; the Alameda mine of the Alameda Mining Co.; and the Golconda mine of the Golconda Lead Mines.

The most important new construction work maintained throughout the year was at the electrolytic zinc plant at Kellogg, which is being built by the Sullivan Mining Co. to treat the zinc-lead ores of the Coeur d'Alene district. The Sullivan Mining Co. is owned jointly by the Bunker Hill & Sullivan M. & C. Co. and the Hecla Mining Co. The Hercules mill at Wallace, owned by the Hercules Mining Co., was rebuilt, a zinc flotation unit added, and it was converted into a custom mill which now offers milling facilities for small mines without mills in the vicinity of Wallace. The mill on Big Creek which was formerly owned by the Big Creek Mining Co., Ltd., whose property was acquired under foreclosure proceedings by the Bunker Hill & Sullivan M. & C. Co., was entirely rebuilt to treat the ore from the Bunker Hill's Crescent mine. This mill is now known as the Crescent. The Cedar Creek Mining & Development Co., Ltd., constructed a new mill at its property in the Summit district. The design of this mill followed that of the Galena mill of the Callahan Zinc-Lead Co. and includes fine grinding with lead and zinc units.

The largest and most important expenditures made in Shoshone County during the year in mine development and new exploration work were those of the Hercules Mining Co. and its allied companies, all of which are controlled by Jerome J. Day and Harry L. Day, at the following operating mining companies or mines: Tamarack & Custer Consolidated Mining Co.; Strattons Mines Co.; Ambergris Mines Co.; Sherman Lead Co.; the Maher-Hearn group; Honolulu Mining Co.; Humming Bird Mining Co., and Roanoke Mining Co. All of these mines are in favorable locations, and, as the work is being actively and intelligently directed, there are excellent possibilities for some of them to become important producers.

Working conditions throughout the Coeur d'Alene district are exceptionally favorable. All the mines are well ventilated, and the operators devote much time and thought to making the mines safe and keeping them in such condition that the men can do a full day's work without expending the energy that is necessary in poorly ventilated mines. Both attention and money have been devoted to this phase of the operations, and it can safely be said that these are the best ventilated mines in the country. Serious attention is given not only to ventilation, but to safety, recreation, and general welfare.. The value of the welfare work to company employees and to the communities has been demonstrated through the Morning Club, erected at Mullan by the Federal M. & S. Co.; the Y. M. C. A. Building at Kellogg, donated by the Bunker Hill & Sullivan M. & C. Co.; and the Hercules Hall at Burke, erected by the Hercules Mining Co. Another outstanding contribution to this work is the base-ball field—located a short distance above the town of Burke and named Hearn Field in honor of W. F. Hearn of that town—which the Hecla Mining Co. constructed and donated to the community during the year. The building of the field involved engineering and construction difficulties, as level land in this vicinity is unknown; it was done in the interests of intermine base-ball teams, which are sponsored by all the large mines and between which there is keen rivalry.



HEARN FIELD: HECLA MINING CO.

Favorable working conditions attract first-class workmen to the district who remain permanently, with the result that the labor turnover is always at a low point. The wage scale is the highest of any mining camp in the United States, averaging from $1.00 to $1.50 a day above any other district. The scale is based on the price of lead, so that when this metal is selling at a high price, the workmen benefit, as well as the mining companies. As all the operators have adopted the sliding scale, there is no hesitation in granting an increase in wages with the increase in the price of lead; and it follows

that there are no labor controversies or agitation. This high wage scale is also reflected in the general prosperity of the county, which during 1927 was not exceeded by any other county or district in the State.

The outstanding new developments, construction and enterprises can best be reviewed through an outline by companies.

The extensive development work which was done during 1927 in the Bunker Hill mine greatly increased its resources. The completion of the shaft to the 1900-foot level and the opening of the ore bodies at that depth, where the ore and geological conditions were found to be normal, added much to the life of the mine which is estimated in decades instead of in years. The Bunker Hill & Sullivan Mining & Concentrating Co., because of the magnitude of the Bunker Hill mine, has become more of a manufacturing than a mining operation, and with its smelter, mills, experimental plants, and organization, is one of the largest of its kind in the world. Its stock was listed on the New York Curb Exchange during the latter part of 1926; in January, 1927, this stock sold at a low of $67.50 per share and in September it had risen to a high of $156.00 per share. This company maintained its usual production record throughout the year, and the many plant betterments which were added greatly increased the efficiency of the enterprise. The principal betterments were the remodeling of the Sweeny mill, and enlargements and improvements at the smelter and the surface plant of the mine. The Tainton electro-chemical experimental lead-leaching plant was modified and improved, and many details perfected which add greatly to the importance of the process. In addition to extensive development work in the Bunker Hill mine, this company was actively engaged in prospecting and developing other properties throughout the Coeur d'Alene district, in Valley County, and in Nevada, Alaska, and Canada. At one of these, the Crescent in Shoshone County, the old mill of the Big Creek Mining Co. was acquired and rebuilt for the purpose of milling the ore from this mine.

The Hecla Mining Co., which is recognized as one of the principal lead-silver producing companies of the United States, greatly increased its ore reserves and resources in the Hecla mine. The vein was further explored on the 2800-foot level and work was started in sinking the main shaft to this level. The mine and mill plants were enlarged and improved, and the mine maintained in first-class condition. At the old Tiger-Poorman mine, which was purchased in 1920, machinery and equipment were installed and work started on unwatering it to the 600-foot level. In furtherance of a policy adopted a few years ago to expand its operations, this company developed three properties in the southern part of the State throughout a large part of the year, and an active search for others worthy of development was carried on in Idaho, Nevada, Washington, and Canada.

The Morning mine of the Federal Mining & Smelting Co., which is one of the oldest in the Coeur d'Alene district in point of continuous production, as well as one of the largest lead-silver-zinc mines in the United States, was maintained at capacity production throughout the year. The number of years that this record will continue is unknown, as development work on the 2850 and 3050-foot levels has proved the ore bodies to be larger and more extensive than on any of the upper levels. During the year the 2850-foot level was opened to the full length of the ore, a contract was let for sinking the shaft from the 3050 to the 3450-foot level, and mine and mill plants were greatly enlarged and improved. The change in the milling methods from jigs and tables to fine grinding and flotation resulted in a reduction of milling costs and an increase in recoveries. In addition to the ore mined under company operations, a large tonnage was extracted from the upper levels by a number of lessees; the most important of these is the Sheridan Lease, which employs over 100 men.

The Page mine of the Federal Mining & Smelting Co., in Government Gulch near Kellogg, was reopened in 1926, equipped with mine and milling plants and placed on a producing basis. It was operated throughout 1927 on a profitable production basis. The plants were improved, mine camp was enlarged, the shaft extended 300 feet from the 600 to the 900-foot level, and

the ore bodies were opened to a greater extent on the intermediate levels. The success of this operation can be accredited entirely to flotation, because with the old milling methods it was impossible to mine and mill such low-grade ore at a profit. The average metal content of the ore mined during the year was: Lead, 6.93 per cent; zinc, 2.78 per cent; silver, 2.17 ounces.

The Sullivan Mining Co. suspended production at its Star mine, pending completion of its new electrolytic zinc plant at Kellogg, and devoted all its energies to this construction and to underground development work. The 4000-foot level of the Star mine is connected with the 2000-foot level of the Hecla mine by the Star crosscut, which is 8900 feet long. This crosscut made a blind connection with the Star vein at a point 2800 feet below the Star tunnel, and a vertical operating raise is now being driven to connect crosscut and tunnel. During the year this raise was advanced 1500 feet and a connection made with the 800-foot or No. 6 tunnel level of the Morning mine. Also the Hecla mining plant was enlarged to accommodate Star ore. It was expected that the zinc plant would be completed and production resumed in April, 1928.

The Tamarack & Custer Consolidated Mining Co., which is recognized as one of the substantial producing mines of the Coeur d'Alene district, maintained a steady output and an extensive mine development campaign throughout the year. During the early part of the year, the development work resulted in opening up a large, previously unknown ore body on the No. 4 shaft level which was later opened on adjacent levels. The extent and grade of this new ore, as opened up at the close of the year, indicated that many years had been added to the life of the mine.

At the Galena mine of the Callahan Zinc-Lead Co., which was placed on a profitable operating basis late in 1926, capacity output, together with an extensive development campaign, was maintained throughout the year. The new work increased the ore reserves, and late in the year arrangements were completed for opening the mine to an additional depth of 800 feet, from the 1400-foot level to the 2200-foot level. New sinking equipment was installed on the 1400-foot level, and at the close of the year the shaft had been extended to the 1600-foot level. As this mine is located in the so-called "dry belt," or south side of the district, the success it is attaining has been an important factor in stimulating development throughout this area.

The addition of the Sunshine Mining Co. to the list of dividend-paying mines of Shoshone County was one of the most important events of the year, particularly because this company's mine is also situated in the south side of the district. The mine plant and mill were enlarged and improved; a 250-foot inclined winze was sunk from the 500-foot level in the mine, and new hoisting machinery installed for conducting operations through it, also a large amount of lateral development on various levels was performed, which new work greatly increased the ore reserves.

The Sidney, operated by the Sidney Leasing Co., was the second addition to the list of dividend payers during 1927. The fact that this mine, located on Pine Creek, is being operated at a substantial profit with metals at a low price is significant in proving that this section of the Coeur d'Alene district is not without merit, and opinions as to its possbilties are changing. Much credit is due the Bunker Hill & Sullivan M. & C. Co. for the success of this enterprise in having financed the construction of its aerial tramway and given assistance to its operation. In addition to maintaining a constant output throughout the year, the Sidney Leasing Co. sank a 200-foot shaft from No. 6 tunnel, installed a new hoist, performed a large amount of lateral development work, and enlarged the mine camp.

One of the large and active development campaigns conducted during the year and including mine improvements and additions to mine plants was that of the Strattons Mines Co. at the Stratton and Panhandle mines, which also produced and marketed a substantial tonnage of ore. In December this company obtained from the Option Mining Co. a lease on the Ohio claim, and arrangements were completed for developing it from the 200-foot level in the Stratton shaft.

and carried up about 40 feet, the ore being shipped to the local mills for treatment. In order to open sufficient ore to justify the erection of a mill, stoping was discontinued; a 200-foot raise and a 200-foot shaft were started. Before the beginning of this work, a 750-cubic-foot Sullivan electrically-driven compressor, a power line and transformers, electrical storage-battery haulage, two air-driven hoists, complete mining equipment, and mine buildings were installed and erected. Work on the raise and shaft was prosecuted to completion, and at the close of the year the vein was proved to a sufficient extent to warrant the construction of a mill.

One of the principal new mills constructed during the year was the 100-ton flotation concentrator of the Cedar Creek Mining & Development Co., Ltd., at its property in the north side, or Murray section. The mill building was erected and machinery and equipment were installed, but freezing weather had set in before completion, so operations were deferred until early in 1928. In addition to the mill, the company erected new boarding and bunk houses, installed additional mining machinery, and placed the mine in condition for stoping operations.

The Highland-Surprise Consolidated Mining Co. opened its mine to a greater depth, remodeled its mill, and marketed a large tonnage of concentrates during the early part of the year, after which operations were suspended pending completion of the Sullivan electrolytic zinc plant. The operations of this company added materially to the activities of the Pine Creek section.

The United Metals Co. maintained an extensive exploration campaign until October, principally on the Black Bear and Bell groups. This company is holding and developing the mines owned by the Bell Mining Co., the Black Bear Mines Co., the Goodenough Mining Co., and the Western Pacific Mining Co., all of which are located on Canyon Creek near the Frisco mine of the Federal Mining & Smelting Co.

The Lincoln Mining Co., which owns the old Silverado mine about midway between the Sunshine and Galena mines, maintained active development work for a period of six months.

The Atlas Mining Co., which is a consolidation of the Idaho-Carbonate Hill Consolidated Mining Co., the Idaho Giant Mining Co., and the Boulder Creek Mining & Milling Co., Ltd., maintained active work until April, at which time its long tunnel had been advanced to a total length of 7030 feet.

Companies which installed new equipment and conducted development work during all or part of the year were as follows: Evolution Mining Co., at the Evolution mine near Osburn, electrically-driven compressor, hoist, new buildings, and work started; Little Sunshine Mining Co., at the Palmer group on Big Creek, electrically-driven compressor and complete mining equipment installed, and contract let for driving a 2000-foot exploratory crosscut; Wolverine Mining Co., Ltd., electrically-driven compressor and air hoist installed and drifting done at bottom of 200-foot shaft; Bismarck Mining Co., small gas-driven compressor and complete mining equipment installed and work started on a 1200-foot tunnel, of which 700 feet had been driven at the close of the year; Mutual Mines Development Co., power line, transformers, electrically-driven compressor, steel sharpener, and complete equipment installed and active development work performed throughout the year.

Companies which employed more than six men and which conducted development work throughout the year were as follows: Hypotheek Mining & Milling Co., which unwatered its shaft from the 900 to the 1100-foot level, performed a large amount of drifting on the 1100-foot level, and started a raise on the vein to the 900-foot level, also producing and shipping a substantial tonnage of crude ore and concentrate; Ajax Mining Co., which sank a 200-foot shaft at the bottom of which over 1000 feet of drifts on the vein were run (press reports were to the effect that the drifts encountered some good milling ore); Delaware Mines Corporation, which conducted development work and reopened old entries, a small tonnage of ore being produced by lessees; Independence Lead Mines, Ltd., which developed its property on the lowest, or No. 4, level.

Teton County

During the year the Teton Coal Co. completed construction of its tipple; improved and enlarged its mine plant, tunnel, and camp; and produced and marketed the largest tonnage of coal which it has ever mined in any one year. The tipple consists of sizing, screening, sorting, and loading machinery, with the necessary bins; it has a capacity of 1000 tons in 24 hours. Changes in the management and the operating personnel greatly increased the efficiency of the enterprise.

The Superior Coal Mining Co., whose property is adjacent to that of the Teton Coal Co., conducted active development work throughout a large part of the year. This work consisted principally in driving a tunnel to intersect the Brown Bear and one other coal bed.

The Idaho Coal Mining Co., on Horseshoe Creek near the Teton Coal Co.'s property, conducted a small amount of development work throughout the year.

The Tieton Valley Land & Leasing Co., whose well reached a depth of 1325 feet in 1926, encountering a strong flow of gas, was idle throughout the year, on account of inability to finance the project to completion.

Valley County

One of the outstanding disclosures of new ore in 1926 was made in this county by the Bunker Hill & Sullivan Mining & Concentrating Co. at the Hall-Interstate mine in Deadwood Basin. The exposures were in a long crosscut tunnel which intersected the vein approximately 600 feet below the outcrop. At the point of intersection the vein was determined to be approximately 50 feet wide, throughout the largest part of which the ore was of commercial grade. During 1927 this ore was sufficiently explored to warrant building a mill, and construction work was started on a 100-ton flotation concentrator and a 250-horsepower hydroelectric power plant. In addition to this large construction program, new camp buildings were erected; and mine development work, consisting principally of a 700-foot raise to connect the lower and upper tunnels, was maintained. As the Hall-Interstate vein occurs in granite or allied rocks, this enterprise is of value to the State, as it is stimulating prospecting and encouraging the investment of capital for the development of the many similar occurrences which are found throughout the granite area of central Idaho. In past years, this area has been looked upon with disfavor, but this demonstration fully proves the potentialities of these veins.

One of the largest and most important new enterprises started in the State during the year was that of Fred W. Bradley, president of the Bunker Hill & Sullivan M. & C. Co., as the Yellow Pine Syndicate. This company acquired the Meadow Creek and Cinnabar groups owned by the United Mercury Mines Co. The mine camps at each group were enlarged and improved; a new camp was constructed on the Meadow Creek group; and an active development campaign was inaugurated. The new camp on the Meadow Creek was at a distance of 14,000 feet from the old camp and 500 feet lower in elevation. Throughout this distance the vein has been traced on the surface, and mining work at the new camp is designed to prove the vein at that point. The Meadow Creek vein is a large low-grade gold deposit about 40 feet in width. The Cinnabar group contains a large deposit of mercury ore.

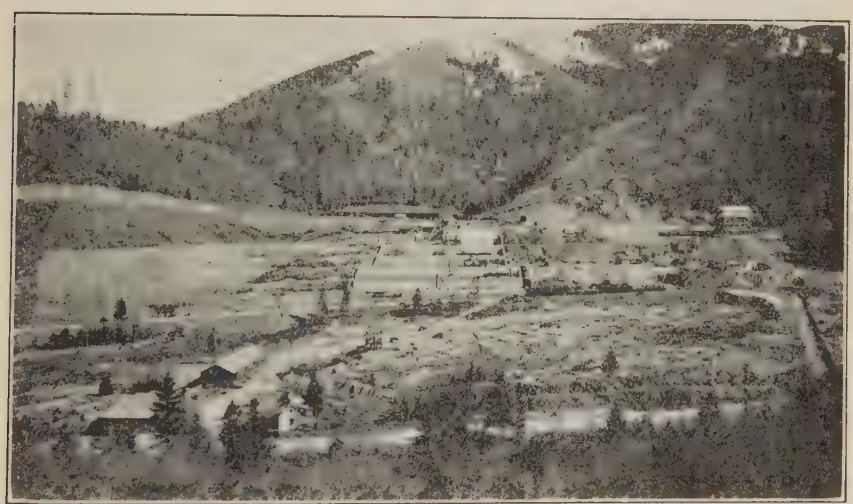
The Profile Gap and Edwardsburg districts witnessed more development work by prospectors, small companies, and investigators than for many years. Two new discoveries of lead-silver ore were reported and three new companies started work; one hydraulic mining enterprise installed a small amount of new equipment.

In the Thunder Mountain district, McRae and Davis maintained active work at the Sunnyside mine throughout the year, and produced and milled a small tonnage of gold ore. An important publication issued in 1927 which is of much value in displaying the possibilities of this district, is Pamphlet 25 of the Idaho Bureau of Mines and Geology (Moscow, Idaho): "Ore Deposits in the Tertiary Lava in the Salmon River Mountains, Idaho," by C. P. Ross.

THE SULLIVAN ELECTROLYTIC ZINC PLANT OF SULLIVAN MINING COMPANY

By U. C. Tainton, Consulting Metallurgist.

The most outstanding new enterprise allied to and affecting the mining industry in Idaho is the Sullivan electrolytic zinc plant of the Sullivan Mining Company at Kellogg. This company is owned jointly by the Bunker Hill & Sullivan M. & C. Company and the Hecla Mining Company. For many years the Bunker Hill & Sullivan M. & C. Company has led the mining world in research on advanced metallurgical problems, and the erection of this plant is the culmination of several years' experimental work in developing a method of treatment for refractory and complex zinc ores. It is entirely a Coeur d'Alene development, not interfering with or intrenching upon other agencies of zinc production, and will stand as an interesting example of how vision,



SULLIVAN ELECTROLYTIC ZINC PLANT ON APRIL 14, 1927

enterprise, and capital can create a new industry from the materials which have long been at hand but which have been regarded as relatively unimportant.

Although the nominal capacity of the unit now under construction is 50 tons of metallic zinc per day, the ultimate capacity will be about 150 tons daily. A large part of the equipment now being installed is sufficient for the projected capacity, while all of it is in excess of the 50-ton figure. The company expects to have the first unit completed and in operation by the first of April, 1928, at which time its expenditure on the plant will have amounted to between $1,250,000 and $1,500,000. The main building has a floor area of 70,000 square feet and a height of 90 feet over the roasters. When fully completed the plant will use 40,000 horse power electrical energy and produce upwards of $7,000,000 worth of metal products in one year. It is situated about three-quarters of a mile southwest of the Bunker Hill lead smelter, on the east side of Government Gulch. This site was chosen not only because it was topographically adapted to the purpose, but also because

it was already provided with railroad tracks at three different levels—one below the plant, one directly above, and one at the base of the smokestack. Another important factor in determining this location for the plant was that the top of the stack, 250 feet high, is almost 1000 feet above the floor of the valley, thus practically eliminating the danger of smoke nuisance.

The main source of zinc ores and concentrates will be mines in the Coeur d'Alene district which have recently been developed for this purpose. The principal one of these is the Star mine, in which millions of tons of zinc-lead-silver ore have been proved. It is owned by the Sullivan Mining Company and is situated near Mullan. This mine is connected with the 2000-foot level of the Hecla Mining Company's shaft by an 8900-foot crosscut through which all mining operations will be conducted. These entries opened the Star vein to a depth of about 4000 feet in Star ground, and the same vein has been opened to an additional depth of 800 feet in the adjoining Morning mine. Zinc concentrate will be drawn also from the Sidney and Douglas mines on Pine Creek which are being actively developed under the aegis of the Bunker Hill & Sullivan M. & C. Company and in which a large tonnage of zinc-lead-silver ore has been proved. It is also anticipated that a zinc concentrate will be made in the mills of the Hecla and Bunker Hill companies, whose lead ores contain in each case a small proportion of recoverable zinc.

The electrolytic zinc process is based on the leaching (dissolving) of zinc ore with sulphuric acid and electrolysis of the resulting zinc sulphate solution. The process is cyclic, in that sulphuric acid is formed in electrolyzing the zinc sulphate. The regenerated acid in the spent electrolyte then becomes the source of the sulphuric acid used in leaching all of the ore.

The Sullivan plant is to employ the Tainton-Pring process, which is based on the use of strong acid in the leaching circuit and high-current density in the electrolysis. This process differs from those in use at Trail, British Columbia, and Great Falls, Montana. These plants use a weak acid and a low-current density, which are being modified. About three years ago the Trail plant was using a maximum acid strength of approximately 6 per cent and a current density of 25 amperes per square foot. The maximum acid strength has now been increased to about 16 per cent and the current density to 40 amperes. In the Sullivan plant the acid strength will be about 28 per cent and the current density 100 amperes per square foot.

The advantages in using as high an acid strength as possible may be summarized as follows:

1. The quantity of the circulating solution is inversely proportional to acid strength.
2. A high acid strength increases the quantity of zinc dissolved from a given ore. With a high acid strength it is practicable to treat low-grade ores from which prohibitively low extractions are obtained under weak acid conditions.
3. A high acid strength operates automatically to purify the solutions by the removal of arsenic, antimony and cobalt.
4. The presence of a large amount of soluble silica in certain ores causes considerable trouble in a low strength acid solution; with a strong acid it is practicable, as well as profitable, to treat these ores.
5. Strong acids permit high-current densities in electrolysis which in turn reduce the size of cell room and the time necessary for making a deposit of zinc.

A broad division of the processes is shown in the accompanying diagrammatic flow sheet (Fig. 1), which is roughly outlined below:

The zinc concentrate, after being roasted, is submitted to a magnetic separation which divides it into two parts. The magnetic part, about 40 per cent of the total, contains most of the iron and the zinc ferrite ($ZnOFe_2O_3$), which is formed in roasting the ore; the non-magnetic part, containing practically all of the zinc, is relatively free from iron. The former is called ferrite and the latter oxide.

Zinc ferrite, which is insoluble in warm dilute sulphuric acid, is the chief source of loss of zinc in the electrolytic process when a weak acid is used. This loss is overcome in the Tainton-Pring process by first adding the ferrite to the hot strong 28 per cent acid, which readily attacks the zinc ferrite, forming zinc and ferric sulphates; the remaining non-magnetic portion, containing the zinc oxide formed in roasting, is then added to this pulp. The oxide neutralizes the unconsumed acid and reacts with the ferric sulphate, forming zinc sulphate and precipitating hydrated ferric oxide. The ferric oxide then acts automatically to purify the solution of arsenic and antimony. As the strong acid dissolves a large amount of iron, the amount of precipitated ferric hydrate is correspondingly large, so the removal of arsenic and antimony is very thorough and complete. After sufficient oxide has been added to neutralize the pulp it is filtered; the filtrate is agitated with metallic zinc to precipitate cadmium, copper and cobalt and is then filtered again, after which the neutral solution goes to the electrolytic cells.

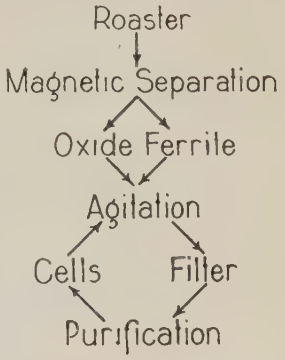


Fig. 1. Diagrammatic flow sheet of Sullivan electrolytic zinc plant

The electrolytic cells operate at an acid range of from 22 to 28 per cent free acid. When the acid reaches the upper limit, a volume of about 25 per cent of the solution is withdrawn from the cells and a corresponding amount of purified neutral solution is added. The neutral solution reduces the acid strength to the lower limit; it is then allowed to rise, by the ordinary course of electrolysis, until it reaches the upper limit of 28 per cent, after which the operation is repeated.

The process and equipment used are more fully described and shown in the accompanying text and diagram of the flow sheet. (Fig. 2.)

The concentrate arrives at the plant in the railroad cars in which it is weighed, and is then dumped into the primary bins. From these bins it passes through a set of disintegrating rolls which break up the lumps; thence it goes into the roasters, five in number, which are the standard Wedge type, 25 feet in outside diameter, each having one drying hearth and seven roasting hearths. All of the arms are air-cooled, and the arms and rabbles in the hottest hearths are made of a special heat-resisting alloy. Each furnace will roast from 35 to 50 tons of concentrate per day.

The roasted ore (calcine) is conveyed from the furnaces by a rotary Jacoby conveyor and is then elevated into the surge bins. Upon being drawn from the surge bins it is screened on 20-mesh Leahy screens. The oversize from the screens is crushed and returned to the furnaces, and the undersize passes to two magnetic separators of the Dings-Wetherill type, each capable of treating about 100 tons of calcine per day. From 35 to 45 per cent of the calcine is picked up by the magnets and dropped into the ferrite bin; the non-magnetic portion, containing the zinc oxide, falls into the oxide bins. From these bins the calcine then goes to three agitators, which are large circular tanks 20 feet in diameter by 14 feet deep, each one capable of treating 70 tons of solution at one charge; each charge, containing approximately 12.5 tons of zinc, remains in the agitator about six hours.

In starting a cycle, return electrolyte containing about 28 per cent acid is pumped into the agitator, where it is heated to approximately 70 degrees Centigrade. A weighed amount of calcine from the ferrite bin is then added and agitation maintained for approximately one hour, after which a small amount of ground manganese dioxide is added to oxidize the ferrous iron to ferric iron. The zinc oxide portion of the calcine, from the oxide bin, is then slowly added until all iron is precipitated and the acid neutralized. The heat generated in the reaction between the sulphuric acid and the oxide raises the temperature of the charge to the boiling point.

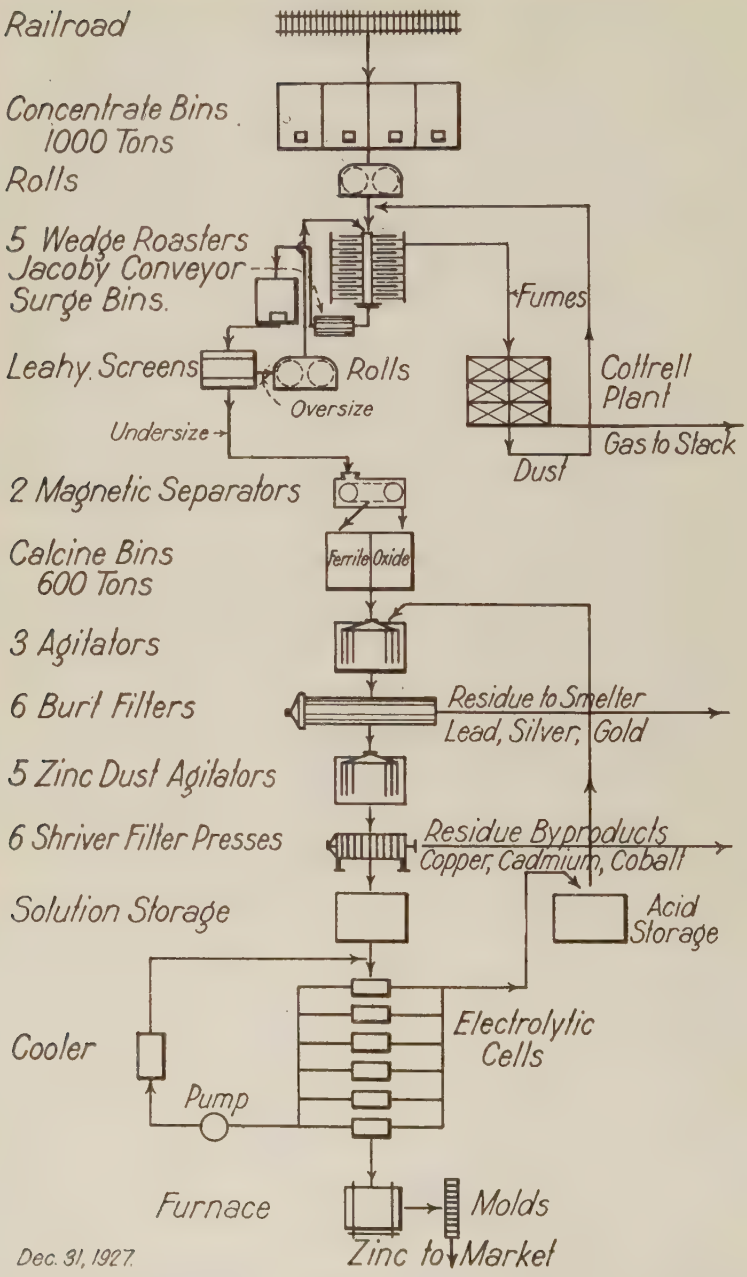


FIG. 2. FLOW SHEET OF SULLIVAN ELECTROLYTIC ZINC PLANT

After the acid is neutralized the charge is filtered to separate the solution containing the zinc, copper, cadmium, and cobalt from the residue, which carries the iron, lead, silver, and gold. The filtrate passes to the zinc-dust agitators, and the residue is sent to the Bunker Hill smelter or the experimental lead-leaching plant.

The filtration is performed in six rotating Burt filters, which are 40 feet long and 5 feet in diameter. Each filter is a cylindrical steel shell with its long axis placed horizontally, and is rotated by a mechanism similar to that employed by tube mills. The filter medium is disposed around the inner periphery, so that the rotation causes a uniform cake to form on the inside of the drum. Each filter holds a charge of about 15 tons of pulp, in which is contained approximately 2½ tons of metallic zinc. During the filtering operation the liquid is expelled by compressed air admitted through the trunnion, after which the residue is washed in the same manner. The Burt filter is especially adapted to this operation, as the soluble materials are almost entirely removed with a minimum amount of wash water; the temperature of the solution is maintained; and the design of the filter permits protection against the corrosive action of the copper sulphate which is in the solution.



SULLIVAN ELECTROLYTIC ZINC PLANT ON OCTOBER 10, 1927

When the solution reaches the zinc-dust agitators, which are similar to the pulp agitators, zinc dust is added to precipitate copper, cadmium, and cobalt, and agitation is maintained until all of the latter metals are entirely precipitated. To assure complete precipitation of the cobalt, the temperature of the solution must be maintained at 70 degrees Centigrade or over, so the solution circuit is arranged to conserve the heat generated in the calcine agitators. After this step the purification is completed. The solution is filtered in six Shriver presses and is then ready for the electrolytic cells, so it passes into the solution storage tanks.

Electric power will be furnished by the Washington Water Power Company, whose main-line circuits carry 110,000 volts; this company's lines are connected with those of the Montana Power Company which carry the same voltage. In the event that both these lines should be placed out of commission at the same time, connections with a 60,000-volt transmission-line have been provided for emergency purposes. The power is stepped down from

110,000 volts to 2300 volts through a bank of 10,000-kilowatt transformers, and is then ready for use in the two motor generator sets which convert it into direct current for the zinc-cell circuits.

Each set consists of a synchronous motor coupled to a direct-current generator giving 500 volts and 8000 amperes. Each generator supplies a separate cell circuit of 150 cells connected in series. A single cell is 7 feet long, 3 feet wide, and 4 feet deep, and contains 10 cathodes. Each cathode has a submerged area of eight square feet and requires 800 amperes. The cells are placed in series in four rows with working aisles between the rows. The cell floor is about 15 feet above the ground, and below each row of cells a long sump is provided. In the event of a power shut-down the cells are drained into these sumps so it will not be necessary to lift the cathodes from the cells. Fans installed below the cell floor are so regulated that the air in the cell room can be displaced either upward or downward as desired.

An alloy of aluminum and silicon is used for the cathodes, the conducting header-bar and sheet being cast in one piece. The anodes are made of a lead alloy which has proved to be more resistant than chemically pure lead, although the latter has always been insisted upon by previous users of the electrolytic process. As the lead-alloy anodes are more resistant than pure lead anodes, the amount of lead deposited with the zinc is almost nil and the zinc metal obtained is of exceptional purity, usually about 99.99 per cent zinc. Another distinct advantage, never obtained at electrolytic zinc plants using the pure lead anodes, is the recovery of marketable manganese dioxide, which is precipitated in the cells during electrolysis.

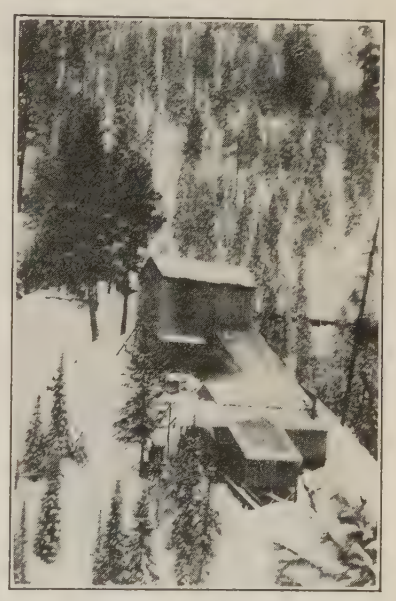
At intervals varying from 16 to 24 hours the cathode plates are removed from the cells one at a time. The zinc is stripped from them, they are returned to the cells, and the operation is continued until all of the cathodes have been stripped. The zinc is melted in an ordinary reverbatory furnace and then cast into slabs weighing about 50 pounds each. An electric furnace, requiring much less labor and producing less than 1 per cent of dross as against 4 or 5 per cent produced in the reverbatory furnace, has been designed and is expected ultimately to replace the present method of melting the zinc.

The final products of the plant are: High-grade zinc metal, 99.99 per cent pure; high-grade manganese dioxide, suitable for use in the manufacture of dry batteries; a lead-silver-gold residue, from which the metals will be recovered either by the Bunker Hill smelter or lead-leaching plant; and a mixed by-product containing copper, cadmium, and cobalt. Plans have been projected for the construction of a plant to reduce this by-product to the pure metals.

IDAWA GOLD MINING COMPANY: BELSHAZZAR MILL

The principal new mill in Idaho to begin operations for the recovery of gold during 1927 was that of the Idawa Gold Mining Company at its Belshazzar mine, which ranks for the year as second largest gold producer in the State, being surpassed only by one large dredge. The Belshazzar's milling process consists of amalgamation and table concentration; the interesting feature of the enterprise is that it is based on the recovery of free gold from a sulphide ore.

The company's mine is located in the extreme western part of Boise Basin, Boise County, about 35 miles northeast of the State capital; it is four miles west of Placerville and about two miles southwest of the famous Gold Hill & Iowa mine at Quartzburg; its shipping point is New Centerville, the present terminus of the Intermountain Railroad, seven miles from the mine. Geographically, the mine is located on Fall Creek near the top of the divide between Fall and Canyon creeks, at an elevation of approximately 6500 feet. Geologically, it is located within the Gold Hill shear zone. The principal tunnel, through which all mining operations are conducted, is known as No. 400, as it is 400 feet higher than the mill, to which it is connected by a 1600-foot aerial tramway.



Belshazzar Mill

The ore consists mainly of pyrite associated with a complex lead-bismuth-silver sulphide (as yet unidentified), arsenopyrite, and occasionally sphalerite, in a quartz gangue. The gold is closely associated with the lead-bismuth sulphide and arsenopyrite; although the larger part of it is coarse, it varies in size from extremely fine particles to large nuggets; one nugget was found which yielded $244.50. The association of the gold with the lead-bismuth sulphide is so dependable that panning is more satisfactory than assaying in making a quick determination of the quality of the ore. In the mill, the width of this streak of sulphide on the tables is a very dependable gauge of the amount of gold in the mill feed.

The mill is the conventional amalgamation-concentration type, electrically driven, with a daily capacity of 25 tons. The ore is fed from the mill ore-bin to a 24x12-inch Blake type crusher which reduces it to pass a 2-inch ring. It then goes to a set of 12x20-inch rolls which crush it to ½-inch mesh; thence to a 4½x16 Hardinge ball mill, where it is ground to 4 per cent on a 20-mesh screen. The ball mill discharges through a Hardinge amalgamator; thence onto two 4½x10-foot amalgamation plates, from which the ore passes through a hydraulic classifier, and then to two concentrating tables. The concentrate from these tables is re-ground in two small cast-iron arrastres placed in series, each discharging into launders lined throughout with small amalgamation plates. Amalgam traps are placed at every convenient location from the Hardinge amalgamator to the lower end of the mill. From the arrastres the concentrate passes into a storage-bin for shipment to the smelter.

From 70 to 75 per cent of the gold in the ore is recovered by amalgamation, approximately 33 per cent of this being recovered when the concentrate is re-ground. A part of the unamalgamated gold is so intimately locked up in the sulphides that its recovery is problematical except by smelting. The principal milling loss is in fine-flaked gold having a tendency to float which makes re-grinding difficult. This gold will not amalgamate even when brought into intimate contact with a freshly dressed plate, but passes to the concentrate bins.

MINE-RESCUE WORK IN THE COEUR D'ALENE DISTRICT

By K. T. SPARKS, Director, Central Mine Rescue Station

One of the worst catastrophes that can happen in the mining industry is an underground fire, and few mines are free from such a hazard. If the fire is accompanied by any great loss of life, thereafter that mine has a "black eye" in the minds of the underground workers. In the event of a large fire, a great amount of repair work is necessary before the mine returns to a production basis, and much money is lost on account of the enforced shutdown.

Every mine which has passed the prospect stage should install and maintain a mine-rescue station suitable to its requirements, just as all villages and towns, however small, have some sort of fire department. Stringent fire-prevention measures are a necessity, and next in importance is equipment for fire fighting, including the necessary training of the personnel in the use of the equipment.

In 1923 the principal mine operators in the Coeur d'Alene district, realizing the necessity of mine-rescue equipment and training, established a central mine-rescue station. Since then it has been in operation, working smoothly and at small expense.

The central station is a mine-rescue car, which is maintained in Wallace on a spur track common to both railroads of the district, in order that it may be quickly moved to any point where needed. This car is a large railroad coach rebuilt for mine-rescue purposes. It carries 14 sets of oxygen breathing-apparatus, commonly called "helmets"; 12 large storage tanks of oxygen; 1000 regenerating cans; one power-driven and one hand-operated pump; also spare parts, necessary tools, and miscellaneous equipment, including resuscitating apparatus and various gas-testing devices, as well as a complete line of fire-hose fittings, revolving nozzles, spray nozzles, and quick connectors. The car is equipped with living quarters for a small crew and is ready to move at any time.



MINE-RESCUE CAR.

Rescue Stations Located at Mines

The Hecla Mining Co. and the Hercules Mining Co., both at Burke, the Federal Mining & Smelting Co. at Mullan, the Tamarack & Custer Consolidated Mining Co. at Gem, and the Bunker Hill and Sullivan Mining & Concentrating Co. at Kellogg all have complete rescue stations located at their mines. Each of these stations has from 8 to 15 sets of breathing-apparatus and an ample supply of spare parts, regenerating cans, and oxygen pumps. In the event of a large mine fire in the district, the equipment from all the mine stations, together with the apparatus from the mine-rescue car, can be concentrated at one place in a very short time, thus making available about 100 sets of apparatus and a large quantity of spare parts.

Type of Breathing-Apparatus

The Paul self-contained breathing-apparatus is standardized for use in the Coeur d'Alene district, and all the mine stations and the mine-rescue car are equipped with this type. Standardization is an important factor when men from different mines are called upon to help fight a fire in a strange mine, as they gain confidence upon discovering that the apparatus in use is similar to that which they have been trained to use.

The Paul breathing-apparatus weighs about 40 pounds. As the oxygen feed is controlled by automatic valves which give the wearer the amount of oxygen he requires, it is practically "fool-proof". The valves are so set that the pressure inside the machine is slightly greater than that of the surrounding atmosphere, so should a leak develop while the machine is in use there is no danger of the wearer being gassed. This apparatus supplies the wearer with ample oxygen, under average working conditions, for a period of two and one-half hours.



FIRST-AID TEAM

Dressing Illustrated Is the First-Aid Treatment of a Broken Back

Training of "Helmetmen"

During the year 1927, continuous mine-rescue training was maintained at the large mines mentioned above, so, with men previously trained, there are at present about 225 competent "helmetmen" in the district, and they, together with the breathing-apparatus and equipment, are all available in the event of a fire at any mine.

The men are trained in groups of five, which number has been found to be the most conveniently handled unit for maximum efficiency, both in training and in actual underground fire-fighting. Their training covers a period of three months at three-week intervals for a duration of four hours each time. Preliminary training consists of acquiring the basic principles in the construction, oxygen circulation, and testing of the breathing-apparatus. The men wear the machines first in fresh air and then in an irrespirable atmosphere, which usually consists of formaldehyde fumes or wood smoke. They are required to perform physical labor, both in the fresh air and in smoke, thus learning the limitations of the machines, which establishes their confidence in the apparatus because they know how much work may safely be done while wearing it and the limit for which it can be used at one time. After completing the first course of training, they receive practice one afternoon at intervals of six weeks throughout the year.

First-Aid Work

U. S. Bureau of Mines Car No. 9 visits the Coeur d'Alene district for a period of from five weeks to two months each year. During this period classes are conducted at all the large mines in the district, not only for the miners, but for the general public as well. The course lasts two and one-half hours a night for five nights, and everyone who completes it is given a Government certificate of competency and a First-Aid Manual.

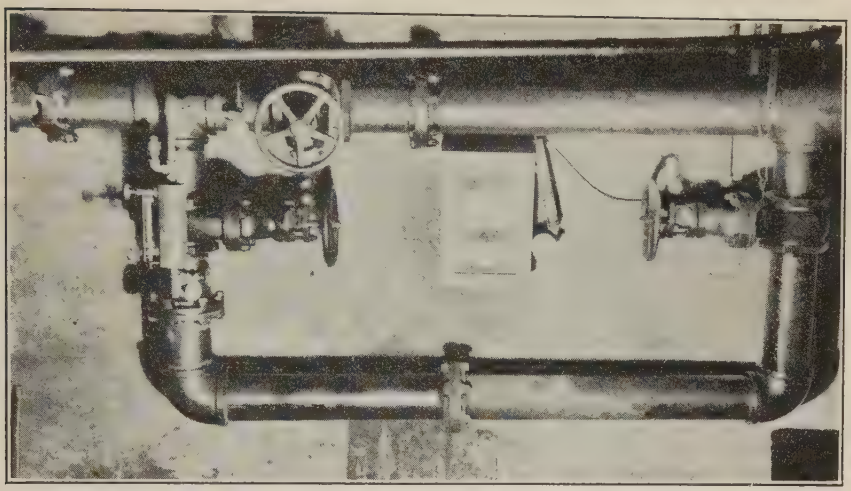
First aid is merely the treatment given a person who has suffered an accident, bridging the time before a doctor can reach the case. The Bureau of Mines course consists of teaching bandaging for wounds on all parts of the body; the application of tourniquets to check arterial bleeding; the proper methods for reducing and dressing dislocations; and the application of splints for fractured bones. Artificial respiration, burns, nervous shock, strains, and sprains are all discussed and the correct treatment demonstrated. Any one who completes the course has a good working knowledge of first aid and will be competent to handle almost any accident that may happen.

Stench Warning System Installed in Mines

Several of the mines of the district have installed a stench warning system to notify men employed underground that a fire has broken out in the mine. As the name implies, a "stench warning" is obtained by introducing an offensive-smelling substance into the compressed-air pipes and ventilating current. The odor quickly penetrates to all parts of the mine; the men, detecting it, know that a fire has occurred and that they must hasten to the nearest available exit.

The stench system consists essentially of an injector placed in the compressed-air line by means of which the stench material may be introduced into the compressed air. Usually the injector is placed in a by-pass, as it is essential that the stench material should drop on a screen which assists in disseminating it; as such a screen in the main air line is objectionable in normal mine usage, the by-pass is added to the air lines.

The stench material is a liquid with a very offensive odor, having the property of vaporizing quickly and not to be mistaken for any of the usual mine smells. In the Coeur d'Alene district the stench material used is ethyl mercaptan (CH_3CH_2SH); it has a peculiar, strong, onion-like odor, and one pint is sufficient to saturate the air in a large mine. Tests made at one of the largest mines in the district proved that this odor was plainly discernible 4000 feet from the point of injection in a little less than six minutes. The stench material is usually kept in a cabinet near the injector, and a small atomizer or sprayer is provided for introducing it into the injector and the ventilating current.



STENCH WARNING SYSTEM

Note Injector and Valve Arrangement. Cabinet in Center Contains Stench Material

Value of Oxygen Breathing-Apparatus

During the past 10 years there has been a noticeable increase in the use of breathing-apparatus through the United States. Several States now require mines of a certain size to be equipped with oxygen breathing-apparatus and to train their employees in the use of it, and some States maintain well-equipped rescue stations. Several insurance companies grant reduced rates to mining companies whose mines are provided with rescue apparatus and regularly trained men, so the mines in the Coeur d'Alene district are receiving this indirect benefit as a reward for their progressiveness.

The value of mining property saved through the use of oxygen breathing-apparatus is, of course, enormous, and properly maintained apparatus, together with a crew of trained men, is a real asset to any mining company. Apparatus crews have on numerous occasions made hazardous trips through gas-filled passages of mines to rescue the living and recover the bodies of the dead; they have, at the request of responsible authority, changed the ventilation currents, bulk-headed underground fires to localize them, and in many instances fought fires directly. The history of mining is replete with instances in which a mine that has had an underground fire has been saved for future operation solely through the accomplishment of the apparatus men.

The organization of the central mine-rescue station, installation of mine stations, selection of equipment, first-aid and mine-rescue training, fighting of underground fires and rescue work performed have been described in the 1923, 1924, 1925, and 1926 Annual Reports of the Mining Industry of Idaho. These articles are profusely illustrated with pictures of mine stations, Paul breathing-apparatus, gas masks, and mine-rescue crews from the principal mines in the district.

ACCIDENTS

The minor accidents listed in the accompanying table, pages 46 and 47, "Classification of Accidents", are taken from the records of the Industrial Accident Board and arranged to comply more nearly with the classifications made by the U. S. Bureau of Mines. The table is somewhat misleading, as a very large proportion of the accidents listed "Time Lost Over 14 Days" did not greatly exceed this number of days, and the majority of those listed "One to 14 Days" did not exceed seven days, while 291 of these involved the loss of only one day. All accidents that did not cause a loss of time of more than seven days should not have been included, as no compensation is paid. However, as the U. S. Bureau of Mines and many State officials are including these minor injuries in their reports, they are therefore included in the accompanying table as a matter of uniformity.

A comparison of the total accidents in 1927 with those in 1926 shows an increase of seven in the number of fatal accidents and practically no difference in the number of minor accidents. A comparison of the total number of men employed with the total number of accidents shows the very low accident rate of 0.55 accidents per 1000 days per man. This low rate can be attributed to a great extent to the safety organizations, to the first-aid training given the men by all the larger mining companies, and to the sustained effort and interest maintained in safety work by those in charge, further augmented by close supervision.

A comparison of the number of accidents with the number of men employed shows that the accident rate is in direct proportion to the efforts given to maintaining and enforcing safety provisions. The Bunker Hill and Sullivan Mining & Concentrating Co., which has always been very vigilant, has demonstrated that this effort is successful by establishing an accident rate that reflects greatly to the company's credit, and which shows a large decrease in the number of accidents during 1927 as compared with the number in 1926. During 1927 this company had an average payroll of 1050 men, and its accident rate was 0.32 accidents per 1000 days per man. Its nearest competitors among the large mines were the Hecla Mining Co., with an accident rate of 1.11 per 1000 days per man, and the Federal Mining & Smelting Co., with a rate of 1.16 per 1000 days per man.

Out of a total of 1313 accidents during the year, 22 were fatal. Eight of these could have been prevented, had the victims been more careful; company responsibility can be placed for four of them; and the others were unavoidable. Out of the 1291 minor accidents listed, 747 did not compel a loss of time to exceed 14 days; 502 incapacitated the injured person for more than 14 days; and 42 resulted in a permanent injury.

The loss of both legs or arms, one leg and one arm, total loss of eyesight, paralysis or other condition permanently incapacitating a workman from doing any work of a gainful occupation, is classified as "Permanent Total Disability". The loss of one foot, leg, hand, eye, one or more fingers, one or more toes, any dislocation where ligaments are severed, or other injury known in surgery to be a permanent partial disability, is classified as "Permanent Partial Disability".

Notes on Fatal Accidents

January 14, Hecla Mining Co., Shoshone County. Tony Schimmels, age 39, married, raise miner. Deceased, with two others, was working as a contract miner in a 3-compartment raise. The preceding shift had blasted a round of holes and the broken rock had been partly removed from one of the raise compartments. Against the advice of his two partners, deceased climbed over the undrawn chute to the face of the raise, directly over the chute from which the rock had been drawn. The broken rock over this chute had hung up, arch-wise, and when he stepped on it the rock dislodged under his weight, pulling him into the chute. He fell about 30 feet and was instantly killed.

February 14, Bunker Hill & Sullivan Mining & Concentrating Co., Shoshone County. Herbert S. Walker, age 25, married, shoveler. Deceased had lowered himself through a grizzly into a chute containing broken rock. While he was standing on the rock, either trainmen drew the chute or the rock which had hung up in it gave away under his weight. He was caught in the vortex, drawn into the broken rock, and smothered to death.

February 18, Wilbert Mining Co., Butte County. Grant Romney, age 24, single, miner. Deceased and Charles G. Norwood were spitting fuses for a round of 12 holes in a drift on the 1260-foot level; this level is at the bottom of a 160-foot inclined shaft from the main tunnel-level of the mine. The mine foreman and the hoistman, who were waiting at the collar of the shaft to hoist the men upon signal, heard an explosion, followed about two minutes later by four more explosions. The foreman proceeded immediately to the place where the men had been working, and found their bodies about 15 feet back from the face of the drift. Later investigation proved that a total of seven holes had exploded, and that two of these were the last holes which should have been spit in the round.

February 18, Wilbert Mining Co., Butte County. Charles G. Norwood, age 29, married, machine helper. Deceased and Grant Romney were spitting fuses for a round of 12 holes in a drift on the 1260-foot level; this level is at the bottom of a 160-foot inclined shaft from the main tunnel-level of the mine. The mine foreman and the hoistman, who were waiting at the collar of the shaft to hoist the men upon signal, heard an explosion, followed about two minutes later by four more. The foreman proceeded immediately to the place where the men had been working and found their bodies about 15 feet back from the face of the drift. Later investigation proved that a total of seven holes had exploded, and that two of these were the last holes which should have been spit in the round.

March 15, Constitution Mining & Milling Co., Shoshone County. Martin Morgans, age 50, single, miner. Deceased was being hoisted up the shaft in a bucket in which were a number of pieces of drill steel. One of the drills caught in a wall plate, tipping the bucket, and he fell to the bottom of the shaft.

March 23, Roberts Lease, Shoshone County. Anton Jurgolich, age 34, married, miner. Deceased picked into a missed hole and was instantly killed by the ensuing explosion.

March 27, Federal Mining & Smelting Co., Page mine, Shoshone County. Leon Camara, age 30, married, shoveler. Deceased was removing a bulkhead from the top set of a raise, preparatory to advancing the raise. He had removed one lagging and, as he was in the act of removing the second one, the face of the raise sloughed off. He received injuries from which he died on April 3.

April 18, Kay Development Co., Custer County. Ulysses M. Savaria, age 55, married, miner. Deceased was killed in the bunk-house when it was engulfed by a snowslide.

April 23, Hercules Mining Co., Maher-Hearn mine, Shoshone County. Mariona Garcia, age 39, married, shoveler. Deceased was shoveling in drift. As he was in the act of lifting a shovel full of rock, a slab of rock fell from the wall and struck him on the head, killing him instantly.

May 29, Hecla Mining Co., Shoshone County. Arnold J. Held, age 25, single, cager. Deceased was standing on a skip-loading platform which is located in the main shaft between the principal shaft-timbers. He had completed drawing a skip-load of rock from the skip-pocket when a fall of rock in the pocket demolished the timbers forming its front. He was caught between the pocket-timbers and the shaft-timbers, and was instantly killed.

June 19, Tamarack & Custer Consolidated Mining Co., Shoshone County. Charles E. Porter, age 66, married, shoveler. Deceased was shoveling a short distance beyond a set of timbers when a large slab of rock fell from the hanging wall and struck him, inflicting injuries from which he died on June 22.

CLASSIFICATION OF ACCIDENTS

MINE	Killed	Seriously Injured Time Lost More Than 14 Days		Slightly Injured	
		Permanent total disability	Permanent partial disability	Time lost over 14 days	Time lost 1 to 14 days
UNDERGROUND					
1. Fall of rock or ore from roof or wall	6	2	3	94	124
2. Rock or ore while loading at working face or chute	4		1	51	82
3. Timber			2	40	59
4. Explosives	6			1	
5. Haulage, Cars or Motors			3	44	39
6. Persons falling down chute, winze, raise or stope	1		2	20	28
7. Drilling (by machine or hand drills)			1	17	39
8. Hand tools			1	40	63
9. Machinery (other than motors or drills)			3	9	6
10. Flying or falling objects			3	25	80
11. Fall of persons			1	20	25
12. Lifting			1	18	17
13. Nails and splinters			1	11	59
14. Other causes			2		6
Total	17	2	22	392	627

MILL	Killed	Seriously Injured Time Lost More Than 14 Days		Slightly Injured	
		Permanent total disability	Permanent partial disability	Time lost over 14 days	Time lost 1 to 14 days
MILLING ACCIDENTS					
1. Haulage (cars and locomotives)					
2. Railway cars or motors)					
3. Crushers, rolls or stamps					2
4. Tables, jigs, etc					
5. Other machinery	1		1	2	7
6. Falls of persons				9	5
7. Suffocation in ore bins					
8. Falling objects (rocks, timbers)				6	7
9. Scalding (steam, water or acid)					
10. Lifting				1	
11. Hand tools, axes, bars, etc				4	4
12. Nails, splinters, etc				1	2
13. Electricity				1	
14. Other causes				2	3
Total	1		1	26	30

SHAFT ACCIDENTS					
15. Falling down shaft					
16. Objects falling down shaft				2	6
17. Breaking of cables					
18. Overwinding					
19. Cage, skip, or bucket	1		3	3	2
20. Other causes					
Total	1		3	5	8

SURFACE ACCIDENTS Yards, Shops, and Construction					
21. Mine cars or mine locomotives, gravity or aerial trams			1	5	3
22. Flying and falling objects	2		1	17	19
23. Lifting				7	1
24. Falls of persons			1	16	14
25. Nails and splinters					7
26. Hand tools, axes, bars, etc.			1	8	7
27. Falls or run of ore in or from bin					
28. Machinery			4	4	5
29. Other causes	1			5	4
Total	3		8	62	60
Grand Total	21	2	33	459	695

SMELTER ACCIDENTS					
15. Haulage (cars, motors, etc.			1	1	1
16. Machinery			2	2	2
17. Cranes					
18. Lead colic					
19. Falls of persons					
20. Flying or falling objects (rocks, timbers, etc.)				5	6
21. Hand tools, axes, bars, etc.					2
22. Burns from matte, slag or molten metal (pouring or spilling)				1	2
23. Other causes				1	3
Total			3	10	16

AUXILIARY WORKS ACCIDENTS Placers, Tramways and Dredges					
24. Falls of persons				1	1
25. Flying and falling objects			3	4	1
26. Nails and splinters					1
27. Hand tools, axes, bars etc.					1
28. Lifting					
29. Machinery				2	1
30. Handling hot materials					
31. Other causes					1
Total			3	7	6
Grand Total	1		7	43	52

September 8, Sidney Leasing Co., Shoshone County. Wilfred Langston, age 29, single, miner. Deceased and Joseph Siedel had completed drilling and loading a round of holes in the bottom of a short shaft below No. 6 tunnel-level. Frank L. Metler, who was working in the tunnel, was instructed to assist in spitting the fuses. Metler spit five fuses, watched the other two men a minute or so, and then said: "Come on, boys, it's time to go." One of them answered: "We have plenty of time." Metler climbed about one-half the distance up the shaft, stopped, and called to them again to come on; they did not answer. He then continued climbing and, just as he reached the collar of the shaft, one shot went off, with two more following in rapid succession.

September 8, Sidney Leasing Co., Shoshone County. Joseph Siedel, age 34, single, miner. Deceased and Wilfred Langston had completed drilling and loading a round of holes in the bottom of a short shaft below No. 6 tunnel-level. Frank L. Metler, who was working in the tunnel, was instructed to assist in spitting the fuses. Metler spit five fuses, watched the other two men a minute or so, then said: "Come on, boys, it's time to go." One of them answered: "We have plenty of time." Metler climbed about one-half the distance up the shaft, stopped, and called to them again to come on; they did not answer. He then continued climbing and, just as he reached the collar of the shaft, one shot went off, with two more following in rapid succession.

September 8, Sidney Leasing Co., Shoshone County. Walker D. Johnson, age 47, married, superintendent. Johnson died on September 10 from the effects of powder gas inhaled while assisting in recovering the bodies of Langston and Siedel from the bottom of the shaft.

October 11, Bunker Hill and Sullivan Mining & Concentrating Co., Hall-Interstate mine, Valley County. Claude Cox, age 26, single, laborer. Deceased, with Charles Griffith, was removing the forms from a large concrete retaining wall which fell over without warning, crushing both of them to death.

October 11, Bunker Hill and Sullivan Mining & Concentrating Co., Hall-Interstate mine, Valley County. Charles Griffith, age 40, single, laborer. Deceased, with Claude Cox, was removing the forms from a large concrete retaining wall which fell over without warning, crushing both of them to death.

November 4, Gold Hunter Mines, Inc., Shoshone County. Andrew (Amund) Larson, age 45, single, miner. Deceased had started to drill a back hole in top of stope on 19th floor, when a large slab of rock fell from the face, striking him on the head and fracturing his skull, right leg and right ribs.

November 14, Jack Waite Mining Co., Ltd., Shoshone County. Louis Lucas, age 38, single, miner and timberman. Deceased, unassisted, was repairing the chute timbering in a raise about 65 feet above the main tunnel, and fell from there to the tunnel-level, striking on his head; when found he still retained the handsaw with which he was working. He never recovered consciousness, and died on November 16.

November 28, Sunshine Mining Co., Shoshone County. J. G. Tate, age 65, married, millman. Deceased, whose duties consisted of oiling and feeding the crusher, volunteered to assist two men who were removing an old trommel-line which had been idle for several years. Contrary to the advice of the men he was assisting, he climbed over a guard-railing and, while doing so, caught one leg of his trousers on a revolving shaft. His leg was fractured and as a result he died on December 2.

December 6, F. B. Felt, lessee of Parker mine, Blaine County. James M. Price, age 25, single. Deceased and Robert H. Haynes were engaged in reopening an old tunnel at a point where it had been filled by a cave-in, about 1000 feet in from the portal; the ground was loose and required re-timbering. They had been at the task only six days and had advanced about 20 feet when the ground overhead started to run, crushing the timbers and trapping the men beneath them, where they smothered to death.

December 6, F. B. Felt, lessee of Parker mine, Blaine County. Robert H. Haynes, age 65, single. Deceased and James M. Price were engaged in reopening an old tunnel at a point where it had been filled by a cave-in, about 1000 feet in from the portal; the ground was loose and required retimbering. They had been at the task but six days and had advanced about 20 feet. The ground overhead started to run, crushing the timbers and trapping the men beneath them, where they smothered to death.

December 10, Sullivan Mining Co., Star mine, Shoshone County. William O. Becker, age 37, married, timberman. Deceased climbed down the manway and pounded on the side of the chute to dislodge waste rock which had hung up in the main shaft raise between the 3700 and 4000-foot levels. The force of falling rock demolished the chute and filled the manway, where he was trapped and killed by the falling rock and timbers.

MEN EMPLOYED AND WAGES

The year closed with practically all the producing mines in the State in operation, and with the largest payroll that has been witnessed during the past 10 years. As a whole, 1927, from a labor standpoint, was one of the best years ever experienced. There was a surplus of labor throughout the year and the turnover was exceedingly small, thus assuring the companies a constant working force without the necessity of breaking in new men. However, competent and experienced miners and timbermen were continually in demand, and some of the large companies had a little difficulty in meeting their requirements.

It is practically impossible to obtain complete and accurate statistics of the number of men employed in the mines; a great many are employed by prospectors and small companies that do not report to the inspector of mines and that do not maintain continuous work throughout the year; and records furnished by the companies reporting vary as to the number of days. The average payroll reported was 5500, and 1000 has been added as an estimate to cover lessees, prospectors and small companies that did not report, thus giving a total of 6500 for the year, which is known to be a conservative estimate.

The table printed below gives the different wage scales that were in force in the State during 1927. Column No. 1 gives the average wage throughout the State for the year, and column No. 2 gives the wage scale in effect in the Coeur d'Alene district from March 1 to December 31.

Under an agreement adopted on November 16, 1925, the wages in the Coeur d'Alene district were to be adjusted each month in accordance with a bonus rate based on the selling price of lead in New York. This scale was based on a wage for miners of $3.75 per day when lead is selling under 5½c per pound; the bonus to be added was as follows:

When the price of lead is 5c	and under 6c	$0.25 per day
When the price of lead is 6c	and under 6½c	.50 per day
When the price of lead is 6½c	and under 7c	.75 per day
When the price of lead is 7c	and under 7½c	1.00 per day
When the price of lead is 7½c	and under 8c	1.25 per day
When the price of lead is 8c	and under 8½c	1.50 per day
When the price of lead is 8½c	and under 9c	1.75 per day
When the price of lead is 9c	and under 9½c	2.00 per day
When the price of lead is 9½c	and under 10c	2.25 per day
When the price of lead is 10c	and under 10½c	2.50 per day
When the price of lead is 10½c	and under 11c	2.75 per day

After March 1 the price of lead declined so rapidly that if the bonus scale had been adhered to the wages would have been cut to a point entirely out of proportion to wages in other parts of the State and too low under existing high living costs. So the signatories to the bonus scale waived their agreement and maintained the wages set forth in column No. 2:

	No. 1	No. 2
Miners	$5.00	$5.00
Shovelers	4.50	4.50
Timbermen	5.50	5.50
Timber helpers	4.75	4.50
Machinists	6.00	5.75
Machinists' helpers	5.00	5.00
Carmen	4.50	4.50
Motormen	5.00	5.00
Trainmen	4.50	4.50
Main hoistmen	5.75	5.75
Small hoistmen	5.25	5.25
Nippermen	4.50	4.75
Pump and compressormen	5.00	5.25
Surface laborers	4.50	4.50
Ore sorters	4.25	4.25
Cagers	5.25	5.25
Pipe and trackmen	5.25	5.25
Shift bosses	6.00	6.25
Blacksmiths	6.00	6.00
Blacksmith helpers	5.00	5.00
Electricians	5.50	5.25
Millmen	5.00	5.00
Mill repairmen	6.00	5.75
Mill swampers	4.50	4.50
Carpenters	6.00	6.00

The cost of board and room at company boarding houses, hotels, and at private homes averages from $1.25 to $1.50 per day. Many companies have built and are maintaining houses which are rented to their married employees, and some of the largest companies assist their employees in the construction of homes.

MINERAL RESOURCES

Idaho contains an area of 83,888 square miles; its maximum width at the southern end is approximately 312 miles, and its length from the southwest corner to the northwest corner is about 486 miles. The State is divided into 44 counties, 36 of which can be classed as having minerals of commercial importance. In 22 of these counties there are producing mines.

In the past practically all mining has been confined to the five principal metals: Lead, silver, gold, zinc, and copper, which are widely distributed throughout the State (see map, page 6). In addition to these a great variety of uncommon metals and minerals, many of which have been successfully exploited during the past few years, occur in sufficient extent to be of commercial importance.

This great diversity of mineral wealth, consisting of practically all the metals used in modern arts and many of the uncommon minerals for which a demand is continually being developed, establishes Idaho as one of the principal mining States in the Union. It also makes mining the second most important industry in the State.

The importance of Idaho's mineral wealth is well shown by statistical facts based on the production and exploitation of the five principal metals, lead, silver, gold, zinc, and copper:

Total metal production since 1860, over $1,100,000,000.
Average annual production for past 25 years, over $25,500,000.
Average annual mine pay-roll, over $9,000,000.
Average annual mine dividends from lead-silver mines, over $5,000,000.
Average annual expenditure on new mine development and prospecting, over $4,000,000.

METALS

Lead

Lead is the most important metal found in Idaho, and until 1926 this State ranked second in the United States in the production of lead, Missouri ranking first, and Utah third. Since then Utah has taken second place, although the production of the two States is almost on a parity. Idaho produces over one-fourth of the total amount of lead mined in the United States. Lead is widely distributed throughout the State, and occurs as galena (lead sulphide) and as the oxide and carbonate; silver is always associated with it, and occasionally zinc, gold, and copper.

The largest lead mine in the United States is in Idaho—the Bunker Hill & Sullivan M. & C. Co. at Kellogg. This is one of the few companies in the world that mine, mill, smelt, refine, manufacture, and market lead and lead products. Other important lead-producing mines in Idaho and their respective ranks in the United States are: Federal Mining and Smelting Co., third; Hecla Mining Co., fifth.

The principal lead mines in the State are those in Shoshone County, which produce 85 per cent of the State total. Blaine, Boundary, Bonner, Custer, Lemhi, Boise, Butte, Valley, and Camas counties are the other important lead-producing counties.

Silver

Idaho ranks third in the United States in the production of silver, the first three States in order of rank being Utah, Montana, Idaho. Idaho produces one-eighth of all the silver mined in the United States.

Silver is found associated with all of the lead, copper, zinc, and antimony ores of the State, and occasionally in associations in which it is the principal metal. It is one of the most widely distributed metals, and its occurrence is such that the mining of silver can hardly be separated from that of the other metals. Accordingly, the production of silver fluctuates with and parallels that of lead.

Shoshone County produces more silver than any other county in the State; the other important silver-producing counties are: Lemhi, Custer, Bonner, Boundary, Blaine, Butte, Owyhee, Boise, Camas, Valley, Washington, Idaho, Elmore, Adams, and Cassia.

Zinc

Zinc is found associated with lead in many of the lead mines of Idaho, although there are numerous deposits in Shoshone and Blaine counties in which it is the principal metal. In Shoshone County it occurs as sphalerite (zinc sulphide), and in Blaine County as sphalerite and smithsonite (zinc carbonate).

Selective flotation revolutionized the art of ore-dressing, and it is now possible to treat mixed lead-zinc ores which could not be separated by gravity concentration methods. As a consequence, the zinc content which was formerly lost is recovered and many mines which at one time could not be profitably operated are now being reopened in Blaine, Camas, and Shoshone counties. As a result of these modern ore-dressing methods, Idaho is one of the largest zinc-producing States in the Union.

The principal zinc-producing counties, in the order of prominence, are Shoshone, Blaine, Camas, Custer, Lemhi, Bonner, Boise, Boundary, and Butte.

Gold

Gold is found in practically all of the counties in the State, and is one of the most widely distributed metals. Prior to the World War Idaho was an important producer of this metal, but during the war period many of the mines of which the principal product was gold were closed down and have not been reopened, so at the present time the State ranks only tenth in the United States in gold production.

Gold occurs associated with almost all the lead, zinc, copper, and silver ores, and very commonly in a free-milling condition. A large amount of gold is obtained from placer deposits; at one time Idaho was among the principal placer-mining States in the Union. The greater part of the placer ground which could be hydraulicked has been exhausted, but many acres suitable for dredging still remain, and the gold lode-deposits offer greater opportunities than those of almost any other State.

The most important counties in which gold occurs are Boise, Idaho, Lemhi, Owyhee, Elmore, Shoshone, Custer, Blaine, Camas, Clearwater, Gem, and Valley.

Copper

Idaho is an important producer of copper and holds a high position among the ranking States of the Union. The many copper mines which are now under development and the numerous discovered but undeveloped veins indicate that the production of this metal will be greatly increased; the State will then be elevated to a rank higher than that of tenth, which it now holds.

Gold and silver are found associated with practically all the copper ores; and in some counties, notably in Custer and Bonner, the silver content is more valuable than the copper.

Custer, Lemhi, and Shoshone are the most important copper-producing counties; Adams and Washington counties may eventually become large producers. Bonner, Idaho, Blaine, Butte, Clearwater, Latah, and Lewis counties also contain copper mines of importance.

Antimony

Deposits of antimony, principally the sulphide (stibnite), are found in Shoshone, Valley, Boise, Blaine, Idaho, Owyhee, and Custer counties. Those in the Coeur d'Alene district of Shoshone County have been extensively developed; a number of mills for the concentration of the ore have been constructed; and in the past a large tonnage has been produced and marketed. The deposits in Blaine, Valley, and Owyhee counties contain a high-

grade ore, most of which can be shipped without preliminary treatment. During the war, when antimony commanded a high price, a large tonnage was produced and shipped from the mines in Valley County.

Antimony occurs as an accessory mineral in many lead-zinc ore bodies, also in stibnite-bearing veins in which it is the dominating metallic mineral. All of the antimony ores carry more or less silver, and many of them, particularly those of Blaine County, are more valuable for this mineral than for the antimony.

In all the above-mentioned counties there are many deposits containing a large available tonnage of commercial ore, which can be readily marketed when freight and market conditions will permit it to be produced at a profit.

Arsenic

Deposits of arsenic, principally the sulphide (arsenopyrite), occur in Blaine, Gem, and Boise counties. These deposits, although not fully developed, show a large available tonnage containing sufficient arsenic to be valuable for this metal, which can be readily marketed when the demand for it will permit profitable production. Arsenic occurs also as arsenopyrite in Ada, Elmore, and Kootenai counties, but the deposits in these counties have not been sufficiently developed to ascertain the possible tonnage.

Bismuth

Bismuth, occurring as a sulphide, has been found in Blaine County unassociated with other metals, as well as in association with many of the lead ores. It also occurs in the gold ores of the Gold Hill, Belshazzar, and Buckskin mines, Boise County, in association with lead, probably galenobismuthite or similar lead-bismuth minerals.

Cobalt

Cobalt is found in Lemhi County. During the World War, when this metal commanded a high price, the deposits were actively developed; a small mill was constructed, and concentrate with a high cobalt content was produced. These deposits are described by Frank L. Hess under "Cobalt" in U. S. Geological Survey: Mineral Resources of the United States, part I, 1917.

This metal is reported to have been found also in Kootenai and Latah counties.

Manganese

Manganese occurs in Bannock, Lemhi, Owyhee, Shoshone, Butte, and Washington counties. Some of the deposits are high in manganese content and others in manganese-iron. A substantial tonnage has been produced and marketed from the mines in Bannock County, and the deposits in Lemhi County constitute a large potential resource.

Describing the Bannock County deposits in "Manganese and Manganiferous Ores in 1926", U. S. Bureau of Mines: Mineral Resources of the United States, J. W. Furness said: "D. F. Hewett, of the United States Geological Survey, reports that the Idaho Manganese Co. has been exploiting since April, 1924, a manganese deposit on the McGregor ranch, 1 mile east of Cleveland, Bannock County, Idaho. The shipments in 1926 were 830 tons and during 1927 will probably be larger. The ore consists of nodules of the several oxides embedded in brown wad and forms a distinct bed in Pleistocene (Ice Age) sediments. In the explored area the bed will probably yield 3,000 tons per acre; the extent of the bed is assuredly several acres and may be more. Most of the shipments range from 42 to 48 per cent manganese. The ore is shipped by auto truck to Grace, 14 miles north, thence by rail to the Columbia Steel Co., Ironton, Utah."

Molybdenum

Molybdenum, occurring as the sulphide disseminated in intrusive rocks and as a molybdate of lead in fissure veins in limestone, is found in Elmore, Boundary, Custer, Idaho, and Lemhi counties.

Nickel

Nickel is found in Lemhi County. During the late war considerable development work was done on the veins in which it occurs. These deposits are described by Frank L. Hess under "Cobalt" in U. S. Geological Survey: Mineral Resources of the United States, Part I, 1917.

Quicksilver

Cinnabar, the sulphide of mercury, has been found in the placer deposits of Custer and Valley counties and in lode-deposits in Valley, Blaine, and Cassia counties. The quicksilver lode-deposits of Valley County are being extensively developed, and a little mercury has been produced from an experimental plant. The other deposits have never been opened.

Tin

Tin has been found in the placer mines in the Gravel Range mining district of Lemhi County. Its occurrence is described by Clyde P. Ross in Idaho Bureau of Mines and Geology Pamphlet No. 25, "Ore Deposits in Tertiary Lava in the Salmon River Mountains, Idaho". Mr. Ross includes in this a list of all published references relating to his subject.

Tungsten

Tungsten, in the form of scheelite and wolframite, occurs in commercial value in Shoshone, Idaho, Camas, Lemhi, Boundary, Bonner, Blaine, Valley, and Butte counties. The deposits in Shoshone County have been extensively exploited, and during the war period of high prices a large tonnage was produced and marketed; at the same time a small amount was obtained from Boundary and Camas counties. Sufficient work has been done on all these deposits to indicate that tungsten is one of the State's substantial mineral resources.

NON-METALLIC MINERALS

Asbestos

Commercial asbestos occurs in two forms: The chrysotile variety, which is adapted to spinning; and the amphibole variety, which is not adapted to spinning but is used extensively in shingles, insulation materials, paper stock, cements, and paints.

Amphibole asbestos occurs extensively in Idaho County, near Kamiah. There is a large demonstrated tonnage, but the demand is small, on account of markets and freight rates. Deposits containing chrysotile have been reported in Fremont, Teton, and Idaho counties.

Barytes

Barytes (barium sulphate) is used in the rubber, paper, linoleum, ink, and paint manufacturing industries. Its principal use is in the manufacture of lithopone, a white pigment consisting of about 70 per cent barium sulphate and 30 per cent zinc sulphide.

Some of the largest deposits of high-grade barytes found west of the Mississippi River occur in the Deer Creek and Muldoon sections of Blaine County. The deposits on Deer Creek vary in width from 50 to 100 feet, and one outcrop is over 1000 feet long; this was described by Arthur Lakes in the Mining Reporter for August 16, 1906, under the title, "A New and Large Deposit of Barite in Idaho", as follows:

"In visiting some mining prospects in the Wood River region of Idaho I came across an unusually large massive deposit of the mineral called barite.

"It forms a steep cliff on the crest of a hill and descends as a vein down the gulch. The thickness is apparently from 50 to over 100 feet. Its course passes very near some silver-lead prospects and not far from it on one side is a huge outcrop of iron oxide.



Deer Creek Barytes Deposit, Viewed from a Distance of 2000 Feet



Close-up View of Deer Creek Barytes Deposit

"The material is of a dull white color and resembles at a distance a vein of calcspar or a vein of white feldspar and quartz. It has not been opened up but there must be thousands of tons in sight."

Bentonite

Bentonite, a plastic clay, is valuable for its high absorbent qualities; it has the capacity for absorbing three times its weight or about seven times its volume of water. It is used in beauty clays; for refining oil; as a filler in paper and soaps; as an adulterant in drugs and candies, and as a packing for horses' hoofs.

Bentonite occurs in commercial extent in Clark and Custer counties, and has been reported found in Cassia County. The deposits in Clark and Custer counties are described by V. R. D. Kirkham in Pamphlet No. 19 Idaho Bureau of Mines and Geology, "A Geologic Reconnaissance of Clark and Jefferson and Parts of Butte, Custer, Fremont, Lemhi, and Madison counties, Idaho": "A commercial grade of bentonite, a peculiar type of clay with extraordinary absorptive qualities, was found at two localities in the area. One is near the railway in the vicinity of Mackay, the other is more remote and lies west of Dubois."

Building Stone

Sandstone exceptionally adapted to building purposes is found in Ada, Bear Lake, and Cassia counties. One of the principal enterprises in Ada County is that of the Boise Stone Company in quarrying and converting sandstone to building purposes. This enterprise is fully described, with illustrations, in the Twenty-sixth Annual Report of the Mining Industry of Idaho for the Year 1924. The most notable building in Idaho, the State Capitol, is constructed of this stone.

The sandstones in Bear Lake County are described in U. S. Geological Survey Professional Paper No. 152, "Geography, Geology, and Mineral Resources of Part of Southeastern Idaho", by George Rogers Mansfield; pages 336-338.

Coal

Bituminous coal of commercial importance occurs in Teton, Bonneville, Fremont, and Clark counties. No attempt has been made to exploit any of the deposits commercially except those of the Teton Coal Company in Horseshoe Basin, Teton County. In discussing the Horseshoe Basin coal in Pamphlet No. 10, Idaho Bureau of Mines and Geology, "The Horseshoe Basin Area of the Teton Coal Field in Southeastern Idaho", George Watkins Evans said:

"The chemical analysis of this coal indicates that the coal in this field is of as good quality as any mined in Utah or Wyoming. The principal question is whether or not this field can produce a sufficient percentage of lump coal to compete with the larger sizes from Utah and Wyoming.

"From the limited information at hand, it is impossible to make a reliable estimate of the minable tonnage in this field. In the first place, we do not know exactly the total area of the coal bearing strata, nor do we know the number of workable coal beds contained within this field. Any tonnage estimate made at this time must be based upon arbitrary figures and the quantity might be either much more or much less than the figures given.

"If we assume that the Horseshoe bed and the Brown Bear bed are two separate and distinct beds and that the Horseshoe bed will contain 9 feet of coal and that this bed can be mined for a distance of one-half mile on the dip, and that the bed will continue of fairly uniform character for a distance of 2 miles along the strike, there would be within the Horseshoe bed approximately 5,000,000 tons of coal, provided it will average 6 feet of minable coal and if we allow 1300 tons per foot acre. The Brown Bear bed has an average thickness of about 4 feet and on the same basis would contain a little over 3,000,000 tons of coal. The Boise bed, allowing an average thickness of 3½ feet of minable coal, contains nearly 3,000,000 tons—in all approximately 11,000,000 tons of coal.

"It is not improbable that with future investigations it will be found that the total tonnage of coal in this field is very much greater than the amount of tons suggested. On the other hand, it might be found that the coal contained within these beds is very friable and will not produce any considerable quantity of the larger sizes, and furthermore, it is probable that the market tributary to this field will be so exacting that only the larger sizes can be successfully marketed."

The Teton Coal Company has recently completed a 3600-foot crosscut with a 600-foot connecting raise to the surface, and a tipple for grading the coal. The tunnel intersected three coal beds, two of which were not included in the above estimate; as yet the tunnel has not been completed to the Horseshoe and Boise beds, so it appears that the total tonnage, when this field is fully developed, may be in excess of the estimate.

Lignite is found in Cassia, Boise, Owyhee, Washington, Idaho, Lemhi, and Clearwater counties.

Diatomaceous Earth

Diatomaceous earth is more commonly known as infusorial earth, and is sometimes referred to by its German name of kieselguhr. It is composed of the siliceous remains of minute aquatic plants known as diatoms, which are of such proportions that they must be identified chiefly by the aid of the microscope.

The principal uses of diatomaceous earth are: Sawed brick for refractory and insulation purposes; filter material at sugar factories; light-weight filler in concrete; in polishing powders; absorbent in dynamite, and in thermal insulator compounds.

Extensive beds of this mineral, in which it can be measured by the acre, are found in Owyhee, Elmore, Camas, Payette, Washington, and Idaho counties. A small tonnage has been obtained from Elmore County for use in Idaho sugar factories.

Feldspar

Common feldspars are crystalline compounds of silica, alumina, and one or more of the bases: potash, soda, and lime. There are two principal classes of feldspar—the one including the potash and potash-soda varieties; the other including the soda, soda-lime, and lime varieties. Pure potash feldspars are orthoclase and microcline. The principal use of feldspar is in the manufacture of pottery, chinaware, porcelain, enamel-ware, and enamel brick and tile.

Deposits of high-grade feldspar, occurring as orthoclase, are found in Latah and Adams counties.

Garnet

Garnet is a common accessory mineral in a large variety of rocks, occurring abundantly in contact metamorphic zones and in metamorphosed crystalline limestones. Deposits of garnet possessing the necessary qualifications for ornamental or industrial use and so situated with regard to transportation and markets that they can be exploited commercially are relatively small and occur in only a few areas throughout the United States.

The principal uses of garnet are: As settings in jewelry; jewel bearings in watches, and as an abrasive. Abrasive garnet is utilized either in the form of a manufactured paper similar to sand-paper, or as loose grain or powder for grinding and polishing.

Extensive deposits of garnet adapted to abrasive purposes occur in Adams, Lemhi, Custer, and Cassia counties.

Graphite

Graphite is a soft, black, greasy form of carbon, sometimes referred to in trade as "plumbago" and "black lead". It occurs in nature in two forms, crystalline and amorphous, each having its own peculiar uses.

The physical properties of graphite—infusibility, chemical inertness, high conductivity, extreme softness, and low specific gravity—fit it for a large number of uses: The manufacture of crucibles and other refractory products; lubricants; "lead" pencils; paints; stove polish; foundary facings, and various types of electrical appliances.

Graphite of commercial importance is found in Blaine County, but, owing to the fact that at the ordinary price of graphite it is possible to mine only the most favorably situated deposits, the known deposits in Idaho have never received much attention.

Gypsum

Gypsum is a natural hydrated sulphate of lime. It is a soft, white, chalk-like material, found widely distributed in single crystals and in thick beds. The natural product is generally very pure.

The principal uses of gypsum are as structural material—wall plaster, gypsum boards, blocks and tile—and as an ingredient in Portland cement and plaster of Paris.

Extensive deposits of high-grade gypsum are found in Lemhi, Bear Lake, and Washington counties. These deposits have never been developed, as the low price of the crude product limits production to those States located near the centers of population.

Limestone

Limestone is mined in Butte, Teton, and Bonner counties; Bannock, Blaine, and Bear Lake counties also contain deposits of importance. The limestone mined in Bonner County is shipped to Spokane, Washington, where it is manufactured into Portland cement. The limestone mined in Butte and Teton counties is shipped to the sugar factories of Idaho and Utah, where it is used in the refining of sugar.

There are unlimited deposits which are suitable to the cement industries.

Marble

Marble is dense crystalline calcium carbonate, formed from limestone by the pressure of overlying sediments and the action of underground water. The value depends on the color, which may be white, gray, red, black, or veined, and the grain and structure. Its principal use is for building and monumental purposes.

Marble suitable to commercial purposes occurs in Nez Perce, Butte, and Cassia counties. The deposits in Nez Perce and Butte counties have been slightly exploited.

Mica

The principal physical properties which give value to mica are: Its cleavage, transparency, resistance to decomposition, and non-conduction of electricity and heat. The important uses of mica are: Short mica, in the electrical industries and as glazing for stoves, screens, goggles, and lantern projection; ground mica, in fancy paints, wallpaper, tiles, concrete, rubber goods, roofing materials, lubricants, and insulating compounds.

"Mica deposits of probable value have been found in about half the States of the United States. The principal producing States have been North Carolina, New Hampshire, South Dakota, Idaho, New Mexico, Colorado, Virginia, South Carolina, Alabama, and Georgia."—Schaller, W. T., Mica: U. S. Geological Survey Mineral Resources, pt. 2, p. 280; 1915. The production which gave Idaho this prominent rank was from the mica mines in Latah County.

Deposits of commercial importance occur in Adams and Idaho counties also, although they have never been prospected or developed in proportion to the possibilities which they offer.

Mineral Waters

Mineral springs of various types occur at a great many places throughout the State, the principal types being calcareous, chalybeate, sulphurated, and saline. The temperatures of the different types vary from "cold" to "hot", with some of the latter exceeding the boiling point. Hot springs are the more numerous, and at many of them sanitariums and bathing resorts have been erected.

The chalybeate springs of Caribou County are particularly efficacious from a therapeutic standpoint, although they have never been exploited.

Monazite

The mineral monazite consists chiefly of the phosphate of cerium and variable amounts of thoria, the value depending primarily upon the thoria content. It is a resinous golden-yellow mineral occurring as a placer sand in practically all of the gold placer mines in the State; the quantity varies, and in some of the deposits it is not sufficient to be of commercial importance. The placer deposits of Ada, Idaho, Lemhi, and Owyhee counties contain an appreciable amount of this mineral, and those of Boise and Clearwater counties contain sufficient to be of commercial importance.

The principal use of thorium is in the manufacture of incandescent mantles for gas lighting. Practically all of the monazite used in the United States is imported from Brazil and India.

Nitrates

The occurrence of nitrate in Camas, Elmore, and Owyhee counties has been reported.

Oil and Gas

The same formations which are oil-producing in Wyoming are present in structures highly favorable to the accumulation of oil and gas in Caribou, Bonneville, Teton, Bear Lake, and Bingham counties. A small amount of drilling has been done in Caribou and Teton counties, but the wells were never completed to a sufficient depth to determine the possibilities for the occurrence of oil.

Gas has been developed in Payette and Washington counties.

Phosphate Rock

The greatest potential mineral resource in Idaho is the immense phosphate rock deposits in Bear Lake, Caribou, Bannock, Bingham, and Bonneville counties. Conservative estimates by members of the U. S. Geological Survey accredit Idaho with over 85 per cent of the total phosphate resources of the United States in 268,299 acres out of a total of 396,612 acres which have been withdrawn from public entry. These deposits are fully described with maps, illustrations and analyses by G. R. Mansfield in U. S. Geological Survey Professional Paper No. 152, "Geography, Geology, and Mineral Resources of Part of Southeastern Idaho", from which the following is quoted:

"In Utah, Idaho, Wyoming, and Montana the great bulk of the phosphate rock is on public land, though some has passed into private ownership. The public lands are withdrawn from entry pending their examination and classification. No estimates of the acreage of phosphate land in private ownership are available, but the acreage of the outstanding withdrawals of public land in the States named is shown in Table 38.

TABLE 38—**Outstanding phosphate withdrawals, July 31, 1927**

	Acres
Utah	301,945
Idaho	**396,612**
Wyoming	996,539
Montana	279,944
Total	1,966,390

"In addition to the land embraced in the outstanding phosphate withdrawals, 268,299 acres in Idaho, 25,293 acres in Wyoming, 3,833 acres in Montana, and 160 acres in Utah—297,585 acres in all—have been examined in detail and formally classified as phosphate land. * * *

"Under the act of July 17, 1914, agricultural entries may be made upon withdrawn phosphate lands, but the mineral rights are reserved to the United States."

TABLE 74a—Estimate of phosphate rock in the United States available December 31, 1925, in long tons

FIELD	Estimated quantity available	FIELD	Estimated quantity available
Eastern field:		Western field:	
Arkansas	20,000,000	**Idaho**	**4,997,855,000**
Florida	291,000,000	Montana	391,323,000
Kentucky	878,000	Utah	326,745,000
South Carolina	8,788,000	Wyoming	115,754,000
Tennessee	83,500,000		
			5,831,677,000
	404,166,000	Less approximate quantity mined since 1906	350,000
			5,831,327,000
			404,166,000
			6,235,493,000

Pyrite

Pyrite of commercial importance is found in Washington County. The development work which has been done on these deposits indicates an immense available tonnage.

Rutile

The occurrence of rutile in Clearwater County has been reported. Rutile, the natural titanium oxide, is used in paints; arc-light electrodes; dyes, and in the manufacture of leather.

Salt

The pioneers evaporated the brine from the salt springs of Caribou County, and this salt was transported to all of the northwestern States before the building of the railroad. The salt obtained from these springs is above the average of the commercial salts of the United States in purity and compares favorably with some of the best salt produced. The salt springs and deposits are described by W. C. Phalen, who estimates 5,000,000 tons in sight, in U. S. Geological Survey Bulletin 669, "Salt Resources of the United States":

"Although the salt bodies or old alkali flats are thus meager in extent, especially in comparison with the other prominent salt-producing areas of the United States, the conservative estimate of 5,000,000 tons for the Crow Creek rock-salt body and the possibility of a larger salt body near the Tygee and Stump Creek forks indicate that the amount of salt apparently in sight in some of the present areas would be sufficient (if proper railroad connections existed) to yield returns on large workings for a long time. It also appears quite probable that all the areas, including the smaller brine springs, contain sufficient salt to return the sums that may be advisedly invested in their development."

Sulphur

Sulphur occurring in extensive deposits and as sulphur springs is found in Caribou County. During the World War a little attempt was made toward the commercial development of these deposits.

Talc

Talc suitable to the electrical and powdered-talc industries occurs in Idaho County in sufficient extent to be of commercial importance.

ADA COUNTY

Ada is one of the southwestern counties, adjoining and lying north and east of Owyhee and Canyon counties, and south of Boise County. It contains 1154 square miles and was accredited with a population of 35,213 in the 1920 census. Boise, the largest city in the State, is the State capital and county seat. The county is noted for its excellent irrigated farms, and its livestock, farming, and fruit-raising industries.

The State highway, Oregon Trail, extending from the southeast corner of the county to Boise, thence west to Nampa, and the excellent county highways and roads, give this county some of the best roads in the State as well as easy access to the mineralized areas.

Ada is not recognized as a mining county, yet its small mountainous area was once the scene of many active mining operations; and Boise was established as the principal distributing point for miners' supplies when the rich placer diggings of Boise County and adjacent areas were worked in the early days.

The early day mining was based on free gold operations and, as the sulphide zone was encountered at a shallow depth, the mines were soon closed and have remained dormant for many years. The principal ores are lead and zinc, carrying high values in silver and gold, occurring in fissure veins and as replacement deposits in granite. The ore occurrences are well defined and offer good opportunities to prospectors and small operators in search for these metals.

The chief mineral resources are building stone, gold, lead, silver, zinc, and arsenic. Building stone and its accompanying enterprise were fully described in the 26th annual report, for the year 1924.

During 1927 the mines and prospects in this county witnessed a little increase in attention and development over that of the previous year, in addition to which there was a decided activity in promoting oil development enterprises and legendary "White Metal".

The Boise Stone Company was active throughout the year and reports that a large quantity of stone was quarried and cut.

AMERICAN MINING & MILLING CO.

Office: Boise City Nat'l. Bank Bldg., Boise. **Officers:** E. W. Johnson, Pres., Boise; W. H. Hulburt, Sec., Portland, Ore.; Hortense Adams, Mgr., Boise. **Inc.:** Nov. 12, 1919. **Capital:** 500,000 shares, par value $1; 80,000 shares issued. **Property:** Ironsides & Viola group; 2 patented, 10 unpatented claims, Black Hornet dist.; Boise. **Development:** Principally by 4 tunnels and 4 small shafts; total development, approximately 5800 feet. **Plant:** 50-ton concentrator partly dismantled; 15 h. p. air-driven hoist and small Ingersoll compressor. **Ore:** Gold-silver-iron. **Remarks:** Other than annual labor, nothing has been done on this property for nine years.

BERGDAHL OIL CO.

Office: 260-261 Sonna Bldg., Boise. **Officers:** A. F. Bergdahl, Pres.-Mgr.; H. A. Alden, Sec., both of Boise. **Inc.:** July 16, 1927. **Capital:** 1,000,000 shares; par value $1; 250,000 shares issued. **Property:** Leases on 2760 acres of patented land in Ada and Gem counties. **Development:** 2½-in. well 260 ft. deep. **Plant:** Small water well drilling equipment operated under contract. **Mineral sought:** Oil and gas. **Men employed:** None. **Remarks:** Active publicity campaign for purpose of selling stock maintained throughout the year.

GOLD KING MINES CO.

Office: 402 Empire Bldg., Boise. **Officers:** S. T. Schreiber, Mgr., Boise. **Inc.:** A copartnership. **Property:** Gold King group; 4 unpatented claims, Black Hornet dist.; Boise. **Development:** By one tunnel 50 ft. long. **Remarks:** Small amount of work during the year.

IDAHO EXPLORATION & DEVELOPMENT CO.

Office: 235 Sonna Bldg., Boise. **Officers:** J. M. McBride, Pres.; Amzi Dodd, Sec.; both of Boise. **Inc.:** June 25, 1921. **Capital:** 100,000 shares; par value 50c; 2400 shares issued. **Property:** Owns 120 acres and holds lease on 1666 acres. **Remarks:** Company was organized for the purpose of prospecting for oil and gas.

PIONEER IDAHO OIL CO.

Office: 322 Eastman Bldg., Boise. **Officers:** J. E. Nottingham, Pres.-Mgr.; P. M. Davis, Sec., both of Boise. **Inc.:** Apr. 4, 1927. **Capital:** 600,000 shares; par value $1; 200,011 shares issued. **Property:** Leases and government prospecting permits on 10,000 acres in Ada and Gem counties; Eagle. **Mineral sought:** Oil and gas.

RED ROSE GOLD MINES CO.

Office: 605 Eastman Bldg., Boise. **Officers:** J. J. Oberbillig, Pres.-Mgr., Boise. **Inc.:** Jan. 27, 1921. **Capital:** 500,000 shares; par value 5c; all shares issued. **Property:** Red Rose group; 12 patented claims, Black Hornet dist.; Boise. **Development:** By 3 tunnels, the principal one of which is 685 ft. in length; total development, 1400 ft. **Ore:** Gold-silver. **Remarks:** Idle throughout the year.

RELIANCE GOLD MINES CO.

Office: 605 Eastman Bldg., Boise. **Officers:** J. J. Oberbillig, Pres.-Mgr., Boise; Louis A. Dumond, Sec., Chicago, Ill. **Inc.:** Feb. 4, 1924. **Capital:** 1,000,000 shares; par value 10c; 350,000 shares issued. **Property:** Star group; 8 unpatented claims, Black Hornet dist.; Boise. **Development:** Principally by one tunnel which is 1350 ft. long. **Ore:** Gold-silver-arsenic. **Remarks:** Annual labor only.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Big Foot Bar	Unorganized	Archie T. Winter	Mt. Home
Blue Grouse Ext.	Black Hornet	Goodwin & Thacker	Boise
Blue Grouse et al.	Black Hornet	A. G. Adelmann	622 Idaho St., Boise
Delhi	Black Hornet	S. T. Schreiber	Boise
Five Mile Gr.	Shaw Mountain	J. M. Roberts	110 E. Ban. St., Boise
Gold Eagle Gr.	Black Hornet	C. C. Anderson	Boise
Hidden Treasure	Black Hornet	W. P. Richards	Boise
Maynard Bros.	Highland	H. T. Maynard	Boise
Monitor Placer	Highland	W. E. Johnston	Boise
Sorrel Horse et al.	Black Hornet	N. R. C. Adelmann	221 Jeff. St., Boise
White Mineral	Black Hornet	H. J. Leppert	506 S. 3d St., Boise

BIBLIOGRAPHY

See pages 11-12 for publisher's address, meaning of reference marks, and abbreviations.

A geological reconnaissance across Idaho, by G. H. Eldridge: U. S. Geol. Survey, Sixteenth Ann. Rept., pt. 2, pp. 217-276, **1894-1895.***

Description of the Boise quadrangle, by Waldemar Lindgren: U. S. Geol. Survey Geol. Atlas, Folio No. 45, **1898.***

Mining districts of the Idaho Basin and the Boise Ridge, Idaho, by Waldemar Lindgren: U. S. Geol. Survey Eighteenth Ann. Rept., pt. 3, pp. 625-736, **1898.***

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey Twentieth Ann. Rept., pt. 3, pp. 75-256, **1900.***

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Preliminary report on artesian basins in southwestern Idaho and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Water Supply Paper 78, **1903.**‡

Notes on the geology of southwestern Idaho and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Bull. 217, **1903.**‡
Description of the Nampa quadrangle, by Waldemar Lindgren and N. F. Drake, U. S. Geol. Atlas, Folio No. 103, **1904.***
Description of the Silver City quadrangle, by Waldemar Lindgren and N. F. Drake, U. S. Geol. Survey Geol. Atlas, Folio No. 104, **1904.***
Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 60, art. 3, pp. 1-33, **1921.**‡
A preliminary reconnaissance of the gas and oil possibilities of southwestern and south-central Idaho, by J. P. Buwalda: Idaho Bureau of Mines and Geology Pamphlet 5, **1923.***
Idaho building stone: Twenty-sixth Ann. Rept., Mining Industry of Idaho, **1924.***

ADAMS COUNTY

Adams is one of the southwestern counties, adjoining and lying south of Idaho County, north of Washington County, and west of Valley County. The Snake River, which flows north, forms the entire western boundary. The county contains 1366 square miles and was accredited with a population of 2,966 in the 1920 census, or 2.2 inhabitants to the square mile. The larger part of the population is located in Weiser River and Little Salmon River valleys. The headwaters of the Weiser River, which flows south, and those of the Little Salmon River, which flows north, are located in this county. It is primarily an agricultural county and is noted for its high-quality apples and livestock industry.

The North and South Panoramic Highway extends from the southern to the northern boundaries and is situated in about the geographical center. Branch roads leading to all of the outlying settlements are maintained by the county and U. S. Forest Service. These are kept in good repair and are open to travel during the larger part of the year. In 1925 the Legislatures of Oregon and Idaho each appropriated $25,000 for the construction of a joint State wagon bridge across the Snake River at Ballard's Landing, about three miles north of Homestead, Oregon. It has proved to be an important connecting link between the Oregon highway at Baker and the Idaho highway at Council, which is the county seat and largest settlement of Adams County.

The county is served by two railroads: the Pacific and Idaho Northern, which extends from Weiser to New Meadows, and the Oregon Short Line branch from Huntington to Homestead, Oregon.

Over 90 per cent of the county is mountainous. The mountains are rough and rugged and the bold relief that many of them show on the skyline presents scenic views that are unsurpassed in grandeur, the principal one of which is the Seven Devils, seven serrated peaks which reach high into the skyline, and from which the Seven Devils mining district is named.

During the eighties and early nineties this district was an active mining center. Many mines were in operation, a railroad was projected into it and partly constructed, a smelter was in operation, and three towns of fair sized populations were established. The boom died down in the panic of 1893 and since then no large operations or shipments of any consequence have taken place. The latent mineral resources are practically undeveloped and unprospected. The bold relief permits cheap development work by tunnels and drifts and, as the mineral resources are diverse and varied, the county offers many excellent opportunities to prospectors and development companies. The ores of the Seven Devils district are principally copper carrying silver and gold, with an occasional deposit of lead-zinc ore. The ores of the Indian Creek section are those of silver-copper and lead-zinc-silver. In addition to the five principal metals—copper, silver, gold, lead, zinc—deposits of mica, feldspar, and garnet, of commercial importance, occur in this county. The mica deposits of Council Mountain have received a little attention, although they have never been prospected or developed in proportion to the possibilities

which they offer. When the mineral resources of Adams County are properly exploited and developed this county may be recognized as one of the principal mining counties in the State.

During 1927 this county witnessed more mine development and more new mine plant installations than at any time since the "boom days" of the Seven Devils. At the Red Ledge mine the Idaho Copper Co. constructed a complete and modern mine camp and mine buildings; installed a 600-cubic foot Ingersoll-Rand compressor, driven by a 120-horsepower Diesel engine, and complete mining equipment including underground mechanical loaders; and started work on their tunnel from Eagle Bar which has a projected length of approximately 6500 feet, of which about 700 feet was completed. In addition to the foregoing, the company performed about 4000 feet of diamond drilling on Deep Creek.

At the South Peacock mine, the Idaho Copper Corporation (over 98 per cent of whose stock is owned by the Idaho Copper Co.) purchased second-hand boilers, a steam-driven compressor and hoist, and moved them to the property, where they were partly installed in a new building. A small amount of development work was performed, and a few tons of low-grade copper ore were marketed.

On November 4 all mining operations were suspended at the Red Ledge and South Peacock mines, and on November 25 the Idaho Copper Co. was placed in receivership. The complaint for receivership was filed by the Boise Association of Credit Men, and alleged disagreements between the Cooley Butler faction (originally Idaho Copper Co., Ltd.) and the George Graham Rice faction (originally Idaho Copper Corporation).

James Glass and associates, of Butte, Montana, acquired the Peacock mine under a lease and option. They reconstructed the camp buildings and commenced development work. Kleinschmidt Bros., of Helena, Montana, repaired the mine buildings and commenced work at the Blue Jacket group. The Lime Peak Copper Co., on Snake River, maintained work throughout the year. Prospectors in the Hornet Creek and Indian Creek sections were active. Also, the mica deposits in the Council Mountain district received more attention than in previous years.

AMERICAN MINING CO., LTD.

Office: 630 Monroe Ave., Helena, Mont. **Officers:** Amelia H. Kleinschmidt, Pres., Helena, Mont. **Inc.:** Sept. 11, 1911. **Capital:** 50,000 shares; par value $1; none issued. **Property:** Peacock and White Monument groups; 10 patented claims, Seven Devils dist.; Cuprum. **Ore:** Copper, silver. **Remarks:** Peacock group under lease and option to James Glass and associates, of Butte, Montana, who reconstructed the mine camp, commenced the rehabilitation of the property, and conducted development work during the four closing months of the year.

IDAHO COPPER CO.

Office: 112 N. 6th St., Boise. **Officers:** O. H. Griggs, Pres., 643 Title Ins. Bldg., Los Angeles, Calif.; Carey H. Nixon, Sec.; Frank A. Kennedy, Mgr., both of Boise. **Inc.:** Jan. 10, 1920, as Idaho Copper Co., Ltd. Name changed May 24, 1926. **Capital:** On Feb. 9, 1925, the capital was increased from 50,000 shares, par value $10, to 10,000,000 shares, par value $1; 9,526,332 shares issued. **Property:** Red Ledge group; 31 patented, 22 unpatented claims, Seven Devils dist.; R. R. and P. O., Homestead, Ore., 18 miles. **Development:** 3 tunnels on Deep Creek: No. 1, 950 ft. long; No. 2, 2400 ft. long; No. 3, 100 ft. long; tunnel No. 4 at Eagle Bar 700 ft. long. In addition to the tunnels, approximately 10,000 ft. of diamond drilling has been done on the property. **Plant:** 600-cu. ft. I. R. compressor, driven by 120 h. p. Diesel engine; complete mining equipment and camp at No. 4 tunnel. **Ore:** Copper. **Men employed:** Average, 80. **Remarks:** The 15-mile wagon road connecting Eagle Bar and Homestead, Ore., which was started in 1926, was completed early in 1927. Complete and modern mine camp and mine buildings were con-

structed; mine equipment, including mechanical loaders, was installed; work was started on No. 4 tunnel, which has a projected length of approximately 6500 ft., and advanced about 700 ft. In addition to the foregoing, approximately 4000 ft. of diamond drilling was performed on Deep Creek.

On Nov. 4 all mining operations were suspended, and on Nov. 25 the company was placed in receivership. The complaint for receivership was filed by the Boise Association of Credit Men, and alleged disagreements between the Cooley Butler faction (originally Idaho Copper Co., Ltd.) and the George Graham Rice faction (originally Idaho Copper Corporation).

IDAHO COPPER CORPORATION

Office: 112 N. 6th St., Boise. **Officers:** O. H. Griggs, Pres., 643 Title Ins. Bldg., Los Angeles, Calif.; Carey H. Nixon, Sec.; Frank A. Kennedy, Mgr., both of Boise. **Inc.:** Incorporated in Delaware, Oct., 1924; filed in Idaho, April 4, 1925. **Capital:** 2,500,000 shares; par value $1; all shares issued. **Property:** South Peacock group; 3 patented, 5 unpatented claims; Seven Devils dist.; Cuprum. **Development:** 1 vertical shaft, 325 ft. deep; completed in 1901 by prior owners. Total development, approximately 1300 ft. **Plant:** Partly installed steam-driven hoist and compressor. **Ore:** Copper. **Men employed:** Average, 20. **Remarks:** Second-hand boilers, steam-driven compressor and hoist were purchased, moved to the property and partly installed. On Nov. 4 all mining operations were suspended, and on Nov. 25 the company was placed in receivership. The complaint for receivership was filed by the Boise Association of Credit Men, and alleged disagreements between the Cooley Butler faction (originally Idaho Copper Co., Ltd.) and the George Graham Rice faction (originally Idaho Copper Corporation).

On April 7, 1926, this company was merged with the Idaho Copper Co., Ltd., on the basis of 1¾ shares of the latter for 1 share of the former. As more than 98 per cent of the stock was exchanged, the reason for a separate entity of this company is unknown.

IDAHO MINES CO., LTD.

Office: Weiser. **Officers:** S. H. Travis, Pres., Chehalis, Wn.; B. S. Varian, Sec., Weiser. **Inc.:** Jan. 5, 1904. **Capital:** 5,000,000 shares; par value $1; 1,503,700 shares issued. **Property:** California group: 3 patented claims, Seven Devils dist.; Cuprum; R. R. Homestead, Ore., 30 miles. **Ore:** Copper. **Remarks:** Idle for many years.

INDIAN CREEK MINING & DEVELOPMENT CO.

Office: 610 Eastman Bldg., Boise. **Officers:** William J. Tait, Pres.; George D. Reid, Sec.-Treas., both of Fillmore, Calif. **Inc.:** Oct. 22, 1909. **Capital:** 100,000 shares; par value $1; 82,553 shares issued. **Property:** 3 patented, 2 unpatented claims, Indian Creek, Seven Devils dist.; Cuprum. **Development:** Approximately 800 ft. of underground workings. **Ore:** Copper. **Remarks:** Idle for many years.

LIME PEAK COPPER CO.

Office: 214 Couch Bldg., Portland, Ore. **Officers:** Joseph M. Healy, Pres.; L. B. Reeder, Sec., both of Portland, Ore. **Inc.:** Form of organization unknown. **Capital:** 2,000,000 shares; par value $1; 1,425,548 shares issued. **Property:** Lime Peak group; 22 unpatented claims, Snake River; 5 miles north of Homestead, Ore.; Seven Devils dist. **Development:** By 8 tunnels, the principal one of which is 1520 ft. long. Total development, approximately 2700 ft. **Plant:** Small air compressor, driven by gasoline engine; complete mining equipment. **Ore:** Copper-silver. **Men employed:** Average, 3. **Remarks:** Active development work, which consisted of extending the principal tunnel, was conducted throughout the year; and in addition a small amount of work was done at other points on the property. A small tonnage of ore was produced and marketed.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Alaska et al.	Seven Devils	N. J. Patterson	Baker, Ore.
Amadore et al.	Seven Devils	J. A. Dimick	San Antonio, Texas
American Flag et al.	Mountain View	Mary Z. Finney	Cleveland, Ohio
Arkansaw	Seven Devils	E. C. Westervelt	11 Broadway, New York City
Bald Eagle	Seven Devils	Mrs. Mabel Sprouls	Cuprum
Big Indian et al.	Seven Devils	E. J. Whitmarsh	Cuprum
Blue Bird Gr.	Seven Devils	Mose Fuchs	Baker, Ore.
Blue Bucket	Seven Devils	Irene Imhaus	Madison Park Apts. Portland, Ore.
Bryan et al.	Seven Devils	Mose Fuchs	Baker, Ore.
Camp Ground et al.	Seven Devils	Martin Bradley	Cuprum
Chameleon Gr.	Mountain View	Thos. G. Potter	Pollock
Chieftain et al.	Seven Devils	Jno. A. Stewart	Indian Valley
Cliff et al.	Seven Devils	P. L. Gaarden	Bear
Copper Belt Gr.	Seven Devils	G. W. McCarty	Homestead, Ore.
Copper Bottom	Seven Devils	F. J. Lindsay	Cuprum
Copper Dike	Seven Devils	Toleen & Peterson	Cuprum
Decorah	Seven Devils	R. E. Wilson	Cambridge
Decorah	Seven Devils	Mary Steele	610 Springs St., Portland, Ore.
Deep Creek Gr.	Seven Devils	Frank Lauzon	Cuprum
Faye L.	Seven Devils	Anna Adams	Cuprum
Glenn G.	Unorganized	J. F. Glenn et al.	Fruitvale
Gold Coin Gr.	Seven Devils	Adams County	Council
Gold & Copper	Seven Devils	Rom & Degitz	Cuprum
Golden Star Gr.	Mountain View	Jas. H. Hawley	Boise
Grandview Gr.	Seven Devils	Frank Shelton	Cuprum
Grant Gr.	Seven Devils	J. A. Walsh	Helena, Mont.
Great Eastern	Seven Devils	Arthur David Est.	Bear
Greenhorn Gr.	Seven Devils	Collins Lynes	Cuprum
Hollister Gr.	Seven Devils	Mabel A. Gilmore	Cuprum
Iowa & Josie	Seven Devils	E. D. Ford	Weiser
Kinney	Seven Devils	Chas. Warner	Bear
Last Chance Pl.	Seven Devils	Walter James	Cuprum
Last Chance	Seven Devils	I. R. Smith	Midvale
Lockwood et al.	Seven Devils	August Brockman	Weiser
Lola Group	Seven Devils	A. J. Cole	Oakland, Ky.
Mammoth Gr.	Seven Devils	Chas. Anderson	Cuprum
Margaret Gr.	Seven Devils	Frank E. Smith	Weiser
Mayflower Gr.	Seven Devils	Mrs. F. Hildebrand	Council
Mica Champion Gr.	Unorganized	M. P. Gifford	Council
Minnie H.	Seven Devils	S. M. French	Weiser
Mohawk et al.	Seven Devils	G. W. McCarty	Baker, Ore.
Monarch Mica Gr.	Unorganized	Gillman Rinehart	Council
Moonlight	Seven Devils	J. A. Reynolds	Weiser
North Hornet Gr.	Unorganized	W. E. Freehafer	Council
North Peacock	Seven Devils	Melvin Hubbard	
Olive	Seven Devils	F. F. Fife	Cuprum
Paducah	Seven Devils	J. C. Rogers	Huntington, Ore.
Pres. Wilson et al.	Seven Devils	L. A. Darland	Cuprum
Red Mountain	Seven Devils	Collis Lynes	Cuprum
River Queen Gr.	Seven Devils	Bernard Haas	Weiser
Ruby Bell	Mountain View	Mary Z. Finney	Cleveland, Ohio
Schley et al.	Seven Devils	Geo. A. Jones,	Boise
Star Gr.	Mountain View	Thos. G. Potter	Pollock
Virginius	Seven Devils	Andrew Wilmot	Kendrick
Virginius	Seven Devils	E. C. Dutton	Helena, Mont.
Walker	Seven Devils	J. T. Steele	Carson, Ore.
Whale	Seven Devils	A. G. Butterfield	Weiser
Wild Horse Gr.	Seven Devils	Mrs. C. R. Braasch	Homestead, Ore.

BIBLIOGRAPHY

See pages 11-12 for publisher's address, meaning of reference marks, and abbreviations.

The copper deposits of the Seven Devils, Idaho, by Waldemar Lindgren: Min. and Sci. Press, vol. 78, p. 125, **1899.***

Seven Devils district, by Charles Kirchhoff: U. S. Geol. Survey Twentieth Ann. Rept., pt. 6, pp. 183-184, **1899.**‡

Copper deposits of the Seven Devils, Idaho, by Waldemar Lindgren: The gold and silver veins of Silver City, De Lamar and other mining districts in Idaho: U. S. Geol. Survey Twentieth Ann. Rept., pt. 3, pp. 88, 249-253, **1900.***

Copper deposits of Snake River, by Waldemar Lindgren: The gold belt of the Blue Mountains of Oregon: U. S. Geol. Survey Twenty-second Ann. Rept., vol. 2, pp. 562, 580, 595, 632, 747-762, **1901.***

The copper mines of the United States in 1905, by W. H. Weed: U. S. Geol. Survey Bull. 285, pp. 108-109, **1906.***

The Seven Devils and the Snake River district, by G. D. Reid: Eng. and Min. Jour., vol. 84, p. 401, Aug. 31, **1907.**§

The occurrence of ore on the limestone side of garnet zones, by J. B. Umpleby: University of California publications, Bull. Department of Geology, vol. 10, No. 3, pp. 25-37, Oct. 14, **1916.****

The I. X. L. copper prospect, by R. N. Bell: Eng. and Min. Jour., vol. 108, p. 400, Sept. 6, **1919.**§

Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, pp. 32-37, **1919.****

The copper deposits of the Seven Devils and adjacent districts, by D. C. Livingston and F. B. Laney: Idaho Bureau of Mines and Geology Bull. 1, **1920.***

Diamond drilling in the Seven Devils Mountains, by F. A. Kennedy: Eng. and Min. Journal-Press, vol. 113, pp. 521-523, April 1, **1922.**§

A geologic reconnaissance of the Mineral and Cuddy Mountain mining district, Washington and Adams counties, Idaho, by D. C. Livingston: Idaho Bureau of Mines and Geology Pamphlet 13, **1925.****

BANNOCK COUNTY

Bannock County is one of the largest and most important of the southeastern counties. It is bounded on the north by Bingham County, on the east by Caribou and Bear Lake counties, on the south by Franklin and Oneida counties, and on the west by Power County. It has an area of 1837 square miles and was accredited with a population of 27,532 in the 1920 census. Pocatello, the second largest city in the State, is the county seat and principal division point of the Oregon Short Line Railroad.

The county is served by two State highways, the Oregon Trail, and Yellowstone Park. The former is the main east and west trunk line, and the latter is the main north and south trunk line of the State system.

The principal mineral resources are phosphate rock, limestone, manganese, copper, silver, gold, and building stone. The limestone is suitable for Portland cement and, as the deposits are extensively distributed and adjacent to transportation, they will eventually add a new and important industry. The phosphate rock covers a large area and constitutes an important latent resource. Considerable prospecting has been done on the copper veins which are found in the Portneuf Mountains south of Pocatello. A mill was constructed at one mine; but other than the necessary annual labor no work of importance has been conducted for a number of years. Reports on the manganese deposits near Cleveland and Lava Hot Springs, which were discovered during 1924, indicate that the ore is high grade and that there is a large tonnage available.

During the year the Idaho Manganese Mining Co. produced and marketed a large tonnage of high-grade manganese ore, in addition to performing considerable development work. A small amount of development work was performed by lessees on the property owned by the Cleveland Mining Corporation. The Lava Manganese Mining Co., and William Godfrey developed their manganese properties near Lava Hot Springs during the summer months.

FORT HALL MINING & MILLING CO., LTD.

Office: Pocatello. **Officers:** H. M. Palmer, Pres.-Mgr., Pocatello. **Inc.:** Sept. 5, 1902. **Capital:** 1,000,000 shares; par value $1; 260,000 shares issued. **Property:** Fort Hall group; 10 unpatented claims, Fort Hall dist.; Portneuf. **Development:** Principal tunnel 4000 ft. long; total development approximately 8000 ft. **Plant:** MINE: Steam-driven compressor, complete mining equipment. MILL: 50-ton concentrator built 1909. **Ore:** Copper. **Remarks:** Annual labor.

IDAHO MANGANESE MINING CO.

Office: Cleveland, Idaho. **Officers:** Nathan Smith, Pres.-Mgr., Cleveland; J. H. Peterson, Sec., Pocatello. **Inc.:** July 17, 1925. **Capital:** 400,000 shares; par value 10c; all shares issued. **Property:** 250 acres patented land; unorganized district; Cleveland. **Development:** By 2 tunnels. **Ore:** Manganese. **Men employed:** Average, 20. **Remarks:** Active throughout the year. A large tonnage of manganese ore was produced and marketed.

LAVA MANGANESE MINING CO.

Office: Lava Hot Springs. **Officers:** R. S. Turner, Pres.; H. R. Turner, Sec., both of Pocatello; B. C. Madill, Mgr., Lava Hot Springs. **Inc.:** Aug. 10, 1926. **Capital:** 10,000 shares; par value $10; shares issued unknown. **Property:** 5 unpatented claims, Portneuf dist.; Lava Hot Springs. **Development:** 1 tunnel 400 ft. long. **Ore:** Manganese. **Men employed:** Average, 3. **Remarks:** Small amount of development work during early part of the year.

LEAD BELL MINING CO.

Office: Lava Hot Springs. **Officers:** S. D. Colton, Pres., Salt Lake City; Drusilla Godfrey, Sec.; Wm. R. Godfrey, Mgr., both of Lava Hot Springs. **Inc.:** Nov. 12, 1925. **Capital:** 1,000,000 shares; par value 10c; all shares issued. **Property:** 9 unpatented claims, Portneuf dist.; Lava Hot Springs. **Development:** Principally by 1 tunnel, 630 feet long. **Ore:** Lead-silver. **Remarks:** Idle.

BIBLIOGRAPHY

See pages 11-12 for publisher's address, meaning of reference marks, and abbreviations.

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

The copper mines of the United States in 1905, by W. H. Weed: U. S. Geol. Survey Bull. 285, pp. 108-109, **1906.***

Notes on the Fort Hall mining district, Idaho, by F. B. Weeks and V. C. Heikes: U. S. Geol. Survey Bull. 340, pp. 175-183, **1908.***

Guidebook of the western United States, by W. T. Lee and others: U. S. Geol. Survey Bull. 612, pp. 114-147, **1915.**‡

Geography, geology, and mineral resources of the Fort Hall Indian Reservation, Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 713, **1920.**‡

The Wasatch and Salt Lake formations of southeastern Idaho, by G. R. Mansfield: Am. Jour. Sci., vol. 49, pp. 399-406, June, **1920.**§

Triassic and Jurassic formations in southeastern Idaho and neighboring regions, by G. R. Mansfield: Am. Jour. Sci., vol. 50, pp. 53-64, July, **1920.**§

Geography, geology, and mineral resources of part of southeastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Prof. Paper 152, **1927.***

BEAR LAKE COUNTY

Bear Lake is the extreme southeastern county of the State. It is bounded on the east by the State of Wyoming and on the south by the State of Utah. On the north and west it adjoins Caribou, Bannock, and Franklin counties. It has an area of 980 square miles and was accredited with a population of 8783 in the 1920 census. Montpelier, situated in the center of a rich agricultural valley, is the largest town; and Paris, located near the north end of Bear Lake, is the county seat.

The State highway, Oregon Trail, and the main line of the Oregon Short Line Railroad traverse the county east and west, thus giving it good transportation facilities.

The principal mineral resources are phosphate rock, gypsum, manganese, copper, lead, and silver. There are also excellent possibilities for petroleum. Estimates made by geologists of the U. S. Geological Survey credit the State with more than five billion tons of minable phosphate rock, over 85 per cent of the total known phosphate resources of the world. The largest and most accessible areas containing this rock are in Bear Lake County. Phosphate is a necessary soil constituent and it is through the existence of the Idaho deposits that the future of American agriculture is assured. These deposits are practically untouched, as present freight, market, and price conditions are preventing profitable production. They are the greatest potential mineral resources within the State and when properly developed the mining enterprises will dwarf many of the now famous mining districts in the United States. These deposits are fully described, with analyses and tonnage estimates included, in the numerous publications referred to in the bibliography of this county. Four mines are properly equipped with the necessary surface and mining plants, all have a large available tonnage, and production can be started without delay whenever conditions will warrant it.

One of the most outstanding publications issued by the U. S. Geological Survey in recent years is Professional Paper 152, by G. R. Mansfield: "Geography, Geology, and Mineral Resources of Part of Southeastern Idaho." This appeared during 1927; it is profusely illustrated with pictures, maps, and diagrams, and describes in detail the subjects mentioned in its title, dealing especially with the immense areas of phosphate rock found in this county.

Many structures favorable to the accumulation of gas and petroleum in commercial quantities are found in this county. As the formation is similar to those in Wyoming which are producing oil, it is reasonable to expect that the probabilities should be at least equal on the Idaho side of the State line.

In the past a little development work has been done on the copper and lead deposits which are found in this county; and a small tonnage has been marketed. Except for the annual labor, all of the prospects have been idle for a number of years.

The San Francisco Chemical Co. was the only phosphate mine in the county which was active during the year. This company operated its mine for nine months and produced a large tonnage of rock which was shipped to San Francisco, Calif., where it was converted into superphosphate in a plant owned by the company.

The Colossus Mining & Milling Co., near Pegram, was inactive throughout the year. A mill building, power-house building, and cottages for employees were constructed in 1926. This enterprise is based on gold which is not detected by the usual methods employed in assaying for this metal. The company's officers state: "The presence of gold is determined by a special assaying and cyaniding treatment, the enterprise is predicated on these special methods and the tailings from the mill will be pressed into brick."

BLACKSTONE MINING & POWER CO.

Office: Hood River, Ore. **Officers:** E. B. Cloud, Pres.-Mgr., Hood River, Ore. **Inc.:** Jan. 28, 1907. **Capital:** 1,000,000 shares; par value $1; shares issued unknown. **Property:** Blackstone, 1 patented claim, unorganized dist.; St. Charles. **Remarks:** Idle for many years.

COLOSSUS MINING & MILLING CO.

Office: Montpelier. **Officers:** M. L. de Julien, Pres.-Mgr., Pegram; De-Meade Austin, Sec., Montpelier. **Inc.:** May 1, 1925. Charter forfeited Nov. 30, 1927. **Capital:** 1,000,000 shares; par value 1c; 612,000 shares issued. **Property:** Colossus group; 10 unpatented claims, unorganized dist.; Pegram. **Development:** By 2 tunnels: No. 1, 510 ft. long; No. 2, 100 ft. long. **Plant:** Partly constructed; building designed to house a 300-ton cyanide plant. Complete mine camp and buildings. **Ore:** Gold. **Men employed:** Average, 1 **Remarks:** A small amount of development work done during the year. In 1926 the company's officers stated: "The presence of gold is determined by a special assaying and cyaniding treatment; the enterprise is predicated on these special methods, and the tailings from the mill will be pressed into bricks."

COPPER RESERVE MINING & REDUCTION CO.

Office: Care of Walker Brothers Bank, Salt Lake City, Utah. **Officers:** John M. Wallace, Acting Pres., Salt Lake City; Thomas Doolittle, Sec., Los Angeles, Calif. **Inc.:** Aug. 5, 1912. **Capital:** 500,000 shares; par value 10c; 400,000 shares issued. **Property:** Humming Bird group; 4 patented claims, Bear Lake dist.; Paris. **Remarks:** Inactive for nine years.

KEYSTONE PHOSPHATE CO.

Office: Paris, Idaho. **Officers:** F. S. Irwin, Pres.-Mgr., Nampa; M. P. Allen, Sec., Seattle, Wash. **Inc.:** May 4, 1926. **Capital:** 75,000 shares; par value $10; 50,000 shares issued. **Property:** Sublease on 360 acres, government lease owned by Joseph Stucki, and sublease on 317 acres of patented land; Paris. **Development:** By 1 tunnel 960 ft. long. **Ore:** Phosphate rock. **Remarks:** Mining activities not reported.

LEADVILLE CONSOLIDATED MINING CO.

Office: 310 Eccles Bldg., Ogden, Utah. **Officers:** Frank Moore, Pres.; G. B. Roberts, Sec.; Walter B. Cole, Mgr., all of Ogden, Utah. **Inc.:** Filed in Idaho Dec. 3, 1927. **Capital:** 1,000,000 shares; par value 10c; 580,000 shares issued. **Property:** Paris group; 5 unpatented claims, unorganized dist.; Paris. **Ore:** Lead-silver. **Remarks:** Development work started in December.

SAN FRANCISCO CHEMICAL CO.

Office: 332 Pine St., San Francisco, Calif. **Officers:** William F. Kett, Pres., San Francisco, Calif.; Jos. J. Taylor, Mgr., Montpelier. **Inc.:** July 17, 1906. **Capital:** 2000 shares; par value $100; all shares issued. **Property:** Waterloo group; 10 patented claims; 505 acres; Montpelier. **Development:** 3 tunnels; total development, approximately 4000 ft. **Plant:** Gas-driven compressor and complete mining equipment. **Ore:** Phosphate rock. **Men employed:** Average, 15. **Remarks:** Production maintained for 9 months; a large tonnage of phosphate rock was produced and shipped to San Francisco, Calif., where it was converted into superphosphate in a plant owned by the company.

UTAH FERTILIZER & CHEMICAL MFG. CO.

Office: Los Angeles, Calif. **Officers:** F. W. Braun, Pres.; Robt. J. Shields, Mgr., both of Los Angeles, Calif. **Inc.:** Jan. 29, 1908. **Capital:** 100,000 shares; par value $1; all shares issued. **Property:** 16 patented claims; approximately 2400 acres; unorganized dist.; Georgetown; R. R., Georgetown, 8 miles. **Development:** 9 tunnels, 2 shafts, approximately 800 ft. **Ore:** Phosphate rock. **Remarks:** Idle.

UTAH-IDAHO MINING & MILLING CO.

Office: Paris, Idaho. **Officers:** L. W. Johnson, Pres., Provo, Utah; H. H. Broomhead, Sec., Bloomington. **Inc.:** Aug. 23, 1926. **Capital:** 1,000,000 shares; par value 2c; 665,000 shares issued. **Property:** Old Boulder group, 18 unpatented claims, unorganized dist.; Paris. **Development:** By 3 tun-

nels: No. 1, 400 ft. long; No. 2, 150 ft. long; No. 3, 200 ft. long. **Ore:** Copper. **Men employed:** Average, 4. **Remarks:** Small amount of development work during the year, the funds for which were derived from stock assessments.

BIBLIOGRAPHY

See pages 11-12 for publisher's address, meaning of reference marks, and abbreviations.

Fifth and Eleventh Ann. Repts. U. S. Geol. and Geog. Surveys of the Territories, by F. V. Hayden, **1872** and **1879.***

Report on work in the Great Basin, by G. K. Gilbert: U. S. Geol. Survey Second Ann. Rept. 1880-1881, pp. 169-200, **1882.***

Lake Bonneville, by G. K. Gilbert: U. S. Geol. Survey Mon. 1, **1890.***

Phosphate deposits in western United States, by F. B. Weeks and W. F. Ferrier: U. S. Geol. Survey Bull. 315, pp. 449-462, **1907.***

Phosphate rock in Utah, Idaho, and Wyoming, by C. C. Jones: Eng. and Min. Jour., vol. 83, pp. 953-955; May 18, **1907.**§

Phosphate deposits in the western United States, by F. B. Weeks: U. S. Geol. Survey Bull. 340, pp. 441-447, **1908.***

Geology of the copper deposits near Montpelier, Bear Lake County, Idaho, by H. S. Gale: U. S. Geol. Survey Bull. 430, pp. 112-121, **1909.***

Preliminary report on the phosphate deposits in southeastern Idaho and adjacent parts of Wyoming and Utah, by H. S. Gale and R. W. Richards: U. S. Geol. Survey Bull. 430, pp. 457-531, **1909.***

Gems and precious stones, by D. B. Sterrett: U. S. Geol. Survey Mineral Resources **1909,** pt. 2, p. 804.*

Notes on lead and copper deposits in the Bear River Range, Idaho and Utah, by R. W. Richards: U. S. Geol. Survey Bull. 470, pp. 177-187, **1910.***

Preliminary report on a portion of the Idaho phosphate reserve, by R. W. Richards and G. R. Mansfield, U. S. Geol. Survey Bull. 470, pp. 371-439, **1910.***

A geological reconnaissance in southeastern Idaho, by A. R. Schultz and R. W. Richards: U. S. Geol. Survey Bull. 530, pp. 267-284, **1911.***

Discovery and opening of a new phosphate field in the United States, by C. C. Jones: Trans. Am. Inst. Min. Eng., vol. 47, pp. 192-216, August, **1913.**§

Geology of the phosphate deposits northeast of Georgetown, Idaho, by R. W. Richards and G. R. Mansfield: U. S. Geol. Survey Bull. 577, **1914.**‡

Revision of the Beckwith and Bear River formations of southeastern Idaho by G. R. Mansfield and P. V. Roundy: U. S. Geol. Survey Prof. Paper 98, pp. 75-84, **1916.***

Phosphate deposits in Idaho, by R. N. Bell: Eng. and Min. Jour., vol. 104, pp. 293-294, Aug. 18, **1917.**§

Oil shale in western Montana, southeastern Idaho and adjacent parts of Wyoming and Utah, by D. D. Condit: U. S. Geol. Survey Bull. 711, pp. 15-40, **1920.**‡

Gypsum deposits of the United States, by R. W. Stone and others: U. S. Geol. Survey Bull. 697, pp. 99-100, **1920.**‡

The Wasatch and Salt Lake formations of southeastern Idaho, by G. R. Mansfield: Am. Jour. Sci., vol. 49, pp. 399-406, June, **1920.**§

Triassic and Jurassic formations in southeastern Idaho and neighboring regions, by G. R. Mansfield: Am. Jour. Sci., vol. 50, pp. 53-64, July, **1920.**§

Types of Rocky Mountain structure in southeastern Idaho, by G. R. Mansfield: Jour. Geology, vol. 29, No. 5, pp. 444-468, July-August, **1921.**§

Notes on the geology of eastern Bear Lake County, Idaho, with reference to oil possibilities, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 7, **1923.****

Geography, geology, and mineral resources of part of southeastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Prof. Paper 152, **1927.****

BENEWAH COUNTY

Benewah is one of the northern counties. It is bounded on the west by the State of Washington, on the north by Kootenai County, and on the east and south by Shoshone and Latah counties. It has an area of 786 square miles and was accredited with a population of 6997 in the 1920 census. St. Maries, the county seat, is the largest town in the county. Except a small area along the St. Joe and St. Maries Rivers, and the section adjacent to the town of Plummer, which is devoted to agriculture, the entire county is mountainous and heavily timbered. The county is noted for its timber and lumbering industries.

The county is served by lake-boat transportation from Coeur d'Alene to St. Maries, and by two railroads: The Tekoa, Wn.-Wallace, Idaho, branch of the O. W. R. & N. (Union Pacific System), and the main line of the Chicago, Milwaukee & St. Paul Railroad, with its branch line extending from St. Maries to Elk River (Clearwater County).

The principal mineral resources are gold, copper, silver, lead, zinc, iron, and clay. The deposits containing the principal metals have received a small amount of attention; and many of the clays are exceptionally adapted to the ceramic industry. The St. Joe district, which lies east of St. Maries, and the Hoodoo and Camas Cove districts, in the southeastern corner, are the principal mining districts.

During 1927 three mining companies performed a small amount of development work. This, with a slight increase in the number of prospectors, gave the county a little more than its usual mining activity.

BIG FIVE MINING CO.

Office: St. Maries. **Officers:** F. E. Goude, Pres.-Mgr., Silcoos, Ore.; W. F. Sargent, Sec., St. Maries. **Inc.:** Sept. 20, 1907. **Capital:** 2,000,000 shares; par value $1; 554,335 shares issued. **Property:** Big Five group; 6 unpatented claims, St. Joe dist.; St. Maries. **Development:** By 2 tunnels: No. 1, 400 ft. long; No. 2, 450 ft. long. **Ore:** Silver, lead, copper. **Remarks:** Annual labor only.

BUTTE MINING CO.

Office: St. Maries, Ida[illegible] **Officers:** John Martindes, Pres.-Mgr.; George E. Mitchell, Sec., both of [illegible] Maries. **Inc.:** March 27, 1916. **Capital:** 500,000 shares; par value [illegible]; 399,736 shares issued. **Property:** 6 unpatented claims, St. Joe dist. [illegible] Maries. **Development:** 1 tunnel, 220 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Development work maintained during the summer months.

ROUND TOP MINING CO.

Office: St. Maries. **Officers:** Fulton Cook, Pres.; W. F. Sargent, Sec., both of St. Maries. **Inc.:** Jan. 21, 1926. **Capital:** 1,000,000 shares; par value 10c; 146,000 shares issued. **Property:** Roundtop group; 12 unpatented claims, St. Joe dist.; St. Maries. **Development:** 2 tunnels: No. 1, 425 ft. long; No. 2, 110 ft. long. **Plant:** Small steam-driven compressor; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** A small amount of work during the year.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Alice Group	Camas Cove	S. R. Walker	St. Maries
Aurora	St. Joe	E. F. Montandon	St. Maries
Cabin et al.	St. Joe	Fulton Cook	St. Maries
Cedar Creek	Camas Cove	W. I. Hupp et al.	St. Maries
Connelly Bros.	Camas Cove	Connelly Bros.	Tyson
Donson-Woodard	St. Joe	L. B. Dunson	St. Maries
Flying Stone	Unorganized	William F. Schultz	Plummer
McLean Placer	Camas Cove	C. A. McLean	Santa
Red Boy	Camas Cove	J. E. Hemmerway	St. Maries
Seledoria	Camas Cove	Sadie Caverni	Clarkia
Tom et al.	Unorganized	William Russell	Chatcolet

BIBLIOGRAPHY

See pages 11-12 for publisher's address, meaning of reference marks, and abbreviations.

A geological reconnaissance in northern Idaho and northwestern Montana, by F. C. Calkins, with notes on the economic geology by D. F. MacDonald: U. S. Geol. Survey Bull. 384, **1909.***

Preliminary report on the clays of Idaho, by F. H. Skeels: Idaho Bureau of Mines and Geology Bull. 2, **1920.****

Coeur d'Alene Lake, Idaho, and the overflow lands, by R. W. Davenport: U. S. Geol. Survey Water-Supply Paper 500 A, **1921.***

Ground water for municipal supply at St. Maries, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 17, **1926.****

Some Miocene and Pleistocene drainage changes in northern Idaho, by A. L. Anderson: Idaho Bureau of Mines and Geology Pamphlet 18, **1927.****

BINGHAM COUNTY

Bingham, a southeastern county, is primarily an agricultural community. It occupies a large part of the Snake River Valley and is bounded by Butte, Blaine, Power, Bannock, Caribou, Bonneville, and Jefferson counties. It has an area of 2184 square miles and was accredited with a population of 18,310 in the census of 1920.

The extensive phosphate beds of southeastern Idaho are exposed in the Blackfoot Mountains which cover the eastern part of the county. Coal also has been found in these mountains, notably along Willow Creek, a small stream which flows in a northerly direction through the east end of the county. The coal beds have received a little attention from prospectors but no coal of commercial importance has been discovered. Structures that appear likely for the presence of petroleum are present also. The fine gold in the placer deposits along Snake River is the only metal resource of the county. In the past these deposits have received the attention of placer miners, but nothing of importance was reported during the year.

MARY LEE GOLD MINING CO.

Office: Gallipolis, Ohio. **Officers:** J. H. [illegible]fe, Pres.; J. V. Lee, Sec.-Treas., both of Gallipolis, Ohio. **Inc.:** Jan. [illegible]1919. **Capital:** 1,000,000 shares; par value $1; 500,000 shares issued. **Property:** 47½ acres unpatented land. **Ore:** Placer gold.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Eagle Bend Pl.	Snake River	Alma Clough	Pingree
Eldorado Placer	Snake River	Robert Wheeler	Sterling
Oborn & Coler Pl.	Snake River	John Oborn	Blackfoot
Parsons Placer	Snake River	W. G. Parsons	Aberdeen
Snake River Pl.	Snake River	G. E. Campbell	Blackfoot
Woodruff Bend Pl.	Snake River	James G. Walsh	Blackfoot

BIBLIOGRAPHY

See pages 11-12 for publisher's address, meaning of reference marks, and abbreviations.

Fifth, Sixth and Eleventh Ann. Repts. U. S. Geol. and Geog. Survey of the Territories, by F. V. Hayden, **1871, 1873** and **1879.***

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Notes on the Fort Hall mining district, Idaho, by F. B. Weeks and V. C. Heikes: U. S. Geol. Survey Bull. 340, pp. 175-183, **1908.***

A geological reconnaissance in southeastern Idaho, by A. R. Schultz and R. W. Richards: U. S. Geol. Survey Bull. 530, pp. 267-284, **1911.***

Guidebook of the western United States by W. T. Lee and others: U. S. Geol. Survey Bull. 612, pp. 114-147, **1915.**‡

Geology and ore deposits of the Mackay region, Idaho, by J. B. Umpleby: U. S. Geol. Survey Prof. Paper 97, **1917.**‡

Coal in eastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 716f, **1920.**‡

Geography, geology, and mineral resources of the Fort Hall Indian Reservation, Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 713, **1920.**‡

Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 60, art. 3, pp. 1-33, **1921.**‡

Geology and oil possibilities of Bingham, Bonneville, and Caribou counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Bull. 8, **1924.****

Geography, geology, and mineral resources of part of southeastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Prof. Paper 152, **1927.****

BLAINE COUNTY

Blaine County is bounded on the west by Camas County, on the north by Custer County, and on the east and south, in its greater extent, by Butte and Lincoln counties. Its principal area comprises the drainage basin of Big and Little Wood rivers, which flow in a southerly direction. Its total area is 2797 square miles. The 1920 census accredited the county with a population of 4473, or 1.6 persons to the square mile. In location it is one of the south-central counties and comprises part of the region known as "Central Idaho's Mineral Empire." The county is primarily recognized as a mining county, but it is also noted for its agricultural and stock raising industries; particularly sheep, as it is one of the largest sheep shipping points in the United States.

The county is served by the Wood River branch of the Oregon Short Line Railroad, which extends from Shoshone to Ketchum; by the Sawtooth Park State highway, and a well-kept system of county roads which extend into all of the various mining districts and sections. All roads are kept in good repair and are open to travel during the larger part of the year. Hailey is the largest town and county seat.

The first discovery of lead-silver ore in the State was made in Blaine County, which was then called Alturas County. The first ore was marketed in 1880 and since then this county has been a consistent producer of these metals. Most of the ores are of such high grade that they can be shipped direct to the smelter without preliminary treatment, thus assuring immediate returns from all discoveries. This fact and the possibilities of discovering and opening new ore bodies will continue to hold Blaine County, particularly the Wood River district, in popular esteem as a favorite section of the State for prospectors, development companies, and those seeking a worthy field for mining enterprises.

The high-grade ores of lead and silver are widely distributed throughout the county, as well as those of gold, zinc, and copper. In addition to the five principal metals—lead, silver, zinc, gold, and copper—deposits of arsenic, antimony, bismuth, quicksilver, graphite, barytes and limestone are found in this county. These minerals occur in sufficient extent to be of commercial importance, and many of the deposits offer an excellent opportunity to development companies or to those in search of these minerals or metals. The barytes deposits are the largest that have ever been found west of the Mississippi River. One large deposit on Deer Creek has been purchased by the Bunker Hill & Sullivan Mining & Concentrating Co., presumably in anticipation of the construction of the company's zinc smelter at Kellogg, where it will be used in the manufacture of lithopone.

The two most noteworthy events during 1927 were the reopening by the Triumph Development Co. of the old Triumph mine, which adjoins the North Star of the Federal Mining & Smelting Co., and the Mathews discovery on Kelly Mountain, west of Hailey. The success of the Triumph was a reward to a small organization for having the courage to reopen a mine which had lain dormant for over 30 years and had been rejected by some large mining

companies. After the mine was unwatered, new buildings and head-frame were constructed; mining equipment was installed, the shaft repaired, and production started at the rate of 50 tons per day; this was later increased to 75 tons. The ore is shipped to a custom milling plant at Salt Lake City, Utah, where two concentrates are made—a lead-silver and a zinc. The reopening and subsequent profitable operation of this mine were made possible by selective flotation, whereby mixed lead-zinc ores can now be treated which could not be separated by gravity concentration methods.

The Mathews disclosure was a new discovery made during the early part of the year. The large amount of surface trenching which was done on the vein opened it to a sufficient extent to permit this discovery to be classed as one of importance. After the trenching was completed, the property was incorporated as the Liberty Gem Mines, Inc. Camp buildings were constructed; mine equipment was installed; and work was started on a 100-foot vertical shaft.

In addition to the Triumph Development Co. and the Liberty Gem Mines, Inc., new companies and enterprises which started during the year were: The Homestake Mines Corporation, at the Homestake group north of Ketchum; the Daisy Mining & Milling Co., Ltd., west of Hailey in the "gold belt" district, and the large number of new locations and subsequent prospecting in the vicinity of the Mathews discovery.

The Independence mine, owned by the Federal Mining & Smelting Co., was operated throughout the year by lessees who marketed a large tonnage of high-grade hand-sorted ore, in addition to developing new ore in the mine. The Hailey Bonanza Mining Co. further explored its mine in search for the continuation of the oreshoot. Others who continued to develop their mines throughout the year were: The Idaho Democrat Mine, Inc., at the old Democrat mine and at a prospect near the Mathews discovery; the Wood River Mining Co., on Trail Creek west of Ketchum; the Eureka Development Co., Ltd., at the Eureka and Idahoan groups in the Bullion districts; F. B. Felt, at the Parker mine near Ketchum; Peter L. Kent, at the Lone Pine group on Deer Creek and at the Tungad group near the Liberty Gem Mines, Inc.; M. T. Rowland, on the Smuggler group in the Muldoon section, and A. F. Perry, who is operating under lease the famous old Vienna mine in the Sawtooth district and reports encountering some excellent high-grade silver ore. Harold Boericke, who was operating the Norris-O'Connor group in the Muldoon section, continued active development work for four months, after which the enterprise was abandoned and the equipment removed.

The famous Minnie Moore mine, which was the scene of the most extensive prospecting campaign in the county during the years 1923 to 1927, was abandoned in 1927. In August, 1923, this property was acquired by the Federal Mining & Smelting Co., who constructed new buildings, installed new mining machinery and equipment, and then commenced active mining operations which consisted of sinking the Allen shaft to the 800-foot level and driving about 1000 feet of new crosscuts, drifts, and raises. On June 16, 1924, the Federal forfeited its option; and on June 26, 1924, Harold Boericke, of Philadelphia, acquired the mine under lease and option similar to the one held by the Federal. He leased the surface plant and mining equipment from the Federal, and immediately commenced developing the mine where the former company left off. An average number of forty men was employed continuously and the work was carried forward with much vigor until December 31, 1925, at which time the operations were suspended and the property turned back to the owner, who kept the pumps running until February 2, 1926, at which time work was resumed by other interests. These operators performed a large footage of diamond drilling and crosscutting until May 25, 1926, at which time they suspended all work. The mine was then idle until June 26, 1926, when work was resumed by the Minnie Moore Syndicate, an organization whose operations were conducted through the Hecla Mining Co. of Shoshone County. This organization conducted an active exploratory campaign until November 11, 1926, at which time it suspended operations and turned the property back to the Minnie Moore Mines Co. The

president of the latter company had previously anticipated that the Minnie Moore Syndicate would forfeit its option, and was successful in having the mine refinanced by the date of forfeiture, so the change in operators was made without a suspension of operations, which were actively continued until May, 1927. The enterprise was then abandoned, the equipment removed, and the buildings dismantled.

The Radiore process of electrical exploration was applied to two properties in December, after which steps were taken toward starting mine development work based on the findings of these surveys.

ARGO MINING CORPORATION

Office: 3725 Kate Ave., Baltimore, Md. **Officers:** Henry Mencken, Pres.; F. H. Gettemuller, Sec., both of Baltimore, Md.; T. R. Bowlden, Mgr., Gannett. **Inc.:** Oct. 15, 1926. **Capital:** 500,000 shares; par value $1; 35,000 shares issued. **Property:** Cove group; 7 unpatented claims, Mineral Hill dist.; Gannett. **Development:** 4 tunnels, giving approximately 580 feet, vertical depth on vein; total development, 2533 ft. **Plant:** Steam-driven compressor on ground not installed; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Annual labor only.

ARGOSY MINING & MILLING CO., LTD.

Office: 1125 N. Garfield Ave., Pocatello, Idaho. **Officers:** W. E. Smith, Pres.; Priscilla K. Smith, Sec., both of Pocatello. **Inc.:** Feb. 24, 1904. **Capital:** 50,000 shares; par value $1; all shares issued. **Property:** Argosy group; 5 patented claims, Little Wood River dist.; Muldoon. **Development:** By 5 tunnels; total development approximately 800 ft. **Ore:** Lead-silver. **Remarks:** Idle for 16 years.

BALTIMORE & VICTORIA MINING CO.

Office: Care of U. S. Trust Company, Terre Haute, Ind. **Officers:** William K. Hamilton, Pres., Terre Haute, Ind.; Eph Daft, Agent, Hailey. **Inc.:** July 3, 1903. **Capital:** 150,000 shares; par value 10c; all shares issued. **Property:** Ida Harland group; 5 patented, 8 unpatented claims, Warm Springs Creek dist.; Hailey. **Remarks:** Small amount of work by lessees.

HAROLD BOERICKE

Office: 1307 Packard Building, Philadelphia, Pennsylvania. **Officers:** Geo. W. Worthington, Mgr., Bellevue. **Property:** Porto Rico and Keystone groups; 24 unpatented claims, Little Wood River dist.; Muldoon. **Development:** Principally by 5 tunnels; total development over 1500 ft. **Plant:** 2 gas-driven C-P compressors; complete mining equipment and camp. **Ore:** Lead-silver, copper-gold. **Men employed:** Average, 6. **Remarks:** Active development work was maintained for 4 months, after which operations were suspended and the enterprise was abandoned.

BUNKER HILL & SULLIVAN MINING & CONCENTRATING CO.
(See Shoshone County)

Officers: F. W. Bradley, Pres., 1022 Crocker Bldg., San Francisco, Cal.; Stanly A. Easton, Mgr., Kellogg; James W. Gwinn, Local Mgr., Cascade. **Property:** 10 unpatented claims; Bullion, Mineral Hill dist.; Hailey. **Remarks:** Annual labor only.

DAISY MINING & MILLING CO., LTD.

Office: Hailey. **Officers:** A. E. Larsen, Pres., Yakima, Wash.; L. A. Devine, Sec.; C. P. Devine, Mgr., both of Hailey. **Inc.:** July 6, 1920. **Capital:** 500,000 shares; par value $1; 250,000 shares issued. **Property:** Camas group; 18 patented claims held under lease and option; Mineral Hill dist.; Hailey. **Development:** Principally by 1 tunnel 750 ft. long. **Plant:** MINE: Electrically-driven compressor and complete mining equipment. MILL: Small concentrator, including flotation. **Ore:** Lead-silver-gold. **Men employed:** Average, 5. **Remarks:** In addition to constructing a small mill, this company maintained development work throughout the year.

DISCOVERY GULCH MINING CO.

Office: 530 N. Harrison St., Pocatello, Idaho. **Officers:** G. W. Oliver, Pres.; E. H. Miley, Sec.-Treas., both of Pocatello. **Inc.:** Oct. 29, 1925. **Capital:** 50,000 shares; par value $1; all shares issued. **Property:** 1 unpatented claim; Mineral Hill dist.; Hailey. **Ore:** Lead-silver. **Development:** 1 tunnel, 193 ft. long. **Remarks:** Idle.

ERVINE MINING CO.

Office: Ketchum. **Officers:** M. A. Costello, Sec., 40 Court St., Boston, Mass.; C. Fred Howe, Mgr., Ketchum. **Inc.:** March 14, 1922. **Capital:** 1,000,000 shares; par value $1; 357,550 shares issued. **Property:** Boyle Mtn. group; 7 patented, 13 unpatented claims, 350 acres, Warm Springs Creek dist.; Ketchum. **Ore:** Silver-lead. **Remarks:** Annual labor only.

EUREKA DEVELOPMENT CO., LTD.

Office: 319 Dooly Blk., Salt Lake City, Utah. **Officers:** W. A. Wilson, Pres.-Mgr., Salt Lake City, Utah. **Inc.:** June 28, 1905. **Capital:** 200,000 shares; par value 50c; all shares issued. **Property:** Eureka group; 12 patented, 5 unpatented claims, Mineral Hill dist.; Hailey, 7 miles. **Development:** Total development approximately 12,900 ft., the length of the principal workings being: Bay State, 1000 ft.; Chicagoan, 300 ft.; Whale, 1400 ft.; Eureka, 3920 ft.; Idahoan, 5000 ft. One inclined shaft 700 ft. long; 1 inclined shaft 435 ft. long. **Plant:** MINE: 8x10 Lidgerwood hoist; 40 h. p. C-P oil-driven compressor. MILL: 25-ton concentrator. **Ore:** Lead-silver. **Men employed:** Average, 8. **Remarks:** During the early part of the year the property was under development by R. B. Whiteside of Duluth, Minn. After he suspended work, the mine was operated by lessees, who produced and marketed a small tonnage of high-grade hand-sorted ore.

FEDERAL MINING & SMELTING CO. (See Shoshone County)

Office: Wallace. **Officers:** F. H. Brownell, Pres.; J. L. Martin, Sec., both of 120 Broadway, New York City; Frederick Burbidge, Mgr., Wallace. **Property:** Independence, North Star, Koeninger and Malta groups; 36 patented, 13 unpatented claims, 762 acres, Warm Springs Creek dist.; Hailey, 12 miles. **Development:** Approximately 7 miles of underground workings, the principal of which is the Plummer, or main haulage tunnel, which is over 6000 ft. long and connects the North Star and Independence groups. **Plant:** MINE: 1 English Iron Works 202 single drum 25 h. p. electric hoist; 1 Lidgerwood 8x10 air hoist; 1 I-R 420 cu. ft. compressor; 1 C-P 765 cu. ft. compressor. All electrically driven. Electric haulage through Plummer tunnel. One Waugh drill sharpener and complete mine equipment; 4400 ft. Riblet aerial tram from Plummer tunnel to mill, capacity 20 tons an hour. Shops, timber sheds and bunk houses. MILL: 350-ton concentrator; jaw and gyratory crushers; rolls; Marcy ball mills; Hancock jigs; drag classifiers; Wilfley tables; Dorr thickeners; Oliver filters; electric power. **Ore:** Lead-silver. **Remarks:** Active mining operations were suspended on August 1, 1923, after which various parts of the Independence mine have been operated by lessees. A substantial tonnage was produced and marketed during the year.

FIELDS MUTUAL DEVELOPMENT CO.

Office: Hailey. **Officers:** Al. W. Field, Pres.-Mgr., Hailey; V. F. Rodgers, Sec., Portland, Ore. **Inc.:** Nov. 6, 1926. Formerly known as Field Mutual Mining Co. **Capital:** 500,000 shares; par value $1; 130,000 shares issued. **Property:** 14 unpatented claims, Kelly Mountain, Mineral Hill dist.; Hailey. **Development:** Approximately 3000 ft. of underground work, principally 1 tunnel 1000 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 1. **Remarks:** A small amount of development work during the summer months.

HAILEY BONANZA MINING CO.

Office: Hailey. **Officers:** Carl Reisig, Pres.-Mgr.; Alfred Wolff, Sec.-Treas., both of Hailey. **Inc.:** Aug. 9, 1919. **Capital:** 500,000 shares; par value $1; all shares issued. **Property:** Imperial group; 1 patented, 24 unpatented claims, Greenhorn Gulch, Warm Springs Creek dist.; Hailey. **Development:** Approximately 3000 ft. of underground workings, the principal of which is 1 tunnel 1200 ft. long. **Plant:** MINE: Electrically-driven compressor and complete mining equipment. MILL: 100-ton concentrator consisting of tables and jigs. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** Small amount of development work during the year.

HOMESTAKE MINES CORPORATION

Office: Bellevue. **Officers:** J. J. Donovan, Pres.-Mgr.; F. D. Kaufman, Sec., both of Bellevue. **Inc.:** July 27, 1927. **Capital:** 1000 shares; par value $100; all shares issued. **Property:** Homestake group; 13 unpatented claims, Warm Springs Creek dist.; Ketchum. **Development:** Approximately 3500 ft. of workings, the principal being: No. 3 tunnel, 550 ft. long; No. 4 tunnel, 1000 ft. long; No. 5 tunnel, 1900 ft. long. **Plant:** Gas-driven C-P compressor; complete mining equipment. **Ore:** Lead-silver-zinc. **Men employed:** Average, 7. **Remarks:** Active development work throughout the summer months.

IDAHO DEMOCRAT MINE, INC.

Office: 207 Glencoe Bldg., Duluth, Minn. **Officers:** A. Hagberg, Pres.; E. O. Olund, Sec., both of Duluth. **Inc.:** Jan. 30, 1924. **Capital:** 300,000 shares; par value $1; 249,671 shares issued. **Property:** Lease and option on Idaho Democrat group; 10 patented, 14 unpatented claims, Mineral Hill dist.; Hailey. **Plant:** Portable gas-driven compressor and complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 4. **Remarks:** The mine held by this company is one of the old producers of the Wood River section. There is an extensive amount of mine workings, most of which are inaccessible. This company has abandoned all the old workings, and has devoted its activities to exploring new ground.

IDAHO MASCOT MINES COALITION

Office: 407 Newhouse Bldg., Salt Lake City, Utah. **Officers:** Charles Peter, Pres.-Mgr.; August Glissmeyer, Sec., both of Salt Lake City. **Inc.:** Jan. 8, 1926. **Capital:** 2,000,000 shares; par value $1; 1,400,000 shares issued. **Property:** Mascot group; 41 patented, 28 unpatented claims, Warm Springs Creek dist.; Hailey. Held under lease and bond from F. C. Richmond Machinery Co., Salt Lake City. **Development:** Principally by 4 tunnels; total development, approximately 11,000 ft., of which the principal tunnels are: Silver Fortune, 50 ft. long; Oregonian, 300 ft. long; Lyda, 6000 ft. long; and West Side, 2250 ft. long. **Plant:** 1 15x9x10 and 1 12x8x12 C-P gas-driven compressor; 1 160 h. p. and 1 40 h. p. C-P semi Deisel engine driving electric generators; sawmill and complete mine equipment and camp. **Ore:** Lead-silver. **Remarks:** Idle.

IDAHO MINERAL PRODUCTS CO., LTD.

Office: Hailey. **Officers:** J. F. MacClure, Pres., Burley; J. G. Hedrick, Sec., Hailey. **Inc.:** July 6, 1920. **Capital:** 100,000 shares; par value $1; shares issued, none. **Remarks:** Company owns no property.

IDAHO SILVER KING MINING CO.

Office: Huntington Beach, Calif. **Officers:** A. B. Watson, Pres., Santa Ana, Calif.; E. E. Wilson, Sec., Huntington Beach, Calif. **Inc.:** July 17, 1926. **Capital:** 500,000 shares; no par value; 270,005 shares issued. **Property:** Silver King group; 2 patented, 1 unpatented claim, Sawtooth dist.; Ketchum. **Development:** By an inclined shaft 600 ft. long, with 3 intermediate levels; total development, approximately 3000 ft. **Plant:** Steam-driven hoist. **Ore:** Silver; antimony. **Remarks:** This company owns the famous Silver King property, which at one time was one of the principal

producers in the Sawtooth district. In 1893 the shaft and head-house burned and the property lay dormant until this company reopened it during the year 1926. The shaft was unwatered, and a large tonnage of high-grade ore exposed, after which operations were suspended and the mine permitted to fill with water, pending a readjustment of the internal affairs of the company.

IVANHOE MINING CO.

Office: 485 California St., San Francisco, Calif. **Officers:** Harry L. Tevis, Pres.; William Letson, Sec., both of San Francisco, Calif. **Inc.:** July 28, 1909. **Capital:** 2500 shares; par value $1; all shares issued. **Property:** Durango group, 16 patented claims; Iris group, 5 patented claims; Mineral Hill dist.; Triumph group, 7 patented claims; Warm Springs Creek dist.

JACK POT MINING CO.

Office: Boise. **Officers:** F. J. Long, Pres., Bellevue; C. E. Beymer, Sec.-Mgr., Boise. **Inc.:** June 29, 1926. **Capital:** 120 shares; par value $100; no shares issued. **Property:** 2 unpatented claims, Mineral Hill dist.; Bellevue. **Development:** By 1 tunnel 100 ft. long. **Ore:** Lead-silver. **Remarks:** A small amount of work was done during the summer months by the majority stockholders.

LIBERTY GEM MINES, INC.

Office: 610 Eastman Bldg., Boise. **Officers:** Guy E. Mathews, Pres.; G. Arlon Mathews, Sec., both of Hailey. **Inc.:** Sept. 13, 1927. **Capital:** 250 shares; no par value; all shares issued. **Property:** Liberty group; 11 unpatented claims, Mineral Hill dist.; Hailey. **Development:** Numerous open cuts and 2 small shafts. **Plant:** Gas-driven compressor; air-driven hoist; complete mining equipment and camp. **Ore:** Lead-silver-zinc. **Men employed:** Average, 7. **Remarks:** This enterprise is based on the development of the new ore disclosures made by the Mathewses during the early part of the year. The large amount of surface trenching which was done on the vein opened it to a sufficient extent that it may be classified as one of importance. After the trenching was completed, camp buildings were constructed, mining equipment was installed, and work started on a 100-ft. vertical shaft.

MIDVALE MINING CO.

Office: Ketchum. **Officers:** M. A. Costello, Sec., 40 Court St., Boston, Mass.; C. Fred Howe, Mgr., Ketchum. **Inc.:** March 14, 1922. **Capital:** 1,000,000 shares; par value $1; 400,000 shares issued. **Property:** Pay group; 8 unpatented claims, Warm Springs Creek dist.; Ketchum. **Ore:** Zinc. **Remarks:** Annual labor only.

MINNIE MOORE MINES CO.

Office: Bellevue. **Officers:** I. E. Rockwell, Pres.-Mgr.; L. R. W. Rockwell, Sec., both of Bellevue. **Inc.:** June 17, 1912. **Capital:** 500,000 shares; par value $1; 300,000 shares issued. **Property:** Minnie Moore group; 13 patented, 5 unpatented claims. **Development:** Principally by an inclined shaft 800 ft. long, giving a vertical depth of 600 ft. Total development from this shaft, approximately 5000 ft. **Ore:** Lead-silver. **Men employed:** Average, 30. **Remarks:** Operations suspended in May. Equipment and buildings dismantled, and property abandoned.

QUINCY JUNIOR MINING CO.

Office: 319 Dooly Block, Salt Lake City, Utah. **Officers:** George L. Erwin, Pres., Consumers' Power Co., Grand Rapids, Mich.; J. T. Emery, Jr., Sec., Muskegon, Mich.; W. A. Wilson, Mgr., Salt Lake City. **Inc.:** Dec. 20, 1903. **Capital:** 150,000 shares; par value $1; 139,658 shares issued. **Property:** Red Elephant group; 10 patented claims, Mineral Hill dist.; Hailey. **Development:** Approximately 15,000 ft. underground workings. **Remarks:** Operated by lessees during part of the year.

RED ELEPHANT CONSOLIDATED MINES CO.

Office: 319 Dooly Blk., Salt Lake City, Utah. **Officers:** John Rapalji, Pres., Beacon, N. Y.; Edwin J. Webb, Sec., Beacon, N. Y. **Inc.:** June 16, 1916. **Capital:** 1,500,000 shares; par value $1; 957,167 shares issued. **Property:** Red Elephant Extension group; 1 patented, 16 unpatented claims, Mineral Hill dist.; Hailey. **Remarks:** Idle throughout the year.

SILVER SPAR MINING CO.

Office: Idaho Falls. **Officers:** B. M. Rogers, Pres.; Dr. Dwight Lenzi, Sec., both of Idaho Falls. **Inc.:** April 14, 1916, as Falls Mining Co.; name changed April 28, 1917. **Capital:** 200,000 shares; par value $1; 100,000 shares issued. **Property:** Silver Spar group; 18 patented, 7 unpatented claims, Little Wood River dist.; Muldoon. **Development:** By 5 tunnels totaling approximately 1000 ft. in length, and an inclined shaft 200 ft. long. **Plant:** Steam-driven hoist and compressor, complete mining equipment and camp. **Ore:** Silver. **Remarks:** Idle.

SUNBEAM MINING CO.

Office: 546 S. Main St., Pocatello. **Officers:** W. H. Hall, Pres.-Mgr.; Geo. H. Spongberg, Sec., both of Pocatello. **Inc.:** Sept. 28, 1926. **Capital:** 1,000,000 shares; par value 10c; 500,001 shares issued. **Property:** 2 unpatented claims, Sawtooth dist.; Ketchum. Held under lease and option from C. H. Furey, Pocatello. **Development:** Total development of approximately 300 ft. **Ore:** Silver, antimony. **Men employed:** Average, 3. **Remarks:** Active operations during the summer months.

TORBANEHILL MINING CO.

Office: 608 Deseret Bank Bldg., Salt Lake City, Utah. **Officers:** W. F. Armstrong, Pres.; Oscar W. Moyle, Sec., both of Salt Lake City, Utah. **Inc.:** Sept. 14, 1906. **Capital:** 500,000 shares; par value 1c; all shares issued. **Property:** 7 patented claims, Lava Creek dist.; Carey. **Remarks:** Idle for many years.

TRIUMPH DEVELOPMENT CO.

Office: 218 Felt Bldg., Salt Lake City, Utah. **Officers:** J. C. Jensen, Pres.-Mgr.; Geo. W. Snyder, Sec., both of Salt Lake City. **Inc.:** Never filed in Idaho. **Capital:** 1,000,000 shares; par value 10c; all shares issued. **Property:** Lease on Triumph mine, owned by Ivanhoe Mining Co.; Warm Springs Creek dist.; Hailey. **Development:** Principally by a vertical shaft 300 ft. deep in which there are 3 levels. Total development approximately 7000 ft. **Plant:** Electrically-driven hoist and compressor; steel sharpener; complete mining equipment. **Ore:** Lead-zinc-silver. **Men employed:** Average, 40. **Remarks:** All of the mining equipment was installed; new head-frame and buildings were constructed, shaft was reopened and pumped out. After this, production was started at the rate of over 50 tons per day, the ore being shipped to a custom milling plant at Salt Lake City, Utah.

All old reports and maps of the mine indicated that a large tonnage of mixed lead-zinc ore was in the property. After it had been completely rehabilitated, the operation was placed on a profitable basis—a reward to those having the courage to reopen a mine which had been abandoned for more than 30 years.

UNITED MINES CO.

Office: 420 Second St., Portland, Oregon. **Officers:** Thomas H. Hurlburt, Pres., 420 Second St., Portland, Ore. **Inc.:** April 7, 1922. **Capital:** 1200 shares; par value $50; all shares issued. **Property:** 5 unpatented claims, Garfield Gulch, Little Wood River dist.; Muldoon. **Development:** Approximately 1140 ft. of underground workings, consisting principally of 3 tunnels: No. 1, 850 ft. long; No. 2, 280 ft. long; No. 3, 90 ft. long. **Plant:** 7x6 I.-R. compressor, driven by 34 in. Pelton water wheel, and complete equipment. **Ore:** Lead-silver. **Remarks:** Annual labor only.

WAR DANCE MINING CO., LTD.

Office: P. O. Box 397, E. Auburn, Calif. **Officers:** James W. Burns, Pres., Auburn, Calif. **Inc.:** Sept. 17, 1910. **Capital:** 500,000 shares; par value $1; no shares issued. **Property:** War Dance group; 23 unpatented claims, Mineral Hill dist.; Hailey. **Development:** Over 10,000 ft. of underground workings. **Remarks:** One of Blaine County's old producers. Annual labor only.

WAVA MINING & MILLING CO.

Office: Hailey. **Officers:** C. E. Gordon, Pres., Detroit, Mich.; J. G. Hedrick, Sec., Hailey. **Inc.:** Sept. 18, 1919. **Capital:** 15,000 shares preferred; 35,000 shares common; par value $1; 4282 preferred, 24,282 common issued. **Property:** Aztec group; 5 unpatented claims. Warm Springs Creek dist.; Ketchum. **Development:** 1 tunnel, 365 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

WOOD RIVER MINING CO.

Office: 204 Shane Bldg., Idaho Falls. **Officers:** H. H. Scarborough, Pres.; W. P. Holmes, Sec., both of Idaho Falls. **Inc.:** July 30, 1923. **Capital:** 1,000,000 shares; par value 10c; 606,100 shares issued. **Property:** 8 unpatented claims, Warm Springs Creek dist.; Ketchum. **Ore:** Silver and lead. **Remarks:** A small amount of development work was performed during the year.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Ajax	Mineral Hill	Leo Barrett	Hailey
Aetna	Mineral Hill	Neil Campbell Est.	Bellevue
Alabama	Little Wood R.	Joe Longonos	Hailey
Alturas & Scotia	Sawtooth	Frank Becker	Hailey
Amazon	Mineral Hill	Chas. R. Walters	Hailey
Bald Eagle	Mineral Hill	Cecelia J. Thomas	Hailey
Barbara	Mineral Hill	John Utsch	Hailey
B B B	Mineral Hill	Beck Bros.	Bellevue
Beaver Gr.	Sawtooth	Thos. Mizer, Sr.	Hailey
Belmont Gr.	Mineral Hill	Jos. Siker	Hailey
Big Mint	Mineral Hill	H. R. Plughoff Est.	Hailey
Black Barb	Mineral Hill	E. B. Williams	Boise
Black Jack et al.	Mineral Hill	J. Geo. Arkoosh Est.	Bellevue
Blue Bell	Warm Spgs. Cr.	Augustine Johnson	Hailey
Bob Tail	Mineral Hill	Rodney Brown	Hailey
Boise City	Mineral Hill	Frank Holtz	Hailey
Bonanza	Mineral Hill	J. L. Van Over	Bellevue
Boulder Gr.	Warm Spgs. Cr.	M. W. Wood	Boise
Boyle Mt. Gr.	Warm Spgs. Cr.	C. Fred Howe	Ketchum
Broadway	Warm Spgs. Cr.	Fred Vancil	Hailey
Bull Whacker	Mineral Hill	G. G. Brown	Hailey
Carboniferous	Mineral Hill	Mrs. Frank Campbell	Hailey
Climax	Mineral Hill	Raymond Guyer	Spokane, Wash.
Climax Extension	Mineral Hill	Geo. Choate	Hailey
Comet Gr.	Mineral Hill	Davidson Groc.	Boise
Compensation Gr.	Mineral Hill	L. A. Ditmer Est.	Hailey
Con Virginia	Mineral Hill	Mark Aukema	Hailey
Croesus Gr.	Mineral Hill	Fred C. Robertson	405 Hyde Bldg., Spokane, Wash.
Daisy	Mineral Hill	W. J. Oliver	Hailey
Dewey Gr.	Mineral Hill	Fred W. Smith	Hailey
Elkhorn	Warm Spgs. Cr.	Mrs. Horace Lewis	Ketchum
Ellen Stilts	Mineral Hill	W. A. Holland Est.	Hailey
Evelyn	Warm Spgs. Cr.	Hampton & Griffith	Ketchum
Extension	Warm Spgs. Cr.	L. P. McPheters	Ketchum
Free Coinage	Warm Spgs. Cr.	Jas. Bonning Est.	Ketchum

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Galena Gr.	Sawtooth	A. C. Martin	Minneapolis, Minn.
Garfield Gulch	Little Wood R.	Chas. Norris	Hailey
Gate City	Mineral Hill	A. M. Glahn, Agt.	Bellevue
Gem	Mineral Hill	Elmer Brown	Hailey
Gilt Edge	Mineral Hill	Sarah Campbell	Hailey
Glendale Queen	Mineral Hill	W. D. Schraff	Bellevue
Gold King	Mineral Hill	Mark J. King	Hailey
Grayhound et al.	Warm Spgs. Cr.	H. D. Jones et al.	Hailey
Hardscrabble	Mineral Hill	A. M. Singer	Gooding
Hard Times	Mineral Hill	Jos. Werry, Jr.	Bellevue
Hill Side	Mineral Hill	John Edwards	Bellevue
Hispanolia	Sawtooth	Chas. H. Furey	Pocatello
Homestake Gr.	Warm Spgs. Cr.	J. A. Nelson	Hailey
Imperial Gr.	Warm Spgs. Cr.	Leo Snider	Hailey
Jupiter	Little Wood R.	E. M. James Est.	Compton, Calif.
Keystone	Warm Spgs. Cr.	Wm. McKelvey	Hailey
Kitty	Mineral Hill	Thos. Povey	Hailey
La Grande	Mineral Hill	Floyd W. Wilson	Hailey
Lake Creek	Warm Spgs. Cr.	Robt. Koeninger	Ketchum
Lark	Mineral Hill	Mrs. A. I. Harris	Bellevue
Last Chance	Warm Spgs. Cr.	P. M. Gray	Ketchum
Les Despencer	Mineral Hill	Edw. Flannery Est.	Hailey
Lone Jack	Sawtooth	John T. Garrett	Obsidian
Lottie	Warm Spgs. Cr.	Victor Stolle	Nampa
Lucky Boy	Sawtooth	H. D. Jones	Hailey
Lucky Boy Gr.	Warm Spgs. Cr.	C. Fred Howe	Ketchum
Mae	Warm Spgs. Cr.	L. L. Brown	Hailey
Majestic Gr.	Mineral Hill	Guy U. Lee	Bellevue
Minnesota	Warm Spgs. Cr.	Abraham Duquette	Idaho City
Mohawk	Warm Springs	Clint Allen	Ketchum
Monarch	Little Wood R.	Sam Bjornson	Muldoon
Myrtie	Sawtooth	M. O. Duffy Est.	Hailey
Narrow Gauge	Mineral Hill	Eph Daft	Hailey
Nay Aug	Mineral Hill	J. J. Baker	Hailey
New Hope	Warm Spgs. Cr.	W. H. Warfield	Ketchum
New Year	Mineral Hill	Alex Fischer	Bellevue
New York	Mineral Hill	John Grenfell	Bellevue
O'Neil-Clark Gr.	Mineral Hill	Geo. Westlake	Hailey
Oriental	Mineral Hill	S. M. Friedman Est.	Hailey
Oriole	Mineral Hill	Wm. McWade	Bellevue
Overland	Mineral Hill	R. B. French	Hailey
Parnell	Mineral Hill	P. McMonigle Est.	Hailey
Paymaster	Lava Creek	Chas. Swanson	Ketchum
Porto Rico Gr.	Little Wood R.	Wm. O'Connor Est.	Hailey
Prize Taker	Mineral Hill	F. E. Grenfell, Agt.	Bellevue
Queen Bee et al.	Mineral Hill	A. D. Williams	Gooding
Queen Bess	Mineral Hill	J. J. Baker	Hailey
Queen Extension	Mineral Hill	Neil Campbell Est.	Bellevue
Rattler	Mineral Hill	Alex McKibben	Hailey
Red Cloud	Mineral Hill	M. J. Smith, Agt.	Hailey
Richmond Gr.	Mineral Hill	Jos. Werry	Bellevue
Roadside	Mineral Hill	J. S. Shotwell	Gooding
Rob Roy	Little Wood R.	Gus Johnson	Hailey
Ruth	Mineral Hill	Victor Haupt	Hailey
Saint Idloes	Mineral Hill	Chas. Sheehan	Bellevue
Silver Cord Gr.	Warm Spgs. Cr.	Chas. Swanson	Ketchum
Silver Crown	Warm Spgs. Cr.	Mark J. King	Hailey
Silver King	Mineral Hill	A. D. Hunter	Bellevue
Silver King	Sawtooth	F. E. Riddle	Tulsa, Okla.
Silver Knob	Mineral Hill	W. A. Sullivan	Hailey

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Slab Sides	Warm Spgs. Cr.	H. M. Young	Hailey
Smuggler	Little Wood R.	H. L. Watkins	Muldoon
Star	Mineral Hill	Leo J. Falk	Boise
Stockholder	Mineral Hill	Ira L. Kilgore	Hailey
Surprise	Little Wood R.	F. J. Long	Wendell
Susie S.	Mineral Hill	John Hailey Est.	Boise
Tenbrook et al.	Warm Spgs. Cr.	Alonzo Price, Agt.	Ketchum
Tiger	Mineral Hill	Fred Reinhard	Hailey
Tom Cat	Mineral Hill	Chas. Sonneleitner	Hailey
Tungad	Mineral Hill	Peter L. Kent	Hailey
Vindicator Gr.	Warm Spgs. Cr.	Archie Bell	Hailey
Wheelbarrow	Warm Spgs. Cr.	A. T. Farnlund	Ketchum
White Elephant	Warm Springs	Jas. Obenchain	Ketchum
White Wing	Unorganized	C. C. Starcher	Carey
Wichita	Warm Spgs. Cr.	J. W. Gailey	Hailey
Wolftone	Mineral Hill	W. T. Riley	Hailey
Woodrow Wilson	Warm Spgs. Cr.	M. A. Morris	Ketchum

BIBLIOGRAPHY

See pages 11-12 for publisher's address, meaning of reference marks, and abbreviations.

Graphitic anthracite in the Parker mine, Wood River, Idaho, by W. P. Jenny: Columbia School of Mines Quart., vol. 10, pp. 313-315, **1889.***

A geological reconnaissance across Idaho, by G. H. Eldridge: U. S. Geol. Survey Sixteenth Ann. Rept., pt. 2, pp. 217-276, **1895.***

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey, Twentieth Ann. Rept., pt. 3, pp. 65-256, **1900.***

Some Idaho mining districts, by Arthur Lakes: Mines and Minerals, vol. 22, pp. 203-206, December, **1901.***

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

The Bellevue mining district, by Arthur Lakes: Mines and Minerals, vol. 23, pp. 271-272, January, **1903.***

Some of the veins and ore deposits of the Wood River district, by Arthur Lakes: Min. World, vol. 23, pp. 696-697, Dec. 23, **1905.***

A new and large deposit of barite in Idaho, by Arthur Lakes: Min. Reporter, vol. 54, p. 162, Aug. 16, **1906.***

The Bullwhacker mine, near Hailey, Idaho, by Arthur Lakes: Min. Reporter, vol. 53, pp. 168-169, Feb. 15, **1906.***

Faulting in the Red Cloud mine, by H. W. Turner: Min. and Sci. Press, vol. 95, pp. 747-748, Dec. 14, **1907.***

Wood River mining district of Idaho, by Arthur Lakes: Min. World, vol. 34, pp. 307-308, Feb. 4, **1911.***

Barytes and strontium: Idaho, by J. M. Hill: U. S. Geol. Survey Mineral Resources, **1915,** pt. 2, p. 172.‡

Ore deposits in the Sawtooth quadrangle, Blaine and Custer counties, Idaho, by J. B. Umpleby: U. S. Geol. Survey Bull. 580, pp. 221-249, **1915.**‡

Geology and ore deposits of the Mackay region, Idaho, by J. B. Umpleby: U. S. Geol. Survey Prof. Paper 97, **1917.**‡

Geology and ore deposits of Alturas quadrangle, by S. M. Ballard: Idaho Bureau of Mines and Geology Bull. 5, **1922.***

Arsenical ore deposits in the United States, by R. H. Sayre: Eng. and Min. Jour.-Press, vol. 118, pp. 929-932, Dec. 13, **1924.**§

The Vienna district, Blaine County, Idaho, by C. P. Ross: Idaho Bureau of Mines and Geology Pamphlet 21, **1927.****

A lead ore consisting of native lead, leadhillite and lethargite, by E. V. Shannon: Econ. Geology, vol. 22, pp. 826-829, December, **1927.****

BOISE COUNTY

Boise is one of the principal mining counties in the southwestern part of the State. It is bounded by Ada, Gem, Valley, Custer, Blaine and Elmore counties. Included within its area are a part of the drainage basin of the Payette River, practically all of the drainage basin of the South Fork of the Payette River, and all of the drainage basins of Grimes Creek and Moore Creek. The last two comprise the area generally known as the Boise Basin. The county has a total area of 1840 square miles, and was accredited with a population of 1822 in the 1920 census, or one person to the square mile. The principal industries are mining, stock raising, timber and lumbering.

Different sections of the county are served by Federal and State highways, which are supplemented by well-maintained county roads. These roads extend into all the various mining districts and are open to automobile travel during the larger part of the year. The western part of the county is traversed by the Nampa-McCall branch of the Oregon Short Line Railroad; the central part, or Boise Basin, is served by the Intermountain Railroad, which extends from Barber, near Boise, to Centerville. Idaho City, the county seat, and one of the oldest towns in the State, dates its existence from 1863, the time of the original gold rush to the Basin. It once boasted of a population as high as seven to ten thousand.

The history of Boise County dates back to the formation of the State in 1860, when placer gold was first discovered near Pierce City (Clearwater County). The overflow from this stampede resulted in the discoveries of Elk City, Florence, and Boise Basin, in quick succession; and by 1863 Boise Basin was one of the most thriving communities in the western part of the United States. In July, 1864, more than 9000 20-acre placer claims had been recorded in the three principal mining districts.

During the first few years after the discovery of gold all mining was confined to the placers which were susceptible to hand methods. After these became less profitable, numerous ditches 5 to 30 miles in length were constructed, and hydraulic mining of the higher bench gravels was started. These operations were conducted for many years, and a few have survived to the present day.

Shortly after the placer rush had subsided, attention was given to quartz mining; many discoveries soon were made, mills were constructed, and deep mining started. The principal discovery was the Gold Hill mine at Quartzburg. In 1863 the vein was exposed by placer mining, and by 1867 a mill had been built and was in operation. Except at brief periods when it was being repaired, the mill was operated continuously for 12 years. The mine has been in almost continuous operation since the day of discovery and is credited with a production of six to eight million dollars. This record gives it the distinction of being the oldest and largest producing gold mine in the State. The vein has been opened to a vertical depth of 600 feet only; at this point the ore is still persistent both in grade and extent, and there appears to be no reason why it should not continue deeper.

In addition to the Gold Hill, many other gold mines have a large production record. This production, combined with that derived from placer mining, both hydraulic and dredging, has held Boise County in first place in gold production in the State until the year 1923. The county is still an important producer of gold, but recoveries made by large dredges in other counties have displaced it from first rank. Although statistics show a continual yearly decrease in the amount of gold produced, it should not be inferred that the gold mines are becoming exhausted. There are still many mines and prospects which justify exploitation. When these are properly financed and managed this county will return to its former rank of first in gold production.

As the early-day miner was interested only in the precious metals, gold and silver, which could be recovered by the methods then in use, he disregarded all veins containing the sulphide, or base, ores. Before these ores became valuable prospecting had practically ceased, so the result is that this county offers one of the best fields in the State to prospectors or small development companies in search of lead-zinc-silver ores. Deposits of these metals are widely distributed throughout the county; and a few have been partially developed. When properly exploited and intelligently managed, they will become an important factor in the future prosperity of Boise County and the City of Boise, and will give the State an additional lead-zinc producing district. Although Boise County has always been known as a gold producing county, there are numerous widely distributed deposits of lead, silver, zinc, copper, bismuth, and antimony; in addition to these, monazite is found in the placer deposits in sufficient quantity to be of commercial importance.

During 1927 this county witnessed a large increase in new mine plant installations, new development work, and new enterprises; also many of the old companies expanded their operations over those of the previous year. Much scouting by large companies and others looking for new mines was in evidence throughout the year, and two important transactions would have taken place, had it been possible for the intending purchasers to procure the properties under favorable terms.

The largest new construction was the small dredge built by the Crooked River Mining Co. at its Kempner Ranch property on Crooked River. However, as the dredge was not properly designed or constructed, it ended in a miserable failure and an almost total loss of the money invested.

The principal new event of importance was the acquisition of the Gold Hill & Iowa mine at Quartzburg by the Talache Mines, Inc. After negotiations were completed in March, new pumps were installed and unwatering of the mine continued to completion. In addition to this, a large amount of work was performed on the 100-foot level. After unwatering to the 600-foot level was completed, new sinking equipment was installed and work started on sinking a winze to the 750-foot level. Besides proving the mine at this additional depth, the company proposes to perform a large amount of exploratory work on the upper levels.

The Idawa Gold Mining Co. maintained capacity production at its Belshazzar mine throughout the year, in addition to greatly improving its mine camp, buildings, and equipment. The amount of gold produced by this company gives it the rank of the largest gold-producing mine in the State, as well as proving that the "old" mines in this county still offer excellent opportunities.

In October the Ideal Mining Co., a new organization, acquired the old Osborne mine near Horseshoe Bend. The camp buildings were repaired, mining equipment was installed, and unwatering and rehabilitation of the shaft started.

The Gold Dredging and Power Corporation changed its dredge from steam to electrically-driven, and conducted dredging operations for a period of seven months.

In addition to performing considerable underground work, the Mineral Mining Co. conducted a large amount of investigation on the flotation of its ores. Practically all the equipment from its mill, which was completed in October, 1926, was removed, preparatory to installing new milling methods after further financing.

The Boise Placer Co. conducted mining operations for 108 days during the high-water period, after which its mine plant and equipment were overhauled and repaired in preparation for the next year.

In December D. W. Southworth acquired a lease and option on the Mountain Chief mine, owned by the National Mining and Development Co., Ltd., and commenced repairing and reopening the principal tunnels.

BIG BEND GOLD MINING CO.

Office: Gooding. **Officers:** A. B. Slater, Pres.; C. N. Seagrave, Sec.; W. C. Cooper, Mgr., all of Gooding. **Inc.:** July 25, 1927. **Capital:** 50,000 shares; par value $1; 40,000 shares issued. **Property:** Big Ben group; 3 unpatented claims held under lease and option, Placerville dist.; New Centerville. **Development:** By 1 tunnel 260 ft. long. **Ore:** Gold.

BIG ENTERPRISE MINING CO.

Office: Pioneerville. **Officers:** S. D. Whaley, Pres., Portland, Ore.; E. Lightfoot, Sec.-Mgr., Pioneerville. **Inc.:** June 24, 1915. **Capital:** 8000 shares; par value $100; 4000 shares issued. **Property:** Noble placer; 4 unpatented claims, Pioneerville dist.; Pioneerville.

BOISE PLACER CO.

Office: Idaho City. **Officers:** Fleming Howell, Pres., Buckhannon, W. Va.; W. Guy Tetrick, Sec., Clarksburg, W. Va.; E. F. Blain, Mgr., Boise. **Inc.:** Dec. 11, 1922. **Capital:** 750,000 shares; par value $1; 203,530 shares issued. **Property:** Plowman and Woodburn groups; 300 acres, Idaho City dist.; Idaho City. **Plant:** An oil-driven 10x7 compressor, and complete mining equipment. This equipment is used for the blasting of the big boulders in the hydraulic pits; complete hydraulic mining equipment. **Ore:** Placer gold. **Men employed:** Average, 20, for period of 108 days. **Remarks:** This company is the largest producer of placer gold in Boise County, and conducts the largest hydraulic mining operation in the State. Its mining operations can be conducted during the high-water season only.

CARY OIL CO.

Office: N. 119 Washington St., Spokane, Wash. **Officers:** C. J. Hoeschen, Pres., Spokane, Wash.; James H. Cary, Sec., Charlo, Mont. **Inc.:** June 16, 1926. **Capital:** 1,000,000 shares; par value 10c; shares issued, none. **Property:** Lease and option on 160 acres patented farm land near Horseshoe Bend. **Mineral sought:** Oil and gas. **Remarks:** Company in process of disincorporation.

COIN BOND GROUP

Owner: De Witt Showers, Chicago, Ill.; Local Agent, E. F. Blain, 1601 N. 12th St., Boise. **Property:** Coin Bond group; 34 unpatented claims, Placerville dist.; Placerville. **Development:** Principally by 1 long tunnel, 875 ft. of which is opened. **Ore:** Gold, lead-silver. **Men employed:** Average, 2. **Remarks:** Annual labor only. This property was formerly owned by the Boise Basin Improvement Co., Ltd., which lost it under foreclosure proceedings.

CONSOLIDATED MINES SYNDICATE

Office: 615 Empire Bldg., Boise. **Officers:** Frank E. Johnesse, Pres.; William MacLeod, Sec., both of Boise. **Inc.:** May 6, 1924. **Capital:** 10,000 shares; no par value. On August 15, 1924, the capitalization was changed to 10,000,000 shares, $2.50 par value; and on May 2, 1925, the capitalization was decreased to 10,000,000 shares, par value $1; 2,075,796 shares issued. **Property:** Washington and Subrosa groups; 4 patented, 14 unpatented claims, Gambrinus dist.; Idaho City. **Development:** Total development, approximately 12,000 ft., the principal part of which is the main crosscut tunnel 3700 ft. long, which intersects the bottom of a vertical shaft 414 ft. deep, near the bottom of which is a winze 150 ft. deep. **Plant:** MINE: Diesel oil engine driving a 480-cu.-ft. compressor, and complete mining equipment. Saw mill, modern boarding and bunk houses, change house, and complete camp. **Ore:** Silver-gold. **Remarks:** Active development work was maintained until October, 1926, by the Monetary Metals Co., which was incorporated on March 21, 1921, with a capital stock of 1,500,000 shares, par value $1, and which has expended over $340,000 in the development of this property. Since the suspension of operations in October, 1926, the mine has remained in idleness. On January 6, 1927, the Monetary Metals Co. was merged with the Consolidated Mines Syndicate on the basis of 2 shares of stock of the former for 1 share of stock of the latter. This company also owns the Princess-Blue Ribbon group in Camas County and the Blue Jacket group in Idaho County. During

the closing months of the year the company encountered considerable difficulty on account of the resignation of all its officers and directors excepting the president and the secretary.

CROOKED RIVER MINING CO.

Office: Dayton, Ohio. **Officers:** Melvin T. Rowland, Pres.-Mgr., Nampa; N. S. Talbott, Sec., Dayton, Ohio. **Inc.:** Oct. 5, 1927. **Capital:** 2000 shares common, no par value; 2000 shares preferred, par value $100; shares issued, unknown. **Property:** Kempner Ranch placer; 1 patented, 60 unpatented claims, 1760 acres, Banner dist.; Idaho City. **Plant:** Flume-type dredge, 3-cu.-ft. buckets; this dredge is driven by two 60-h. p. Diesel engines. **Ore:** Placer gold. **Men employed:** Average, 15. **Remarks:** During the year this company constructed its dredge, at a cost of $92,000; when its construction was completed, the dredge proved to be so improperly designed and faultily constructed that its operation was impossible. The officers stated that it "resulted both in a regrettable and an expensive experience."

CURRY DITCH GOLD PLACER MINES ASSOCIATION

Office: Pioneerville. **Officers:** P. E. Hall, Jr., Pres.-Mgr., 828 54th St., Oakland, Calif.; A. N. Clark, Sec., Everett, Wash. **Inc.:** An association. **Capital:** 500,000 shares; par value unfixed; 48,693 shares issued. **Property:** 3 patented, 2 unpatented placer claims, Pioneerville dist.; Pioneerville. **Remarks:** Idle.

DIAMOND L MINING CO., LTD., OF IDAHO

Office: Pioneerville. **Officers:** Lottie Morehead, Pres.-Sec.-Mgr., Pioneerville. **Inc.:** July 1, 1918. **Capital:** 500,000 shares; par value 1 mill; 282,220 shares issued. **Property:** Buckskin group; 13 unpatented claims, Pioneerville dist.; Pioneerville. **Development:** Approximately 2700 ft. of underground workings, the most important of which are 2 tunnels, 1 900 ft. long, and the other 500 ft. long. **Ore:** Lead-silver-gold. **Men employed:** Average, 2. **Remarks:** Development work was maintained throughout the year.

EDNA MINES CO.

Office: Idaho City. **Officers:** D. J. Atkins, Pres., 124 Front St., New York City; R. Dempster, Sec., Grants Pass, Ore.; F. E. Willson, Mgr., Idaho City. **Inc.:** Aug. 9, 1926. **Capital:** 200 shares; par value $100; all shares issued. **Property:** Edna group; 1 patented, 8 unpatented claims, Banner dist.; Idaho City. **Development:** Principally by 1 tunnel 1100 ft. long, and a vertical shaft 350 ft. deep with 3 intermediate levels. **Ore:** Silver-gold. **Men employed:** Average, 3. **Remarks:** A recent organization which acquired the old Edna mine and commenced its rehabilitation.

GOLD DREDGING & POWER CORPORATION

Office: 615 Empire Bldg., Boise. **Officers:** S. K. Atkinson, Pres.-Mgr.; W. A. Buis, Sec., both of Boise. **Inc.:** Jan. 30, 1922. **Capital:** 1,500,000 shares; par value $1; 900,000 shares issued. **Property:** 142 patented, 20 unpatented claims, Placerville dist.; Centerville. **Plant:** Electrically-driven Risdon dredge, 2½-cu.-ft. buckets close-connected, wooden hull. **Ore:** Placer gold. **Men employed:** Average, 12. **Remarks:** This company's dredge was originally steam-driven; in February work was started in changing it to electrically-driven; this work was completed and dredge operations started on April 7. With the exception of one short interruption, operations were continued until December 15, at which time the dredge was shut down for the winter.

GOLDEN SEAL MINING & MILLING CO.

Office: 913 Idaho St., Boise. **Officers:** E. K. Lorimer, Pres.-Mgr.; Geo. L. Fleharty, Sec., both of Boise. **Inc.:** Oct. 28, 1924. **Capital:** 1,000,000 shares; par value 25c; 859,628 shares issued. **Property:** 12 unpatented claims, unorganized dist.; Dry Creek; Boise. **Development:** By 3 tunnels: No. 1, 385 ft. long; No. 2, 100 ft. long; No. 3, 140 ft. long. **Ore:** Lead-zinc-silver. **Men employed:** Average, 1. **Remarks:** A small amount of work was done during the summer months, and an active stock-selling campaign was maintained throughout the year.

GOLD HILL & IOWA MINES CO.

Office: 605 Eastman Bldg., Boise. **Officers:** Jess Hawley, Pres., Boise; Wendell H. Marden, Sec., Boston, Mass.; James H. Hawley, Jr., Mgr., Boise. **Inc.:** June 10, 1908. **Capital:** 200,000 shares; par value $10; 194,622 shares issued. **Property:** Gold Hill & Iowa groups; 19 patented, 26 unpatented claims, Quartzburg dist.; Quartzburg. **Development:** 600-ft. 3-compartment vertical shaft and approximately 30,000 ft. of underground workings. **Plant:** MINE: 52-h. p. hoist and 452-cu.-ft. compressor, both electrically driven. MILL: 150-ton, including crusher, rolls, Hardinge ball mill, amalgamating plates, concentrating tables, regrinding tube mill and cyaniding of concentrates in Pachuca tanks, zinc box precipitation. **Ore:** Gold. **Remarks:** This property was first located in 1863, since which time it has been in practically continuous operation with a production record of approximately $8,000,000, half of which was produced during the last 15 years. Under option to Talache Mines, Inc., which see.

HALLEY PLACER CO.

Office: Placerville. **Officers:** E. F. Blain, Mgr., 1601 N. 12th St., Boise. **Inc.:** An association. **Property:** Halley Placers; 7 unpatented placer claims, Placerville dist.; Placerville. **Remarks:** Annual labor only.

IDAHO DEVELOPMENT CO.

Office: 605 Eastman Bldg., Boise. **Officers:** Wendell H. Marden, Pres., Boston; James H. Hawley, Jr., Mgr., Boise. **Inc.:** Dec. 16, 1920. **Capital:** 1000 shares; par value $10; all shares issued. **Property:** 4 unpatented claims, Placerville dist.; Placerville.

IDAWA GOLD MINING CO.

Office: Valley City, N. Dak. **Officers:** S. A. Zimmerman, Pres.-Sec., Valley City, N. Dak.; S. M. Ballard, Mgr., Placerville. **Inc.:** Jan. 3, 1919. **Capital:** 2,000,000 shares; par value 25c; 1,228,000 shares issued. **Property:** Belshazzar group, 17 unpatented claims, Quartzburg dist.; Quartzburg. **Development:** By 5 tunnels, the principal of which are No. 4, 1200 ft. long, and No. 5, 3000 ft. long. Total development, approximately 7000 ft. **Plant:** MINE: Electrically-driven compressor; complete mining equipment and camp. MILL: 25-ton amalgamation and table-concentration. **Ore:** Gold. **Men employed:** Average, 18. **Remarks:** Active throughout the year. This is one of the principal gold-producing mines in the State, all operations being conducted through No. 4 tunnel, which is connected with the mill by an aerial tramway.

IDEAL MINING CO.

Office: 212 Boise City Natl. Bank Bldg., Boise. **Officers:** H. W. Dorman, Pres.; W. E. Sullivan, Sec.; H. P. Taylor, Mgr., all of Boise. **Inc.:** Sept. 17, 1927. **Capital:** 200,000 shares; par value $1; 150,000 shares issued. **Property:** Osborne group; 5 unpatented claims, Westview dist.; Horseshoe Bend. **Development:** Principally by 1 inclined shaft. **Plant:** Electrically-driven I-R compressor; complete mining equipment. **Ore:** Gold-silver-lead. **Men employed:** Average, 6. **Remarks:** This company is a new organization, which acquired the old Osborne mine in September and immediately commenced unwatering the shaft and rehabilitating the property.

INDEPENDENT MINES SYNDICATE

Office: Owyhee Hotel, Boise. **Officers:** Geo. H. Cochran, Pres., New York; Stanley G. Smith, Mgr., Owyhee Hotel, Boise. **Inc.:** Common Law Trust. **Capital:** 1000 shares; par value $100; 780 shares issued. **Property:** Independent group; 14 unpatented claims, Pioneerville dist.; Pioneerville. **Development:** By 3 tunnels and 2 short shafts: No. 1, 200 ft. long; No. 2, 300 ft. long; No. 3, 720 ft. long. **Ore:** Gold, lead-silver-zinc. **Men employed:** Average, 1. **Remarks:** Maintenance work only throughout the year.

IRON DYKE MINES CO.
Office: 402 Empire Bldg., Boise. **Officers:** S. T. Schreiber, Pres.-Mgr., Boise. **Inc.:** April 16, 1923. **Capital:** 150,000 shares; par value $1; 100 shares issued. **Property:** Iron Dyke group; 2 patented, 18 unpatented claims, unorganized dist.; Holcomb. **Development:** By 2 tunnels: No. 1, 25 ft. long; No. 2, 20 ft. long. **Ore:** Gold, silver-lead.

MINERAL MINING CO.
Office: Placerville. **Officers:** A. C. Gallupe, Pres.-Mgr., Placerville; C. C. Fairchild, Sec., Idaho City. **Inc.:** Feb. 6, 1920. **Capital:** 2,500,000 shares; par value 6c; 2,392,000 shares issued. **Property:** Enterprise and Smuggler groups; 12 patented, 21 unpatented claims; Enterprise group held under lease and bond from Exta Lightfoot, Pioneerville; Pioneerville dist.; Pioneerville. **Development:** Approximately 8000 ft. of underground workings. **Plant:** MINE: 25-h. p. steam-driven hoist on Smuggler group; complete mining equipment and camp. MILL: 100-ton concentrator, partly dismantled. **Ore:** Lead-silver-zinc. **Men employed:** Average, 24. **Remarks:** The mill was completed and operations started in October, 1926. As originally designed, it was impractical, so during 1927 almost all the equipment was removed preparatory to changing the flow sheet to fine grinding and flotation. In addition to the changes in the mill, a small amount of mining work was performed during the year.

MISSOURI MINING CO., LTD.
Office: Pioneerville. **Officers:** Homer E. Howard, Pres.; Ezra E. Howard, Sec., both of Pioneerville. **Inc.:** Feb. 4, 1914. **Capital:** 50,000 shares; par value $1; on June 1, 1925, capitalization was increased to 1,000,000 shares, par value $1; 50,000 shares issued. **Property:** 10 unpatented claims, Pioneerville dist.; Pioneerville. **Development:** Approximately 450 ft. of underground workings. **Ore:** Lead-silver-zinc. **Men employed:** Average, 2. **Remarks:** A small amount of work was done throughout the year.

NATIONAL HYDRAULIC MINES CO.
Office: Manitou Hotel, Boise. **Officers:** Albert E. Small, Pres., Manitou Hotel, Boise; D. E. Beatty, Sec., Boise. **Inc.:** Sept. 7, 1921. **Capital:** 1,000,000 shares; par value $1; 354,648 shares issued. **Property:** 11 unpatented placer claims, 1414 acres on Moore's Creek, Idaho City dist.; Idaho City. **Plant:** Three No. 2 and No. 1 giants; 3000 ft. of pipe line, and complete hydraulic equipment. **Remarks:** Annual labor only.

NATIONAL MINING & DEVELOPMENT CO.
Office: Placerville. **Officers:** A. C. Gallupe, Pres.; E. A. Gallupe, Sec., both of Placerville. **Inc.:** Sept. 23, 1911. **Capital:** 1,000,000 shares; par value $1; 236,540 shares issued. **Property:** Mountain Chief group; 11 unpatented claims, Quartzburg dist.; Placerville. **Development:** By 5 tunnels, the principal one of which is 2200 ft. long. **Ore:** Gold. **Remarks:** Property acquired under lease and option by D. W. Southworth in December.

OX-BOW MINING CO., LTD.
Office: 24 White Memorial Bldg., Syracuse, N. Y. **Officers:** P. R. Dishaw, Pres.; J. D. Crimmins, Sec., both of Syracuse. **Inc.:** July 10, 1925. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Ox-Bow placer group, 7 unpatented claims, Summit Flat dist.; Lowman. **Ore:** Placer gold. **Remarks:** Idle throughout the year. The secretary of the company stated: "This project has for its object the recovery of the placer gold contained in about 12,000 feet of the river bed, which is laid bare by diverting the entire river through a tunnel 1200 feet long which cuts through the mountains at a point where the river forms a hairpin curve."

REID PLACERS
Officers: E. S. Robinson, Mgr., Placerville. **Property:** 23 unpatented placer claims. **Plant:** 2000 ft. of pipe line; No. 3 giant and complete hydraulic equipment. **Ore:** Placer gold. **Remarks:** Annual labor only.

ROSARIAN MINERALS & POWER CO.

Office: 341 Sonna Bldg., Boise. **Officers:** J. M. Scherzinger, Pres., Corvallis, Ore.; F. J. Hartmann, Sec., Boise. **Inc.:** Sept. 19, 1924. **Capital:** 500,000 shares; par value $1; 18 shares issued. **Property:** 11 unpatented claims; Barber. **Remarks:** This company owns the property which was made "famous" by the defunct Moore's Creek Boulder Gold Dredging Co.

TALACHE MINES, INC.

Office: Quartzburg. **Officers:** A. H. Burroughs, Jr., Pres.-Mgr.; J. M. Hector, Sec., both of Quartzburg. **Inc.:** Apr. 21, 1917, as Armstead Mines, Inc.; name changed June 8, 1922. **Capital:** 1,000,000 shares common, 600,000 shares preferred; par value $1; 983,000 shares common, 579,233 shares preferred issued. **Property:** Lease and option on property owned by Gold Hill & Iowa Mines Co., which see. **Men employed:** Average, 20. **Remarks:** In March property was acquired and operations started, the principal part of which was the unwatering of underground workings. A large amount of exploratory work was performed on the 100-ft. level, and after the mine was unwatered new equipment was installed and sinking from the lowest, or 600-ft. level, was started.

WASHOE MINING CO.

Office: 605 Eastman Bldg., Boise. **Officers:** Jess Hawley, Pres.; C. W. Mack, Sec,. both of Boise; Vivian Thorn, Mgr., Banner. **Inc.:** Dec. 16, 1911. **Capital:** 100,000 shares; par value $1; all shares issued. **Property:** Banner group; 7 patented, 15 unpatented claims, Banner dist.; Idaho City. **Development:** 2 tunnels, the principal one of which is 4000 ft. long. **Plant:** 30-ton mill, tables and flotation. **Ore:** Silver. **Remarks:** Idle.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Adonis	Unknown	Herman Schultz	Boise
Alameda	Unknown	Wm. S. Bella	Boise
Alpine Gr.	Alpine	J. T. C. Harrington	Nampa
American Girl Gr.	Gambrinus	Louise D. Stewart	Boise
Annie Lee	West View	Chas. Smith	Horseshoe Bend
Argonne	Granite Creek	Fred C. Brown	Boise
Argonne Forest	Gambrinus	H. Mauernhamer	Boise
Ashcroft Pl.	Placerville	H. Ashcroft	Placerville
Banner	Banner	V. A. Thorn	Idaho City
Atlast	Unknown	J. F. Thompson	Horseshoe Bend
Beaver Cr. Pl.	Banner	J. D. Demming	Idaho City
Belmont Gr.	Quartzburg	Murty Driscol & F. Daly	Quartzburg
Big Ben	Centerville	Frank H. Cooper	Boise
Blackbird	Pioneerville	Exta Lightfoot	Pioneerville
Blackbird et al.	Cold Springs	Anderson & Newbrand	Idaho City
Black Crook Gr.	West View	Bincord Realty Co.	Denver, Colo.
Black Jack	Summit Flat	Jerry Dowling	Idaho City
Bluebird et al.	Banner	G. R. Moland	Boise
Blue Jet Pl.	Centerville	Archie R. Koppes	Centerville
Blue Grouse	Unknown	Thos. C. Mayne	Idaho City
Blue Ribbon Gr.	Dry Buck	Lee Davis	Horseshoe Bend
Blue Rock	Quartzburg	Allen B. Eaton	Boise
Blue Stone	Idaho City	Henry Holsmeier	Idaho City
Boston Girl	Placerville	Wm. W. Thorn	Centerville
Boulder Gr.	Elk Horn	Patrick Moriarty	Idaho City
Boundary	Dry Buck	Lee Davis	Horseshoe Bend
Buffalo Gr.	Elk Creek	Frank Cooper	Boise
Bull Durham Pl.	Boise River	I. I. Youngblood	Boise
Bummer Hill	Quartzburg	H. C. Granger	Centerville
Calumet	West View	G. Faull	Horseshoe Bend
Cash Register	Placerville	Frank H. Cooper	Centerville

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Catherine	Placerville	Pat H. Quirk	Boise
Chance Gr.	Pioneerville	W. H. Van Meter	Elks' Club, Boise
Claude Marsh	Summit Flat	Edward Brisbin	616 S. 17th St., Boise
Clay Gulch	Placerville	J. T. Blair	Centerville
Clear Cr. Pl.	Pioneerville	J. A. Adams	Pioneerville
Cleopatra et al.	Pioneerville	Skidmore & McDonald	Pioneerville
Climax	Banner	Chris Smith	Idaho City
Cold Springs	Idaho City	O. F. Sibley	Boise
Coon Dog	Pioneerville	C. C. Fairchild	Idaho City
Deer Horn Pl.	Gambrinus	Joe Elliott	Idaho City
Dew Drop	Centerville	Warren J. Cooper	Centerville
Dog Tooth	Quartzburg	Allen B. Eaton	Boise
Edna	Banner	F. A. Willson	Idaho City
Eldorado Gr. Pl.	Banner	Harold Rowland	Nampa
Elkhorn	Gambrinus	Lippincott & Warner	Idaho City
Elkmeat	Idaho City	Chas. E. Clark	Soldiers' Home Boise
Etta B. Gr.	Placerville	Robt. S. Bunch	Centerville
Eureka Gr.	Gambrinus	Mrs. P. J. Hall	Boise
Fall Creek	Placerville	Albert Elster	Placerville
Franklin	Idaho City	H. A. Schlosser	Idaho City
Gambrinus	Gambrinus	V. A. Thorn	Idaho City
Gem of the Mts.	Placerville	C. C. Fairchild	Idaho City
Golconda	Idaho City	B. F. Kloppenburg	Idaho City
Gold Coin	Gambrinus	M. L. Phelps	Idaho City
Gold Dollar	Summit Flat	James H. Hawley	Boise
Gold Lodge Pl.	Idaho City	Henry Holsmeier	Idaho City
Golden Seal	Unorganized	Jas. Curtin	905 Idaho St., Boise
Goodenough Pl.	Idaho City	Jas. King	Idaho City
Gornick Pl.	Pioneerville	Joe Gornick	Pioneerville
Grant Gr.	Idaho City	John Jamieson	Idaho City
Great Western	Gambrinus	J. W. Duquette	Idaho City
Grooms Pl.	Payette River	James L. Tyson	Banks
Hamilton Pl.	Pioneerville	Ezra E. Howard	Pioneerville
Hard Times	Unorganized	C. M. Hunt	Twin Springs
Hay Fork	Moore Creek	H. R. Jarvis	Idaho City
Hidden Treasure	Pioneerville	J. D. Branson	Pioneerville
Highland Valley	Barber	P. J. Smith	Barber
Hilltop	Quartzburg	Louis Klein	Grand Hotel, Boise
Hilltop	West View	L. C. Hall	Horseshoe Bend
Homestake	Summit Flat	Joe Labbee	Idaho City
Honey Bee	Shaw Mountain	Elmer Gettys	Boise
Hooch Can Gr.	Pioneerville	J. O. McDonald	Pioneerville
Hoodoo Pl.	Pioneerville	C. R. Poncia	Pioneerville
Idaho Pl.	Idaho City	James Farrell	Idaho City
Illinois	Idaho City	Abraham Duquette	Idaho City
I. X. L. Pl.	Pioneerville	P. J. Shaughnessy	Pioneerville
J. S. Gr.	Pioneerville	A. E. Anderson	Garden Valley
K. C. Fraction	Pioneerville	Damien Ader	Pioneerville
Kentuck	Placerville	John Golden	Centerville
King Lead Gr.	Pioneerville	A. E. Yoder	Pioneerville
Kirkham	Banner	Ira R. Cromwell	Idaho City
K. M. Gr.	Cold Springs	M. Marchmonte	Idaho City
Last Chance et al.	Quartzburg	Frank Daly	Quartzburg
Leary & Brogan	Placerville	Michael Leary	Placerville
Long Chance	Shaffer Creek	R. C. Hall	Horseshoe Bend
Lucky Boy Gr.	Gambrinus	Lucky Boy Mining Assoc.	Idaho City

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
McKinley	Idaho City	Thos. Hardin	Boise
Mamie Pl.	Summit Flat	S. Frank Smith et al.	Idaho City
Mammoth	Pioneerville	Nelson Bottcher	Idaho City
Mary Lou	Elk Horn	Garrecht & Campbell	Idaho City
Mascot	Pioneerville	Mrs. Cora Banwell	Pioneerville
May Flour	Gambrinus	John McCarthy	Idaho City
Mayflower	Quartzburg	Stephen Mackin	Placerville
Nally Placers	Pioneerville	Stephen Nally	Pioneerville
New Era Gr.	Pioneerville	Jos. Gornick	Pioneerville
New York	Gambrinus	D. R. Morgan	Idaho City
Nighthawk	Pioneerville	John Miller	Pioneerville
Olympia	Summit Flat	Mary Berry	701 E. Jefferson St., Boise
Ophir & Ophir 2	Pioneerville	Peter Reichert	Pioneerville
Orofino	Elkhorn	Janette Jordan	San Francisco, Cal.
Oxbow Gr. Pl.	Grimes Pass	Mary L. Bunch et al.	Boise
Paul's Gulch et al.	Pioneerville	Andrew Hansen	Pioneerville
Pioneer	Quartzburg	P. J. Evans	Quartzburg
Poor Man	Willow Creek	J. J. Shanahan	Idaho City
Pot Latch	Pioneerville	Sherman O. Barker	Grimes Pass
Printer	Idaho City	Amelia Garrecht	Idaho City
Queen of the Mts.	Rock Creek	James E. Fox	Boise
Riley & Farren	Placerville	J. J. Brogan	Placerville
Riverside	South View	Robt. W. Clarke	Horseshoe Bend
Rough & Ready	Unorganized	P. S. Smith	Barber
St. Clair Gr.	Pioneerville	Damien Ader	Placerville
Saunders	Placerville	W. F. Hiatt	Placerville
Seventeen Pl.	Placerville	Lee Bunch	Boise
Seventy-four	Pioneerville	C. R. Poncia	Pioneerville
Shamrock	Summit Flat	Mrs. E. W. Barry	Boise
Silver Bell	Placerville	W. F. Hiatt	Placerville
Sniveley Pl.	Centerville	H. C. Granger	Centerville
Sourdough	Summit Flat	J. D. Smith	Idaho City
Standby Pl.	Placerville	August Michelson	Beaverton, Ore.
Stanton Gulch	Placerville	John Stanton	Placerville
Sunny Day Gr.	Alpine	E. R. Swindler	Banks
Sunrise Pl.	Placerville	Nellie T. Wood et al.	Boise
Swede Gulch et al.	Pioneerville	Carlo Poncia	Centerville
Terry Gr.	Willow Creek	J. T. Blair	Centerville
Trader	Idaho City	J. H. Eggars	Idaho City
Tuxedo Pl.	Boise River	C. J. Schooler et al.	Boise
Venture	Unorganized	John Benzer	Hailey
Windfall	Pioneerville	Robt. D. Aikens	Boise

BIBLIOGRAPHY

See pages 11-12 for publisher's address, meaning of reference marks, and abbreviations.

The Boise basin in Idaho, by J. B. Hastings: Sci. Am. Suppl., vol. 38, Aug. 18, 1894; Eng. and Min. Jour., vol. 58, p. 56, July 21, **1894.**§

A geological reconnaissance across Idaho, by G. H. Eldridge: U. S. Geol. Survey, Sixteenth Ann. Rept., pt. 2, pp. 211-276, **1895.***

Monazite in Idaho, by Waldemar Lindgren: Am. Jour. Sci., 4th ser., vol. 64, p. 63, July, 1897; Eng. and Min. Jour., vol. 64, pp. 63-67, July 17, **1897.**§

Description of the Boise quadrangle, by Waldemar Lindgren, U. S. Geol. Survey Geol. Atlas, Folio No. 45, **1898.***

Mining districts of the Idaho Basin and the Boise Ridge, Idaho, by Waldemar Lindgren: U. S. Geol. Survey, Eighteenth Ann. Rept., pt. 3, pp. 625-736, **1898.***

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey, Twentieth Ann. Rept., pt. 3, pp. 65-256, **1900.***

The Boise Basin mining district, by Robert Nye: Min. and Sci. Press, vol. 81, p. 400, Oct. 6, **1900.***

Preliminary report on artesian basins in southwestern Idaho and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Water-Supply Paper 78, pp. 29-30, **1903.**‡

Boise Basin, Idaho, by W. A. Scott: Min. and Sci. Press, vol. 101, pp. 76-78, July 16, **1910.***

Coal at Horseshoe Bend and Jerusalem Valley, Boise County, Idaho, by C. F. Bowen: U. S. Geol. Survey Bull. 531, pp. 245-251, **1911.***

Boise Basin, Idaho, by W. L. Brown: Pacific Miner, vol. 18, February, **1911.***

Gold dredging in the Boise Basin of Idaho, by J. H. Miles: Min. and Sci. Press, vol. 105, pp. 330-332, Sept. 14, **1912.***

Winter dredging in Idaho, by J. H. Miles: Min. and Sci. Press, vol. 108, p. 455, March 14, **1914.***

Lode mining in the Quartzburg and Grimes Pass porphyry belt, Boise Basin, Idaho, by E. L. Jones, Jr.: U. S. Geol. Survey Bull. 640, pp. 83-111, **1916.**‡

The Boise Basin district in Idaho, by S. M. Ballard: Eng. and Min. Jour., vol. 109, pp. 881-882, Apr. 10, **1920.**§

Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 60, art. 3, pp. 1-33, **1921.**‡

Ore deposits of Gold Hill mine, at Quartzburg, Idaho, by A. J. McDermid: Eng. and Min. Jour.-Press, vol. 114, pp. 537-540, Sept. 23, **1922.**§

Geology and gold resources of Boise Basin, Boise County, Idaho, by S. M. Ballard: Idaho Bureau of Mines and Geology Bull. 9, **1924.****

A disseminated lead prospect in northern Boise County, Idaho, by C. P. Ross: Idaho Bureau of Mines and Geology Pamphlet 20, **1926.****

BONNER COUNTY

Bonner constitutes an important part of the Idaho Panhandle and is one of the extreme northern counties. It is bounded on the east by the State of Montana, and on the west by the State of Washington; Boundary County adjoins it on the north, and Kootenai and Shoshone counties on the south. It contains an area of 1748 square miles and was accredited with a population of 12,957 in the 1920 census. The principal industries are lumbering, mining, stock raising, and agriculture. Although the county is recognized as one of the important mining counties of the State, the proportion of the population that is interested in mining is very small.

The county is exceptionally fortunate with respect to transportation facilities, as it is served by two State highways, lake boats, and three transcontinental railroads. Boats that can reach any point on Lake Pend d'Oreille give connection with the railroads at Sandpoint and Bayview.

Practically all the mining has been devoted to the areas adjacent to Pend d'Oreille and Priest lakes and the Clark Fork River. However, mining locations are numerous and widely scattered throughout the county. The mining history of the county dates back to the discovery of silver ores near Lakeview in 1888, which resulted in a stampede from the Coeur d'Alene district. Since that time there has always been a small amount of mining, but the county did not attract attention in recent years until the Talache mine was a proved and successful operation. The Talache has been a big factor in drawing attention to the mineral possibilities and prospecting opportunities of the county, resulting in a large increase in mining activities during the past few years.

The principal minerals are those of silver, lead, copper, zinc, and gold. These metals, and the limestone quarried near Lakeview, constitute the chief mineral resources. Silver is the most widely distributed metal and constitutes the most important part of the ores.

The discovery of high-grade lead-silver ore in 1926 near Clark Fork by the Whitedelf Mining & Development Co. was further developed in 1927, and proved to be one of the important new disclosures to be made in the State in recent years. During the year a three-mile electric transmission line was constructed, a large electrically driven compressor and new shaft-sinking equipment were installed, and new mine buildings constructed. A large amount of mine development work was done, and a substantial tonnage of ore produced and marketed, the principal part of which was taken out by lessees. The excellent manner in which this property is responding as exploration progresses has been responsible for attracting a large amount of new development work and prospecting to this section of the county.

Numerous prospectors were busy throughout the year, and a number of new companies were organized and commenced operations. The principal one of these was the Hope Mining Co., which acquired the Elsie K. mine. Additional mining equipment was installed, a large amount of development work done, and a number of carloads of high-grade lead-silver ore were shipped, some of which was taken out by lessees. In addition to these new companies, the Lawrence Consolidated Mining Co. conducted operations throughout the year, so as a whole this section of Bonner County witnessed an active and prosperous year.

The International Portland Cement Co., Ltd., at its limestone quarry near Lakeview, continues to be the largest mining operation in the county. During 1927 the mine plant and equipment were greatly enlarged. A large tonnage of rock was mined and shipped to Spokane, Wash., where it is used in making Portland cement. This company's mine and plant are the most important of their kind in the State.

Another important enterprise in the Lakeview district is that of the Idaho Hewer Mines, Inc. Throughout the year this company maintained active development work with a large crew of men. The work consisted of sinking the shaft to the 900-foot level, and performing over 2000 feet of drifting on intermediate levels. Three substantial bodies of ore were disclosed, and at the close of the year the mine was being put into shape for active production.

Prospectors and small development companies in the Priest Lake district were active throughout the year, the principal ones being the Kaniksu Mining Co.; P. F. Vandever and C. W. Beardmore at the Grey Goose; and Joseph Saccomanno at the Silver King. Many others increased their usual yearly work, and there continues to be an active search for new mines.

AMERICAN EAGLE MINING CO.

Office: Sandpoint. **Officers:** R. A. Martin, Pres., Martinsdale, Mont.; H. L. Thomason, Sec.; James A. Evans, Mgr., both of Sandpoint. **Inc.:** May 28, 1919. **Capital:** 10,000 shares; par value $100; 608 shares issued. **Property:** American Eagle group; 7 unpatented claims, Pend d'Oreille dist., Sandpoint. **Development:** 1 tunnel 1750 ft. long, which is principally a drift on the vein. **Ore:** Lead-silver. **Remarks:** A small amount of development work during the year.

ARGUS MINING CO.

Office: Cleveland, Ohio. **Officers:** Daniel Myers, Pres., Athletic Club, Cleveland, Ohio. **Inc.:** April 20, 1917. **Capital:** 800,000 shares, par value $1; 500,000 shares issued. **Property:** Argus group; 5 unpatented claims, Lakeview dist.; Lakeview. **Development:** 4 tunnels, totaling approximately 800 ft. in length. **Ore:** Lead-silver. **Remarks:** Annual labor only.

AUXER GOLD MINES CO.

Office: Hope. **Officers:** James Campbell, Pres.-Mgr., Hope. **Inc.:** June 24, 1920. **Capital:** 500,000 shares; par value $1; 335,000 shares issued. **Property:** Boston group; 9 unpatented claims, Pend d'Oreille dist.; Hope. **Development:** Approximately 1300 ft. of underground workings, the principal one of which is a tunnel 700 ft. long. **Plant:** Steam-driven 6x7 I-R compressor. **Ore:** Gold. **Remarks:** Principal tunnel extended about 100 ft. during the year.

BARD MINING & MILLING CO.

Office: 517 Ziegler Bldg., Spokane, Wash. **Officers:** Mrs. R. M. B. Mobbs, Pres.; Fred C. Daeufer, Sec.-Mgr., both of Spokane. **Inc.:** Nov. 23, 1927. **Capital:** 2,000,000 shares; par value $1; 490,000 shares issued. **Property:** Bard group; 8 patented, 25 unpatented claims in Bonner, Shoshone, and Kootenai counties, unorganized dist.; Lakeview. **Development:** By 3 short tunnels. **Ore:** Lead-silver-copper. **Remarks:** A small amount of development work done during the latter part of the year. The company encountered internal difficulties through high-pressure methods being used in the sale of its stock.

BONNER MINING CO.

Office: Oakesdale, Wash. **Officers:** H. E. Kendall, Pres.; J. A. Henderson, Sec., both of Oakesdale, Wash. **Inc.:** Form of organization unknown. **Capital:** 150,000 shares; par value $1; shares issued, unknown. **Property:** Bonner group; 2 patented, 9 unpatented claims, Pend d'Oreille dist.; Hope. **Development:** By 2 tunnels: No. 1, 1500 ft. long; No. 2, 400 ft. long. **Plant:** Small water-driven compressor. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** A small amount of development work during the summer months, funds for which were derived from stock assessments.

BRITANNIA MINING CO.

Office: Priest River. **Officers:** A. O. Kendall, Pres., Oregon City, Ore.; M. W. McLean, Sec.-Mgr., Priest River. **Inc.:** Nov. 8, 1912. **Capital:** 1,000,000 shares; par value $1; 770,000 shares issued. **Property:** Britannia group: 8 unpatented claims, Priest Lake dist.; Priest River. **Development:** Approximately 900 ft. of underground workings. **Ore:** Gold. **Remarks:** Under development by the owners.

CARPIE MINING CO.

Office: Cabinet, Idaho. **Officers:** J. W. Powell, Pres.-Mgr.; Cabinet. **Inc.:** An association. **Capital:** 750,000 shares; par value $1; 370,000 shares issued. **Property:** Carpie group; 4 unpatented claims, Pend d'Oreille dist.; Cabinet. **Development:** By a vertical shaft 300 ft. deep, in which are 5 levels. **Plant:** Steam-driven hoist and small Sullivan compressor. **Ore:** Copper. **Remarks:** Annual labor only since April, 1921.

CLARINDA COPPER MINING CO.

Office: 50 Broad St., New York City. **Officers:** John P. Delaney, Pres., New York City; Compton I. White, Sec.-Mgr., Clark Fork. **Inc.:** July 30, 1920. **Capital:** 1,500,000 shares; par value $1; 335,527 shares issued. **Property:** 9 unpatented claims, Pend d'Oreille dist.; Clark Fork. **Development:** By 5 tunnels, the longest of which is No. 5, totaling 2100 ft. in length. **Plant:** Electrically-driven compressor and complete mining equipment. **Ore:** Copper. **Remarks:** Idle.

COPPER GIANT MINING CO.

Office: Clark Fork. **Officers:** J. B. Whitcomb, Pres.; Miss H. F. Thibadeau, Sec.-Treas., both of Clark Fork. **Inc.:** Oct. 10, 1908. **Capital:** 1,500,000 shares; par value $1; 1,200,000 shares issued. **Property:** Copper Giant group; 5 patented claims, Pend d'Oreille dist.; Clark Fork. **Development:** Approximately 1300 ft. of underground workings. **Plant:** 10x10 electrically-driven I-R compressor. **Ore:** Copper-gold. **Remarks:** Idle throughout the year.

EMPIRE TUNGSTEN MINING CO.

Office: 1911 Sherman Ave., Evanston, Ill. **Officers:** Frank G. Forbes, Pres.; George S. Smith, Sec., both of Evanston, Ill. **Inc.:** March 20, 1914. **Capital:** 1,500,000 shares; par value 1c; all shares issued. **Property:** Rainbow; 1 patented claim, Lakeview dist.; Lakeview.

GOAT MOUNTAIN MINING CO.

Office: 414 Ziegler Blk., Spokane, Wash. **Officers:** E. C. Aschenbrenner, Pres.; Chas. Jans, Sec., both of Endicott, Wash.; J. Teague, Mgr., Clark Fork. **Inc.:** April 26, 1926. **Capital:** 1,500,000 shares; par value 10c; 500,000 shares issued. **Property:** Goat Mountain group, 11 unpatented claims, Pend d'Oreille dist.; Clark Fork. **Development:** By 2 tunnels: No. 1, 200 ft. long; No. 2, 814 ft. long. **Ore:** Lead-silver. **Remarks:** Idle.

GREEN MONARCH MINING & MILLING CO., LTD.

Office: Sandpoint. **Officers:** L. H. Jeannot, Pres.-Mgr., Dixon, Mont.; Peter Johnson, Sec., Sandpoint. **Inc.:** July 3, 1905. Charter forfeited Nov. 30, 1927. **Capital:** 1,500,000 shares; par value $1; 1,408,666 shares issued. **Property:** 11 unpatented claims, Pend d'Oreille dist.; Hope.

HAYO MINING & MILLING CO.

Office: Priest River. **Officers:** John Hamberg, Pres.-Mgr.; W. R. Hamberg, Sec., both of Priest River. **Inc.:** June 21, 1923. **Capital:** 3,000,000 shares; par value 10c; no shares issued. **Property:** 6 unpatented claims, Priest Lake dist.; Priest River. **Development:** By 2 tunnels, with a total development of 90 ft. **Ore:** Lead-silver. **Remarks:** Annual labor only.

HOPE MINING CO.

Office: Clark Fork. **Officers:** O. A. Holte, Pres., Coeur d'Alene; C. C. Jensen, Sec.; S. W. Purdy, Mgr., both of Clark Fork. **Inc.:** Nov. 19, 1927. **Capital:** 1,500,000 shares; par value 10c; 1,200,000 shares issued. **Property:** Elsie K. group; 2 unpatented claims and 320 acres patented farm land, Pend d'Oreille dist.; Clark Fork. **Development:** By 5 tunnels, with a total development of approximately 1500 ft. **Plant:** Gas-driven 6x6 compressor, complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 10. **Remarks:** A large tonnage of ore was produced and marketed during the year by lessees. In the closing months of the year additional mine equipment was installed and work started on a long lower tunnel.

IDAHO GOOD HOPE MINING CO., LTD.

Office: Grand Forks, N. D. **Officers:** G. L. Elkin, Pres., Mayville, N. D.; Samuel Torgerson, Sec., Grand Forks, N. D. **Inc.:** April 21, 1910. **Capital:** 2,500,000 shares; par value $1; 1,671,190 shares issued. **Property:** 9 patented claims; Pend d'Oreille dist.; Hope. **Remarks:** Idle for 14 years.

IDAHO HEWER MINES, INC.

Office: 502 Columbia Bldg., Spokane, Wash. **Officers:** D. M. Drumheller, Pres.-Mgr.; H. O. Kent., Sec., both of Spokane. **Inc.:** May 26, 1923, as Hewer Mining Co.; reorganized on April 10, 1926. **Capital:** 2,000,000 shares; par value 1c; 1,553,978 shares issued. **Property:** Venzwela group; 4 patented, 11 unpatented claims; 8 of which are held under lease and option. **Development:** Total development approximately 10,000 ft.; principally by 1 tunnel 2200 ft. long, in which is an inclined shaft 900 ft long. **Plant:** MINE: I-R gas-driven compressor; 8½x10 Ottumwa hoist and complete mining equipment. MILL: 100-ton concentrator, fine grinding and flotation; driven by a semi-Deisel oil engine. **Ore:** Silver-lead-zinc. **Men employed:** Average, 23. **Remarks:** Active development work was maintained throughout the year, the principal part of which consisted in sinking to a greater depth the inclined shaft, from which intermediate drifts were run on the vein. The shaft was extended approximately 300 ft. deeper, and about 2000 ft. of drifting was performed. The mill was operated a few days and concentrates were marketed. The money expended in development work was derived from stock assessments which were levied at the rate of ½c per share per month.

INTERNATIONAL PORTLAND CEMENT CO., LTD.

Office: 1124 Old National Bank Bldg., Spokane Wash. **Officers:** R. K. Neill, Pres., Spokane, Wash.; John P. Hartman, Sec., Seattle, Wash. **Inc.:** Filed in Idaho, September 9, 1911. **Capital:** 30,000 shares; par value $100; 27,233 shares issued. **Property:** 8 patented, 1 unpatented claim, 790 acres, near Bayview. **Development:** Open quarry. **Plant:** 100 cu. ft. compressor, driven by Deisel engine; steam-shovel; gas-driven shovel; crushing plant; complete mining equipment; machine shops, buildings, and mine camp. **Ore:** Limestone. **Men employed:** Average, 48. **Remarks:** This company mines all of the limestone used in its cement-manufacturing plant near Spokane, Wash. The quarry was operated throughout the year and a large tonnage of rock was mined. It is the largest operation of its kind in the State.

KANIKSU MINING CO.

Office: 302 Paulsen Bldg., Spokane, Wash. **Officers:** J. W. Lloyd, Pres.; Dr. Earl H. Current, Sec., both of Spokane, Wash. **Inc.:** Sept. 16, 1922. **Capital:** 100,000 shares; par value $1; 110,719 shares issued. **Property:** Wood Rat group; 11 unpatented claims, Priest Lake dist.; Priest River. **Development:** By a vertical shaft 350 ft. deep. **Plant:** Steam-driven hoist and complete hand-mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 5. **Remarks:** Active development work throughout the year, the principal part of which was drifting on the 200-ft. and 300-ft. levels in the shaft.

KEEP COOL MINING CO.

Office: P. O. Box 2181, Spokane, Wash. **Officers:** T. S. Griffith, Pres.; R. Insinger, Sec., both of Spokane, Wash. **Inc.:** June 16, 1922. **Capital:** 1,500,000 shares; par value 5c; 1,018,167 shares issued. **Property:** Keep Cool group; 4 patented claims, Lakeview dist.; Lakeview. **Ore:** Lead-silver.

LAWRENCE CONSOLIDATED MINING CO.

Office: Clark Fork. **Officers:** Rees Bungay, Pres., Spokane, Wash.; L. J. Reed, Sec.; Joseph Reed, Mgr., both of Clark Fork. **Inc.:** March 3, 1923. **Capital:** 1,500,000 shares; par value 1c; 980,200 shares issued. **Property:** Lawrence group; 12 unpatented claims, Pend d'Oreille dist.; Clark Fork. **Development:** 5 tunnels, the principal one being 1240 ft. long; approximate total development 4800 ft. **Plant:** MINE: Water-driven compressor; complete mining equipment. MILL: 50-ton concentrator; crushers, 2 sets rolls, 2 jigs, 3 tables. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** This company is a reorganization of the Lawrence Mining & Milling Co., Ltd. The mine was operated throughout the year and a small tonnage of high grade ore was produced and marketed. The money expended was derived from 5 stock assessments of 1 mill per share each.

LUCKY ABE MINING CO.

Office: Priest River. **Officers:** Abe Johnson, Pres., Opportunity, Wash.; F. F. Nelson, Sec., Priest River. **Inc.:** March 1, 1916. **Capital:** 1,000,000 shares; par value 10c; approximately 77,000 shares issued. **Property:** Lucky Abe group; 6 unpatented claims, Priest Lake dist.; Coolin. **Development:** By 2 tunnels, each of which is approximately 175 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

LUCKY STRIKE MINING CO.

Office: Clark Fork. **Officers:** W. W. Webb, Pres.-Mgr., Clark Fork. **Inc.:** Oct. 25, 1913. **Capital:** 1,000,000 shares; par value $1; 762,324 shares issued. **Property:** Lucky Strike group; 7 unpatented claims, Pend d'Oreille dist.; Clark Fork. **Development:** 2 tunnels: No. 1, 55 ft. long; No. 2, 250 ft. long. **Plant:** Gardner-Ricks gas-driven compressor. **Remarks:** Idle.

MAJOR LODE MINING CO.

Office: Priest River. **Officers:** John Hamberg, Pres.-Mgr.; Philip Naccarato, Sec., both of Priest River. **Inc.:** An association. **Property:** Major Lode group, 6 unpatented claims, Priest Lake dist.; Priest River. **Development:** By 4 short tunnels. **Ore:** Lead-silver. **Remarks:** Annual labor.

OPPORTUNITY MINING CO.

Office: Sagle. **Officers:** T. J. Peet, Pres., Sandpoint; A. A. Heskestad, Sec., Sagle. **Inc.:** Aug. 18, 1919. **Capital:** 1,500,000 shares; par value 5c; 598,854 shares issued. **Property:** 6 unpatented claims, Pend d'Oreille dist.; Sagle. **Development:** Approximately 1700 ft. of underground workings, consisting of 6 tunnels and 5 shafts. **Plant:** Steam-driven compressor, complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Active development work throughout the year, the funds for which were derived from stock assessments.

SILVER MOUNTAIN MINING CO.

Office: Sandpoint. **Officers:** John T. Elsasser, Mgr., Sandpoint. **Inc.:** July 24, 1909. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Silver Mountain group; 6 unpatented claims, Priest Lake dist.; Priest River. **Development:** 2 tunnels: No. 1, 400 ft. long; No. 2, 625 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

SILVER STAR MINING CO., LTD.

Officers: M. M. Shalz, Pres.-Mgr.; Fred Williams, Sec., both of Route 1, Sagle. **Inc.:** Jan. 19, 1927. **Capital:** 2500 shares; par value $10; 886 shares issued. **Property:** Silver Star mine; 1 unpatented claim and 140 acres patented land, Pend d'Oreille dist.; Cocolalla. **Development:** By 1 tunnel 100 ft. long. **Ore:** Lead-silver-zinc. **Men employed:** Average, 2. **Remarks:** A small amount of work during the year.

TALACHE MINES, INC.

Office: Talache. **Officers:** A. H. Burroughs, Jr., Pres.-Mgr.; J. M. Hector, Sec.; both of Quartzburg. **Inc.:** April 21, 1917, as Armstead Mines, Inc.; name changed June 8, 1922. **Capital:** 1,000,000 shares common, 600,000 shares preferred; par value $1; 983,000 shares common, 579,233 shares preferred issued. **Property:** Armstead mine; 18 patented, 44 unpatented claims, Pend d'Oreille dist.; Talache. **Development:** Approximately 34,591 ft. of underground workings, the principal of which are a main haulage tunnel, 3900 ft. long, the main inclined raise 916 ft. long and an inclined shaft 200 ft. long. **Plant:** MINE: 9x10 Hendre-Bolthoff electrically-driven geared hoist; 1574 cu. ft., 2 stage I-R type Pre-2 compressor, electrically driven; haulage, G. E. 4-ton storage battery locomotive; buildings, 44 room hotel, 24 residences, compressor house, blacksmith shop, warehouse, cook house, store, dry room and office. MILL: 150-ton flotation, 2 stage crushing to ½ in. fine grinding to 80 mesh, electrically driven. **Ore:** Silver. **Remarks:** Operations were suspended in October, 1926. In March, 1927, the famous Gold Hill & Iowa mine at Quartzburg, Boise County, was acquired and operations were transferred to that mine, which see.

WHITEDELF MINING & DEVELOPMENT CO.

Officers: John P. Delaney, Pres., 50 Broad St., New York; Compton I. White, Mgr., Clark Fork. **Inc.:** March 17, 1926. **Capital:** 100,000 shares, par value $1; 65,000 shares issued. **Property:** 160 acres of patented land, Pend d'Oreille dist.; Clark Fork. **Development:** Principally by 3 tunnels, with a total of over 2500 feet. **Plant:** Electrically-driven I-R compressor, complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 20. **Remarks:** In addition to the work performed by the company, part of the mine was under operation by lessees. A large tonnage of high-grade lead-silver ore was produced and marketed; electric power-line constructed from Clark Fork, and complete new mining equipment installed. The discovery of this mine was one of the principal new discoveries during 1926. Its remarkable production record has resulted in attracting much attention and new development work to the Clark Fork section.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Alamo Gr.	Pend d'Oreille	Sam Owen	Hope
Badger	Priest Lake	Clyde Smith	Priest River
Big View	Priest Lake	Leo Gwinn	Priest River
Black Bear	Priest Lake	H. B. Gumaer & C. W. Beardmore	Priest River
Bluebird	Lakeview	Walter Street	Lakeview
Bluebird	Pend d'Oreille	Coleman & Ward	Sandpoint
Bluebird	Priest Lake	Bert Fry et al.	Priest River
Bob Cat	Priest Lake	Katherine L. Brown	Priest River
Catherine	Pend d'Oreille	F. O. Berg	244 Riverside, Spokane, Wash.
Chloride Queen	Priest Lake	Bert Fry & Al Bogart	Priest River
Comet	Lakeview	Robert Rennie	Lakeview
Commodore	Lakeview	Walter Street	Lakeview
Copper Bell et al.	Pend d'Oreille	W. F. Fleming	Clark Fork
Copper King et al.	Pend d'Oreille	John Larson	Hope
Copper Prince	Lakeview	J. C. Cranston	Lakeview
Cuban	Priest Lake	Walter Binkley	Priest River
Dearo	Priest Lake	H. B. Gumaer	Priest River
Deer Park et al.	Pend d'Oreille	G. M. Walker & A. H. Sweeney	Sandpoint
Dirty Duece	Priest Lake	Wm. Moscript & Wm. Kavanaugh	Priest River
Ella et al.	Lakeview	John W. Sheer	Lakeview
Elsie K.	Pend d'Oreille	Albert H. Wilson	Clark Fork
Frances B.	Clark Fork	N. B. Hunsperger	Clark Fork
Glasgow	Lakeview	R. C. Henry	Lakeview
Gray Goose	Priest Lake	C. W. Beardmore	Priest River
Green Horn	Priest Lake	Clyde Smith	Priest River
Hewer 5, 6, 7	Lakeview	D. M. Drumheller	Lakeview
Hog Eye et al.	Lakeview	W. F. Sharai	Hope
Homestake	Lakeview	Walter Street	Lakeview
Horseshoe	Priest Lake	S. S. Beldon & Andrew Hentschel	Priest River
Imperial	Lakeview	Ralph C. Henry	Lakeview
Last Chance	Priest Lake	Bert Fry et al.	Priest River
Lead King	Priest Lake	Al. Bogart	Priest River
Log Cabin	Priest Lake	Chas. Hagenson	Priest River
Lookout 1, 2	Pend d'Oreille	A. E. Erickson et al.	Talache
Mammoth 1, 2, 3	Priest Lake	A. B. Wolfe et al.	Priest River
Midnight et al.	Pend d'Oreille	Beatrice Thibedeau	Clark Fork
Millsite	Priest Lake	Leo Gwinn	Priest River
Mimetite	Pend d'Oreille	Joseph Reed	Clark Fork
Mogul Gr.	Lakeview	E. D. Faust	Lakeview
Moonlight	Lakeview	John P. Flewelling	Sandpoint
Morning Star	Pend d'Oreille	F. S. Hayes	Hope
Panola	Pend d'Oreille	James W. Brocker	Sagle
Ponderosa Gr.	Pend d'Oreille	C. I. White	Clark Fork
Pride of the West	Priest Lake	John Hamberg	Priest River
Prospect Park	Priest Lake	Stewart Coolin	Priest River
Ready Cash	Lakeview	Bruyere & Hanchett	Bayview
Red Horse	Pend d'Oreille	Ed Hammon	Sandpoint
Saddle	Priest Lake	Leo Gwinn	Priest River
Scotchman	Pend d'Oreille	Dr. C. P. Stackhouse	Sandpoint
Silver Crown	Pend d'Oreille	Frank Pival	Hope
Silver King	Priest Lake	Joseph Saccomonno	Priest River
Silver Leaf	Lakeview	Lee L. Smith	Lakeview
Silver Plate	Pend d'Oreille	James W. Brocker	Sandpoint
Silver Star	Pend d'Oreille	C. O. Olsen	Sandpoint
Sunset	Priest Lake	H. B. Gumaer	Priest River

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NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
T. Bone	Lakeview	Frank Brown	Lakeview
Tiger et al.	Priest Lake	Alex Judge	Spokane, Wash.
True Fisher	Pend d'Oreille	Fred Vogel	Clark Fork
Twilight et al.	Pend d'Oreille	C. B. Stuart	Sandpoint
Wellington	Pend d'Oreille	W. F. Sharai	Hope
West Point	Pend d'Oreille	Henry F. Phillips	Clark Fork
Yankee Boy	Pend d'Oreille	Jos. Reed	Clark Fork

BIBLIOGRAPHY

See pages 11-12 for publisher's address, meaning of reference marks, and abbreviations.

Survey of the boundary line between Idaho and Montana from the international boundary to the crest of the Bitterroot Mountains, by R. U. Goode: U. S. Geol. Survey Bull. 170, **1900.**‡

Geology of the region adjoining the western part of the international boundary, by R. A. Daly: Canada Geol. Survey Ann. Rept., vol. 14, pp. 39-51a, **1901.**§

Economic features of northern Idaho and northwestern Montana, by D. F. MacDonald: U. S. Geol. Survey Bull. 285, pp. 41-52, **1905.***

Priest Lake mining district, Idaho, by W. M. Curtis: Eng. and Min. Jour., vol. 82, p. 866, Nov. 10, **1906.**§

A geological reconnaissance in northern Idaho and northwestern Montana, by F. C. Calkins, with notes on the economic geology, by D. F. MacDonald: U. S. Geol. Survey Bull. 384, **1909.***

Lawrence mine and mill in Kootenai County (Bonner), Idaho, by A. L. Flagg: Min. and Eng. World, vol. 38, p. 340, Feb. 15, **1913.***

Guidebook of the Western United States, by M. R. Campbell, and others: U. S. Geol. Survey Bull. 611, pp. 150-156, 160, **1915.**‡

The mining districts of northern Idaho, by E. K. Soper: Min. & Sci. Press, vol. 116, pp. 125-126, **1918.***

Silver mining and milling at Talache, Idaho, by F. E. Wormser: Eng. and Min. Jour.-Press, vol. 114, pp. 581-585, Sept. 30, **1922.**§

Some Miocene and Pleistocene drainage changes in northern Idaho, by A. L. Anderson: Idaho Bureau of Mines and Geology Pamphlet 18, **1927.****

BONNEVILLE COUNTY

Bonneville County is bounded on the south by Caribou and Bingham counties, on the west by Bingham County, on the north by Jefferson, Madison and Teton counties, and on the east by the State of Wyoming. It is one of the principal, as well as one of the largest, southeastern counties; and has an area of 1904 square miles, and population of 17,501 at the time of the 1920 census. The larger part of the population is in the Snake River valley, which occupies all of the western part of the county. The southeastern part, which is occupied by the Caribou Range of the Snake River Mountains, is drained by the South Fork of the Snake River and its tributaries. It is primarily an agricultural county and is noted for its potato and sugar-beet industries, particularly potatoes, as it is one of the largest potato shipping points in the United States. Idaho Falls, the largest town, and civic center of the Upper Snake River valley, is the county seat.

Although recognized only as an agricultural community, this county was once the scene of many active mining operations. This was during the gold rush in the Mt. Pisgah, or Caribou, district at the time placer gold was discovered on McCoy and Gray's creeks. These placers produced a creditable amount of gold, and subsequently a few lode deposits were discovered and exploited. In late years a small dredge was constructed, but this and the deep mines are now idle and the only gold produced is from a few small placer operations.

The principal mineral resources of Bonneville County are gold, phosphate rock, copper, silver, and coal. Many structures favorable to the accumulation of petroleum in commercial quantity are found throughout the southern and eastern parts of the county.

The extensive phosphate beds of southeastern Idaho are exposed over a large area. These, and possibly petroleum, will eventually add to the county's prosperity and put it into the list of important mining counties.

IDAHO GOLD MINING CO.

Office: 319 Dooly Block, Salt Lake City, Utah. **Officers:** Chas. C. Dey, Pres.; W. A. Wilson, Sec.-Mgr., both of Salt Lake City, Utah. **Inc.:** April 19, 1917. **Capital:** 150,000 shares; par value 10c; 130,026 shares issued. **Property:** Robinson group; 2 patented claims, Mt. Pisgah dist.; Gray. **Ore:** Gold. **Remarks:** Idle for many years.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
American Placer	Mt. Pisgah	W. H. Stocks	Gray
Maine Gr.	Mt. Pisgah	Helmer Ronback, Agt.	Gray
Midas et al.	Mt. Pisgah	Fred Brenzinger	Gray
Oneida Gr.	Mt. Pisgah	Fred Brenzinger, Agt.	Gray
Oneida South	Mt. Pisgah	Miles Schneider, Agt.	Gray
Pisgah Gr.	Mt. Pisgah	Fred Brenzinger, Agt.	Gray
Timber Line	Mt. Pisgah	Leroy Layland	Gray
Toway	Mt. Pisgah	J. C. Beatty	Soda Springs

BIBLIOGRAPHY

See pages 11-12 for publisher's address, meaning of reference marks, and abbreviations.

Fifth, Sixth and Eleventh Ann. Repts., U. S. Geol. and Geog. Survey of the Territories, by F. V. Hayden, **1871, 1873** and **1879.***

The gold ore deposits of Mount Caribou, Idaho, by E. B. Kirby: Colorado Sci. Soc. Proc., vol. 5, pp. 72-75, **1898.***

Mount Caribou gold deposits, by Arthur Lakes: Mines and Minerals, vol. 19, pp. 55-56, September, **1898.***

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

A geological reconnaissance in southeastern Idaho, by A. R. Schultz and R. W. Richards: U. S. Geol. Survey Bull. 530, pp. 267-284, **1911.***

Guidebook of the western United States, by W. T. Lee and others: U. S. Geol. Survey Bull. 612, pp. 114-147, **1915.**‡

A geologic reconnaissance for phosphate and coal in southeastern Idaho and western Wyoming, by A. R. Schultz: U. S. Geol. Survey Bull. 680, **1918.**‡

Coal in eastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 716f, **1920.**‡

Oil shale in western Montana, southeastern Idaho, and adjacent parts of Wyoming and Utah, by D. D. Condit: U. S. Geol. Survey Bull. 711, pp. 15-40, **1920.**‡

The Wasatch and Salt Lake formations of southeastern Idaho, by G. R. Mansfield: Am. Jour. Sci., vol. 49, pp. 399-406, June, **1920.**§

Triassic and Jurassic formations in southeastern Idaho and neighboring regions, by G. R. Mansfield: Am. Jour. Sci., vol. 50, pp. 53-64, July, **1920.**§

Types of Rocky Mountain structure in southeastern Idaho, by G. R. Mansfield: Jour. Geology, vol. 29, No. 5, pp. 444-468, July-August, **1921.**§

Geology and oil possibilities of Bingham, Bonneville, and Caribou counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Bull. 8, **1924.****

Oil possibilities of southeastern Idaho, by V. R. D. Kirkham: Mining and Metallurgy, vol. 6, No. 218, Feb., **1925.**§

Ground water for municipal supply at Idaho Falls, Idaho, by A. M. Piper and V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 16, **1926.****

Geography, geology, and mineral resources of part of southeastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Prof. Paper 152, **1927.****

BOUNDARY COUNTY

Boundary County is bounded on the north by the Dominion of Canada, on the east by the State of Montana, on the west by the State of Washington, and on the south by Bonner County. Its principal area comprises the drainage basins of the Moyie River, which flows in a southerly direction, and the Kootenai River, which flows northerly from Bonners Ferry, the county seat and principal town. It has a total area of 1276 square miles, and was accredited with a population of 4474 in the 1920 census. The principal industries are lumbering, farming, and mining.

The county is served by two transcontinental railroads, the Great Northern, with its branch line from Bonners Ferry to Porthill, on the Canadian border, and the Spokane International; by the North and South Highway, with an easterly outlet from Bonners Ferry; and by a system of county roads which extend into the different sections along the main stream valleys.

The principal mineral resources are lead, silver, gold, copper, zinc, tungsten, and molybdenum. These metals are widely distributed, and a few of the deposits have been partially developed. Heavy overburden, dense overgrowth, and limited accessibility have retarded prospecting, discovery, and development. The many favorable areas and wide diversity of mineralization make this county an exceptionally favorable field for the prospector and the small development company.

The year 1927 witnessed little improvement in this county. No new ore discoveries were made, the operating companies did not expand their work, and no new enterprises were started. The Continental mine at Porthill, owned by the Idaho Continental Mining Co., was operated throughout the year by the Idaho Continental Co. On an average, about 90 men were continuously employed, and a large tonnage was produced and marketed. This mine is one of the largest lead producers in the State and its continuous operation and output are big factors in the prosperity of the county.

The Leonia Gold Mining Co., which is a reorganization of the Idaho Gold & Ruby Mining Co., maintained a payroll of approximately five men during the year, and performed considerable new work, for which the money was derived from stock assessments.

The Brush Lake Mines Co., the Golden Sceptre Mining Co., Ltd., the Moyie Gold-Copper M. & M. Co., Ltd., and the International Molybdenum Co. expanded their development operations over those of the previous year.

BRUSH LAKE MINES CO.

Office: 412 Ziegler Block, Spokane, Wash. **Officers:** J. W. Reid, Pres., Bonners Ferry; David Emley, Sec., Coolin. **Inc.:** Aug. 6, 1921. **Capital:** 2,000,000 shares; par value 10c; 1,386,682 shares issued. **Property:** Bethlehem group; 7 unpatented claims, Moyie Yaak dist.; Bonners Ferry. **Development:** Approximately 1200 ft. of underground workings. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Property under development during part of the year. All mine buildings, excepting a small office building, were destroyed by fire.

COPPER FALLS MINING CO.

Office: Eastport. **Officers:** Gus Kallman, Pres.-Mgr., Gem; Spencer Lewis, Sec.-Treas., Eastport. **Inc.:** March 30, 1911. **Capital:** 1,000,000 shares; par value $1; 669,772 shares issued. **Property:** Copper Falls group; 5 unpatented claims, Moyie Yaak dist.; Addie. **Development:** 2 tunnels: No. 1, 240 ft. long; No. 2, 600 ft. long; 1 vertical shaft, 45 ft. deep. Total development, approximately 1185 ft. **Ore:** Lead-silver. **Remarks:** Annual labor only.

CYNIDE GOLD MINING CO.

Office: Bonners Ferry. **Officers:** H. S. Robinson, Pres., Whitefish, Mont.; Geo. R. Causton, Sec.-Mgr., Bonners Ferry. **Inc.:** Jan. 21, 1919. **Capital:** 3,500,000 shares; par value $1; 1,870,010 shares issued. **Property:** Buckhorn group; 13 unpatented claims, Moyie Yaak dist.; Bonners Ferry. **Development:** By 4 tunnels: Sand, 1180 ft.; Lower Keystone, 980 ft.; Upper Keystone, 350 ft.; Buckhorn, 1200 ft. Total development, approxi-

mately 5000 ft. **Plant:** MINE: 2 gas-driven C-P compressors; complete mining equipment and camp. MILL: 200-ton cyanide, including fine grinding. **Men employed:** 1 watchman. **Remarks:** Annual labor only.

GOLDEN SCEPTRE MINING CO., LTD.

Office: E. 245 Sprague Ave., Spokane, Wash. **Officers:** C. F. Halvorsen, Pres., E. 1001 Liberty Ave.; O. L. Elvigen, Sec., both of Spokane, Wash. **Inc.:** Aug. 30, 1909. **Capital:** 1,500,000 shares; par value 50c; 614,218 shares issued. **Property:** Golden Sceptre group; 7 unpatented claims, Porthill dist.; Porthill. **Development:** Principally by 1 tunnel 1500 ft. long. **Plant:** Gas-driven compressor and complete mining equipment. **Ore:** Copper-gold. **Men employed:** Average, 2. **Remarks:** 125 feet of tunnel were completed under contract during the year.

HOLLINGER GOLD MINES CO., LTD.

Office: Bonners Ferry. **Officers:** T. J. Hollinger, Pres.-Mgr., 8012 Dayton, N., Seattle; Geo. P. Meyers, Sec., Bonners Ferry. **Inc.:** Feb. 11, 1925. **Capital:** 2000 shares; par value $100; 371 shares issued. **Property:** Matterhorn group; 3 unpatented claims, Moyie Yaak dist.; Addie. **Ore:** Lead-silver. **Remarks:** Annual labor only.

IDAHO CONTINENTAL CO., THE

Office: 1015 Paulsen Bldg., Spokane, Wash. **Officers:** A. Klockmann, Pres.-Mgr.; Richard Schacht, Sec., both of Spokane, Wash. **Inc.:** Jan. 11, 1910. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** 15 patented, 5 unpatented claims, Porthill dist.; Klockmann. "The company owns by lease and exchange of shares with Idaho Continental Mining Co., the Continental, Jasper, Blue Joe, Volcanic, Morning Star, Evening Star, and outright all others." **Development:** Approximately 15,118 ft. of underground workings consisting principally of 5 tunnels: No. 1, 250 ft. long; No. 2, 100 ft. long; No. 3, 750 ft. long; No. 4, 1800 ft. long; No. 5, 2653 ft. long. **Plant:** MINE: 1200-cu.-ft. I-R Imperial type 10 compressor; Leyner drill sharpener, and complete mining equipment; 1600 ft. aerial tram between mine and mill. MILL: 250-ton concentrator; 10x20 crusher; conveyor belt; 4 double 4-compartment Hartz jigs; 3 rolls 12x20; drag classifier; 5 Wilfley tables; Hardinge ball mill; 4 Frue vanners; flotation; hydroelectric power plant. **Ore:** Lead-silver. **Men employed:** Average, 89. **Remarks:** This is one of the largest lead-producing mines in the State. Capacity production and an active mine development campaign were maintained throughout the year.

IDAHO CONTINENTAL MINING CO.

Office: 805 Sellwood Bldg., Duluth, Minn. **Officers:** Henry Turrish, Pres.; Henry Maxeiner, Sec., both of Duluth, Minn. **Inc.:** Dec. 12, 1902. **Capital:** 1,500,000 shares; par value $1; 1,200,000 shares issued. **Property:** Continental group; 7 patented, 1 unpatented claim, namely: Continental, Jasper, Blue Joe, Volcanic, Morning Star, Evening Star, and Aurora; Porthill dist.; Klockmann. **Remarks:** This is the same property as that operated by the Idaho Continental Co.

IDAHO LEAD-SILVER MINES CO.

Office: 1211 Winona Blvd., Spokane, Wash. **Officers:** J. A. Tormey, Pres.; E. B. Muna, Sec., both of Spokane. **Inc.:** Jan. 28, 1924. Charter forfeited Dec. 1, 1926. **Capital:** 999,000 shares; par value 10c; 400,000 shares issued. **Property:** 5 unpatented claims, Moyie Yaak dist.; Bonners Ferry. **Development:** By 1 short tunnel and a vertical shaft 325 ft. deep. **Ore:** Lead-silver. **Remarks:** Annual labor only.

INTERNATIONAL MOLYBDENUM CO.

Office: Porthill. **Officers:** H. A. French, Pres.; P. W. Stas, Sec., both of Porthill. **Inc.:** Feb. 3, 1926. **Capital:** 25,000 shares; par value $1; 12,453 shares issued. **Property:** Hottentot group; 4 unpatented claims, Porthill dist.; Porthill. **Development:** 2 tunnels with a total length of 142 ft., and a number of open cuts. **Ore:** Molybdenum. **Men employed:** Average, 2. **Remarks:** Active prospecting work was maintained for a period of 3 months.

LEONIA GOLD MINING CO.

Office: Leonia. **Officers:** J. S. Hutchinson, Pres., 207 City Hall, Portland, Ore.; M. E. Carson, Sec., Leonia. **Inc.:** Dec. 11, 1924. **Capital:** 1,000,000 shares; par value $1; 701,117 shares issued. **Property:** 66 placer and lode claims, approximately 2400 acres, Moyie Yaak dist.; Leonia. **Development:** 5-mile, 200 sec.-ft. capacity canal, giving a working head of approximately 430 ft.; in 2 sections, upper 3 miles long, lower 2 miles, with a difference in elevation of 210 ft. Water conducted from upper to lower through two 22-inch steel pipes. about 20 miles of road, 5 of which were very heavy construction. Lode claims developed by numerous cuts and tunnels. **Plant:** Approximately 3000 ft. steel pipe, one 8-inch giant, operating under a 430-ft. head and two 5-inch giants, operating under 130-ft. head; bed rock flume and spillway 300 ft. long on a grade of 10 inches in 12 ft.; in 3 sections, spillway 12 ft. wide by 8 ft. deep; one flume 6 ft. wide and one 12 ft wide, both 8 ft. deep. Concentrates from flume discharge into cement lined tank of approximately 15,000-ton capacity from which they are elevated into cleaning plant on top of flume. Cleaning plant consists of Ogden tables, classifiers and specially designed riffles. Complete machine shop, sawmill, planing mill, overhead cable system operated by steam; tractor haulage; complete company buildings and 35 individual homes for the men. **Ore:** Principally placer gold. **Men employed:** Average, 6. **Remarks:** This company is a reorganization of the Idaho Gold & Ruby Mining Co. During the year a small amount of work was performed on the lode claims, the funds for which were derived from stock assessments. Practically all of the placer-mining equipment, including concentrator, was destroyed by a slide.

METALS MINING CO.

Office: Bonners Ferry. **Officers:** A. Strom, Pres.; A. T. Aronson, Sec.; S. A. Anderson, Mgr., all of Bonners Ferry. **Inc.:** June 24, 1920. **Capital:** 1,000,000 shares; par value 1c; shares issued, unknown. **Property:** 8 unpatented claims, Moyie Yaak dist.; Bonners Ferry. **Development:** By 4 short tunnels, and 1 vertical shaft 90 ft. deep. **Plant:** Gas-driven hoist. **Ore:** Lead-silver. **Remarks:** Annual labor only.

MOYIE GOLD COPPER MINING & MILLING CO., LTD.

Office: Bonners Ferry. **Officers:** Geo. E. Crocker, Pres.; H. J. McNally, Sec.; A. J. Kent, Mgr., all of Bonners Ferry. **Inc.:** Sept. 16, 1911. **Capital:** 1,250,000 shares; par value $1; 950,000 shares issued. **Property:** Queen and Damon groups; 12 unpatented claims, Moyie Yaak dist.; Bonners Ferry. **Development:** 5 tunnels and 2 shafts, approximately 950 ft. **Ore:** Lead-silver. **Remarks:** Annual labor only.

BIBLIOGRAPHY

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Survey of the boundary line between Idaho and Montana from the international boundary to the crest of the Bitterroot Mountains, by R. U. Goode: U. S. Geol. Survey Bull. 170, **1900.**‡

Geology of the region adjoining the western part of the international boundary, by R. A. Daly: Canada Geol. Survey Ann. Rept., vol. 14, pp. 39-51a, **1901.**§

A geological reconnaissance in northern Idaho and northwestern Montana, by F. C. Calkins, with notes on the economic geology, by D. F. MacDonald: U. S. Geol. Survey Bull. 384, **1909.***

The mining districts of northern Idaho, by E. K. Soper: Min. & Sci. Press, vol. 116, pp. 126-127, **1918.***

Tungsten, cinnabar, manganese, molybdenum and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****

Geology and ore deposits of Boundary County, Idaho, by V. R. D. Kirkham and E. W. Ellis: Idaho Bureau of Mines and Geology Bull. 10, **1926.****

BUTTE COUNTY

Butte is one of the south-central counties, being bounded by Lemhi, Custer, Blaine, Bingham, Jefferson, and Clark counties. The Big and Little Lost rivers flow in a southerly direction across the county, and the lower valleys of these rivers constitute the larger part of its area of 2048 square miles. Arco, situated near the lower end of Big Lost River valley, is the largest town and the county seat. It is primarily an agricultural and stock-raising community, although its mining industry is gaining recognition and importance. The publicity given and the travel attracted to the new national monument, the Craters of the Moon, which is located in this county, have widely advertised the resources and scenic attractions of the State.

Two State highways have been designated and partly constructed, the Lost River Highway, which extends from Blackfoot to Challis and passes through Arco and Big Lost River valley, and the Idaho Central Highway from Hailey to Dubois, which serves the Craters of the Moon. The county is served by the Blackfoot-Mackay branch of the O. S. L. Railroad.

The principal mineral resources are lead, silver, zinc, gold, tungsten, manganese, limestone, and marble, the high-grade lead-silver ores being the most important, as they are found in all the mining districts of the county. The other metals occur in sufficient extent to be of commercial importance.

Butte is one of the principal lead-silver producing counties in southern Idaho, yet its diversified mineral resources and favorable geological conditions are such that it warrants more extensive development and exploration than it has been receiving during the past few years. However, the county witnessed a large increase in lead-silver production and a small increase in new activities during 1927, as compared with the previous year.

The Wilbert Mining Co., Ltd., which was the fourth largest lead-silver producing mine in southern Idaho during 1927, maintained production throughout the year. The largest part of its production was derived from a depth of 1200 feet on the vein. This company also performed a large amount of new development work. Its mine is in the Dome district, 42 miles northeast of Arco. The Badger Mines Co. was active throughout the year; and Lew Johnson installed a small gas-driven compressor at his property, preparatory to driving a 900-foot tunnel. Both of these properties are near the Wilbert mine.



MINE CAMP AND MILL: WILBERT MINING CO., LTD.

The Horn Silver Consolidated Mines Co., controlled by the Dahle brothers, who perform all work done by this company, extended its crosscut tunnel 1200 feet during the year. These men are deserving of success for their hard work and the intelligent manner in which they are developing their mine, which is located in Lava Creek district. Others who were active in this district throughout the year were two new companies whose organization is unknown, also P. J. McGinniss at his Silver Bell group, and the Butte Antelope Mining Co. at the Foot Wall mine on Antelope Creek.

AMALGAMATED SUGAR CO.

Office: Eccles Bldg., Ogden, Utah. **Officers:** A. W. Ivins, Pres., Salt Lake City; Fera S. Young, Sec.; J. M. Eccles, Mgr., both of Ogden, Utah. **Inc.:** Filed in Idaho Apr. 24, 1915. **Capital:** 724,624 common, 50,000 shares preferred stock; no par value; all shares issued. **Property:** 4 patented claims, Arco dist.; Arco. **Plant:** 1 electrically-driven 130-cu.-ft. compressor; 3200-ft. gravity tramway and complete mining and quarrying equipment. **Mineral:** Lime rock. **Remarks:** Idle.

BADGER MINES CO.

Office: Rexburg. **Officers:** S. H. Abbott, Pres.-Mgr.; Fay Abbott, Sec., both of Rexburg. **Inc.:** June 8, 1925. **Capital:** 1,000,000 shares; par value 3c; all shares issued. **Property:** Badger group; 8 unpatented claims, Dome dist.; Howe; held under lease and option. **Development:** Principally by 1 tunnel, 1535 ft. in length. **Plant:** MINE: Gas-driven compressor and complete mining equipment. MILL: 25-ton concentrator, driven by gas engine. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Active mining operations were conducted throughout the year.

BUTTE ANTELOPE MINING CO.

Office: 407 Ness Bldg., Salt Lake City, Utah. **Officers:** George G. Armstrong, Pres.; J. M. Hamilton, Sec., both of Salt Lake City; F. F. Williams, Mgr., Woods Cross, Utah. **Inc.:** Sept. 8, 1927. **Capital:** 1,000,000 shares; par value 5c; 425,000 shares issued. **Property:** Foot Wall group; 14 unpatented claims, Lava Creek dist.; Moore; held under lease and option from Ardell Gamett. **Development:** By 1 tunnel 200 ft. long. **Ore:** Lead-silver. **Remarks:** Small amount of work under contract during the year.

HORN SILVER CONSOLIDATED MINES CO.

Office: Arco. **Officers:** Edward Dahle, Pres.-Mgr.; M. M. Dahle, Sec., both of Arco. **Inc.:** Dec. 21, 1925. **Capital:** 100,000 shares; par value $1; all shares issued. **Property:** Horn Silver group; 3 patented, 7 unpatented claims, held under lease and option; Lava Creek dist.; Martin. **Development:** By 3 tunnels: No. 1, 630 ft.; No. 2, 530 ft.; No. 3, 1500 ft. **Plant:** Gas-driven compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 7. **Remarks:** Active development work throughout the year. All the men employed are interested in the mine and work without wages. The Dahle brothers are to be complimented for hard work, intelligent manner of developing the property, and economy of operation.

METTA MINING CO., LTD.

Office: Shelley. **Officers:** W. R. Jones, Pres., Ogden, Utah; E. Milton Christensen, Sec.-Mgr., Shelley. **Inc.:** Oct. 20, 1906. **Capital:** 1,000,000 shares; par value $1; 386,500 shares issued. **Property:** Metta group; 9 unpatented claims, Hamilton dist.; Howe. R. R. Dubois, 47 miles. **Development:** 3 short tunnels and 3 short vertical shafts; total development work approximately 880 ft. **Ore:** Lead-silver. **Remarks:** Annual labor only.

WILBERT MINING CO., LTD.

Office: 221 Kearns Bldg., Salt Lake City, Utah. **Officers:** J. A. Foley, Sec.; H. S. Knight, Mgr., both of Salt Lake City, Utah. **Inc.:** Apr. 10, 1907. **Capital:** 2,000,000 shares; par value 50c; 1,566,128 shares issued. **Property:** Daisy Black group; 6 patented, 26 unpatented claims, Dome dist.; Howe. R. R. Arco, 42 miles. **Development:** Approximately 15,000 ft. of

underground workings, the principal of which is No. 4 tunnel, in which there is an inclined shaft 250 ft. long with 2 intermediate levels. When this tunnel was completed to 2800 ft. in length, a raise was put through at its end and connection made with the old workings. **Plant:** MINE: 50-h. p. gas-driven C-P compressor, 25-h. p. gas-driven electric generator, and 20-h. p. electrically-driven hoist. MILL: 60-ton concentrator, gas-driven. **Ore:** Lead-silver. **Men employed:** Average, 22. **Remarks:** In addition to maintaining production and shipping a large tonnage of concentrate during the year, a large amount of mine development work was performed, which was successful in exposing an important showing of new ore. This property is one of the large lead-producing mines of southern Idaho.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Apex, Apex 3	Lava Creek	Edward Dahle	Martin
Badger 1, 2, 3, 4	Hamilton	William Deusner	Howe
Badger Creek	Hamilton	Frank Peete	Clyde
Big Butte	Hamilton	B. A. Smith	Arco
Black Hawk	Hamilton	Chas. W. Johnson	Howe
Bluebird et al.	Hamilton	Roy Hawley	Howe
Copper King Gr.	Lava Creek	B. A. Smith	Arco
Copper Queen	S. Creek Canyon	Joseph Keller	Howe
Cut Wall	Hamilton	W. A. Beakley	Blackfoot
Denver Gr.	Lava Creek	Leonard Dresser	Emmett
Edmonville	Badger Creek	Louis Edmon	Howe
Edna et al.	Lava Creek	D. W. Nichols	Martin
Ella	Lava Creek	B. F. Morrison	Martin
Foot Wall	Lava Creek	Ardell Gamett	Moore
Gold Belt Gr.	Lava Creek	J. M. Walker	Blackfoot
Golden Chariot	Lava Creek	Mabel R. Rush	6710 Windsor Ave., Chicago, Ill.
Granite Mountain	Lava Creek	E. H. Hammond	Arco
Gray Wolfe et al.	Hamilton	S. H. Abbott	Howe
Great Western	Lava Creek	Daniel Romney	Arco
Happy Hooligan	Lava Creek	Ardell Gamett	Moore
Hidden Treasure	Lava Creek	Mattie D. Martin	Martin
Homestake	Lava Creek	J. F. Houf	Arco
Hub Gr.	Lava Creek	S. O. Nelson	Boise
Ironsides	Lava Creek	A. Brim	Martin
Ironsides	Lava Creek	Gordon Lee	Boise
Johnson Gr.	Dome	Lew Johnson	Howe
Josephine et al.	Hamilton	W. C. Hammond	Martin
Lead Belt	Lava Creek	H. W. Weiler Est.	Mackay
Little Jim	Lava Creek	John T. Welch	Arco
Lone Pine	Badger Creek	George Hooper	Howe
Lost Gold et al.	Lava Creek	Mattie D. Martin	Martin
Neppar et al.	Hamilton	John Linder	Howe
Nester	Lava Creek	Thos. D. Kilion	Arco
Oxide Lode	Lava Creek	Ole Anderson	Arco
Pioneer	Lava Creek	Ardell Gamett	Moore
Policy	Lava Creek	Hugo Vogelsang	Arco
Rabbits Foot	Hamilton	E. A. Christensen	Howe
Reliance	Lava Creek	T. C. Woodbridge	Arco
St. Louis et al.	Lava Creek	T. H. Philipson	Arco
Sam & Tom	Lava Creek	Ira Petty	Howe
Second Chance	Lava Creek	Riley Kent	Arco
Shail & Comstock	Dome	Shail & Comstock	Rexburg
Silver Bell	Lava Creek	Ardell Gamett	Moore
Silver Bell	Lava Creek	P. S. McGinniss	Martin
Silver Horn et al.	Lava Creek	E. B. Jones	Martin
Sunbeam	Dome	Isidore Fallert	Howe
Weiler	Antelope	H. W. Weiler Est.	Mackay

BIBLIOGRAPHY

See pages 11-12 for publisher's address, meaning of reference marks, and abbreviations.

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Notes on geology of southwestern Idaho and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Bull. 217, pp. 36-47, 59, **1903.**‡

The lead-silver deposits of the Dome district, Idaho, by J. B. Umpleby: U. S. Geol. Survey Bull. 540, pp. 212-222, **1912.***

Geology and ore deposits of the Mackay region, Idaho, by J. B. Umpleby: U. S. Geol. Survey Prof. Paper 97, **1917.**‡

Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****

A geologic reconnaissance of Clark and Jefferson, and parts of Butte, Custer, Fremont, Lemhi and Madison Counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 19, **1927.****

CAMAS COUNTY

Camas County is one of the south-central counties, being bounded on the north and east by Blaine, on the south by Lincoln and Gooding, and on the west by Elmore County. It has an area of 1070 square miles, and was accredited with a population of 1730 in the 1920 census, or 1.6 persons to the square mile. The population is engaged in stockraising and dry farming, which pursuits are confined to the 300,000 fertile acres of the Camas Prairie.

The county is served by locally maintained roads, two Forest Service highways, and the Shoshone-Hill City branch of the O. S. L. Railroad. Fairfield is the largest town and county seat.

The principal mining districts are the Rosetta, Little Smoky, and Skeleton. The Skeleton district includes the drainage area forming the headwaters of the South Fork of the Boise River, and Little Smoky district comprises the drainage area of Little Smoky and Carrie Leonard Creeks. The ores found in the latter are those of lead-silver and zinc, and the mines in the former are principally gold, both placer and lode. In addition to the foregoing, the other mineral resources are copper, tungsten, and diatomaceous earth.

The mines in the Carrietown section of the Little Smoky district have a good production record to their credit, and their latent possibilities still offer excellent opportunities for profitable mines, either through the apparent possibility in some mines for finding the ore beyond the faults which caused a suspension of operations in the early nineties, or, in other mines, of adapting modern flotation methods to the large bodies of proven low-grade ore.

During 1927 this county witnessed more new mine development and new enterprises than at any time in the past ten years. Many of these are based on substantial mine foundations with excellent possibilities for profitable mines. An important factor in furthering mineral development in this county was the seven-mile extension which the Sawtooth National Forest Service made to its Fairfield-Carrietown highway, of which only five miles toward Carrietown remain to be constructed. This work was done in co-operation with the Idaho Lead Co. and the county commissioners of Camas County.

The principal new enterprises were: The Consolidated Mines Syndicate at the Princess-Blue Ribbon group; the Idaho Lead Co. at the Silver Star; the Richard Allen Mines Co. near Soldier; the development of the Stormy-Galore group by Robert Leaper and associates; and the drilling of the placer mines on the South Fork of the Boise River by a Spokane, Wash., company.

Lessees at the Carrie Leonard mine; Fletcher and Hosac at the Horn Silver mine; and the Perseverance Mines Co., Inc., at the Five Points mine were active throughout the summer months.

AMERICAN MINING & DEVELOPMENT CO.

Office: Glenns Ferry. **Officers:** J. W. Davis, Pres.; Geo. H. Hickok, Sec., both of Glenns Ferry. **Inc.:** April 19, 1920; charter forfeited Dec. 1, 1925. **Capital:** 600,000 shares; par value 10c; 400,000 shares issued. **Property:** Liberal group; 3 unpatented claims, Little Smoky dist.; Fairfield. **Development;** Principally by 1 tunnel, which is 1365 ft. long. **Plant:** MILL: 50-ton; consisting of Hardinge mill, amalgamation plates and two concentrating tables; gas driven. **Ore:** Gold-silver. **Remarks:** Annual labor only.

CARRIE LEONARD MINING CO.

Office: 319 Dooly Blk., Salt Lake City, Utah. **Officers:** Boyd T. Park, Pres.; W. A. Wilson, Sec.-Mgr., both of Salt Lake City. **Inc.:** Filed in Idaho, July 21, 1926. **Capital:** 200,000 shares; par value 10c; shares issued unknown. **Property:** Carrie Leonard group; 8 patented claims, Little Smoky dist.; Fairfield. **Ore:** Lead-silver. **Remarks:** A small amount of work was done by lessees. At one time this property was the principal producer in the Little Smoky district.

CLIPPER GOLD MINING & MILLING CO.

Office: Box 61, Fairfield. **Officers:** Chas. J. Sherry, Sr., Pres.-Mgr., Fairfield; Chas. J. Sherry, Jr., Sec., Long Beach, Calif. **Inc.:** April 3, 1907. **Capital:** 500,000 shares; par value $1; 400,000 shares issued. **Property:** Clipper group; 4 unpatented claims, Rosetta dist.; Fairfield. **Development:** By 3 short tunnels. **Remarks:** A small amount of work during the summer months.

CONSOLIDATED MINES SYNDICATE

Office: 615 Empire Bldg., Boise. **Officers:** Frank E. Johnesse, Pres.-Mgr.; Wm. MacLeod, Sec., both of Boise. **Inc.:** May 6, 1924. **Capital:** 10,000 shares; no par value. On August 15, 1924, the capitalization was changed to 10,000,000 shares, $2.50 par value; and on May 2, 1925, the capitalization was decreased to 10,000,000 shares, par value $1; 2,075,796 shares issued. **Property:** Princess-Blue Ribbon groups; 5 unpatented claims, unorganized dist.; Beaver Creek; Fairfield. **Development:** By 3 tunnels: No. 1, 170 ft.; No. 2, 225 ft.; No. 3, 115 ft. **Ore:** Lead-silver-gold. **Men employed:** Average, 9. **Remarks:** Active development work, which consisted of driving a long lower tunnel, continued for a period of 5 months. This company also owns the Washington and Subrosa groups in Boise County and the Blue Jacket group in Idaho County. During the closing months of the year the company encountered considerable difficulty on account of the resignation of all its officers and directors excepting the president and the secretary.

CRYSTAL GOLD PLACER MINING CO.

Office: Fairfield. **Officers:** Chas. A. Libby, Pres.-Mgr., Los Angeles, Calif.; S. W. Struble, Sec., Fairfield. **Inc.:** Nov. 8, 1924. **Capital:** 500,000 shares; par value $1; shares issued, unknown. **Property:** 3 unpatented claims, Skeleton dist.; Fairfield; held under lease and option. **Development:** 3 short cuts. **Ore:** Placer gold. **Remarks:** A small amount of work, including the construction of a small washing plant, ditches, and flumes, was done during the year.

EL ORO MINING CO.

Office: 642 Tremont Bldg., Boston. **Officers:** C. Wesley Smith, Pres-Mgr.; Everett H. Hadley, Sec., both of Boston. **Inc.:** March 11, 1925. **Capital:** 300,000 shares; no par value; 5 shares issued. **Property:** El Oro group; 7 unpatented claims, Skeleton dist.; Fairfield; held under lease and option from C. Wesley Smith. **Development:** 2 tunnels: No. 1, 118 ft. long; No. 2, 225 feet long; from which there are numerous drifts. **Plant:** MINE: Water-driven compressor; complete mining equipment. MILL: 30-ton stamp mill, equipped with 10 stamps and amalgamation plates. **Ore:** Gold. **Remarks:** No mining operations were conducted during the year.

HIDDEN TREASURE MINE & MILLING CO.

Office: Fairfield. **Officers:** Chas. J. Sherry, Sr., Pres.-Mgr.; Fairfield. **Inc.:** July 10, 1916. **Capital:** 500,000 shares; par value 10c; 410,000 shares issued. **Property:** Hidden Treasure group; 4 unpatented claims, Little Smoky dist.; Fairfield. **Development:** By 3 tunnels; total development, approximately 3000 ft. **Plant:** Partly dismantled 50-ton concentrator. **Ore:** Lead-silver. **Remarks:** Annual labor only.

IDAHO LEAD CO.

Office: 221 Eastman Bldg., Boise. **Officers:** Eugene B. Sherman, Pres.; M. H. Brownell, Sec., both of Boise. **Inc.:** Dec. 30, 1926. **Capital:** 1,000,000 shares common, 500,000 shares preferred; par value $1; 500,000 shares common issued. **Property:** Silver Star group; 11 patented claims, Little Smoky dist.; Fairfield. **Development:** By 3 tunnels: No. 1, 700 ft. long; No. 2, 900 ft. long; No. 3, 1100 ft. long; and an inclined shaft 200 ft. long. Total development over 6000 ft., which opens the vein to a depth of 500 ft. **Ore:** Lead-zinc-silver. **Remarks:** During 1884-87 over $500,000 was expended in developing the mine and constructing a mill on the property controlled by this company. The mill was operated but a short time when the mine was closed down, in 1887, because the milling methods then in use could not make a commercially profitable concentrate, which is now possible with differential flotation. During the year complete metallurgical tests were made on the ore and seven miles of highway constructed, in co-operation with the Sawtooth National Forest Service and Camas County, preparatory to reopening the mine.

PERSEVERANCE MINES CO., INC.

Office: 1620 N. 6th St., Boise. **Officers:** Fred R. Wilson, Pres., Spokane, Wash.; Geo. R. Colvin, Sec.-Mgr., Boise. **Inc.:** May 28, 1927. **Capital:** 1,000,000 shares; par value $1; 738,000 shares issued. **Property:** Five Points group; 11 unpatented claims, Little Smoky dist.; Fairfield. **Development:** By 3 tunnels: No. 1, 119 ft.; No. 2, 235 ft.; No. 3, 500 ft. **Plant:** Partly constructed 70-ton concentrator. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** During the year the mill was moved a distance of about 3 miles from its former location and was reconstructed. This is the third organization Mr. Colvin has had on this property, the others being the Walton Mines Co., incorporated April 28, 1921; and the Happy Bill Mines Co., incorporated Dec. 31, 1923.

RED STAR MINING CO.

Office: Boise. **Officers:** D. W. Zent, Pres. Manitou Hotel, Boise; Russell Campbell, Sec., Glenns Ferry. **Inc.:** Nov. 20, 1924. **Capital:** 250,000 shares; par value 10c; 115,000 shares issued. **Property:** Red Star group; 4 unpatented claims, Little Smoky dist.; Fairfield. **Development:** 1 tunnel 50 ft. long. **Ore:** Gold-silver-lead. **Remarks:** Annual labor only.

RICHARD ALLEN MINES CO.

Office: Gooding. **Officers:** F. D. Waganer, Pres., Gooding; A. W. Steeves, Sec., Fairfield. **Inc.:** May 23, 1927. **Capital:** 600,000 shares; par value 5c; all shares issued. **Property:** 3 unpatented claims, unorganized dist., Soldier Mountain; Fairfield. **Development:** By 3 tunnels; total development, approximately 1000 ft. **Ore:** Copper-silver-gold. **Men employed:** Average, 3. **Remarks:** Active throughout the summer months.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Axalorr	Skeleton Creek	R. M. Angel	Fairfield
Bear Creek	Skeleton Creek	R. S. Mockett	Lincoln, Neb.
Blue Bird	Little Smoky	Robt. Leaper	Fairfield
Carrie Leonard	Little Smoky	Jas. Gilson, Agt.	Hailey
Climax	Little Smoky	Jas. Williams	Fairfield
Dollarhide	Little Smoky	R. D. Leach	Pocatello
Five Points	Little Smoky	Wm. Finney	Soldier
Fourth of July	Little Smoky	H. D. Jones	Hailey
Golden Star	Little Smoky	Chris Christofsen	Fairfield

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Hercules	Big Smoky	W. W. Counterman	209 So. 3d St., Boise
Horn Silver	Little Smoky	P. E. Fletcher	Fairfield
Idaho Chief	Little Smoky	Philip B. Becker	Fairfield
Isabella	Little Smoky	Edw. Somers Est.	Hailey
Gold Bar Placer	Skeleton Creek	Chris L. Giskey	Fairfield
King of the West	Little Smoky	Maylan C. Fox	P. O. Box 774, Salt Lake City, U.
Little Bob	Little Smoky	M. Ryan	Fairfield
Lucky Strike	Little Smoky	Joe Vogner	Fairfield
Manchuria Placer	Rosetta	H. D. Jones	Hailey
Ohio Placer	Little Smoky	Geo. E. Ball	Bridgeport, Conn.
Princess	Willow Creek	Roy Jones	Fairfield
Silver King	Little Smoky	H. D. Jones, Agt.	Hailey
Smoky Bullion	Little Smoky	Ernest Worswick Est.	Reno, Nev.
Square Deal	Little Smoky	Robert Leaper	Fairfield
----------	Little Smoky	Wm. Lewis	Fairfield

BIBLIOGRAPHY

See pages 11-12 for publisher's address, meaning of reference marks, and abbreviations.

A geological reconnaissance across Idaho, by G. H. Eldridge: U. S. Geol. Survey, Sixteenth Ann. Rept., pt. 2, pp. 217-276, **1895.***

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey, Twentieth Ann. Rept., pt. 3, pp. 75-256, **1900.***

Nitrate deposits in southern Idaho, and eastern Oregon, by G. R. Mansfield: U. S. Geol. Survey Bull. 620, pp. 19-44, **1915.***

Ore deposits in the Sawtooth quadrangle, Blaine and Custer counties, Idaho, by J. B. Umpleby: U. S. Geol. Survey Bull. 580, pp. 221-249, **1915.**‡

Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****

Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 60, art. 3, pp. 1-33, **1921.**‡

Ground water for irrigation on Camas Prairie, Camas and Elmore counties, Idaho, by A. M. Piper: Idaho Bureau of Mines and Geology, Pamphlet 15, **1926.****

CARIBOU COUNTY

Caribou is one of the large southeastern counties of the State, being bounded on the east by the State of Wyoming, on the south by Bear Lake, on the east by Bannock, and on the north by Bingham and Bonneville counties. It has an area of 1263 square miles, and was accredited with a population of 2191, or 1.7 persons to the square mile, in the 1920 census. Soda Springs, the county seat and the only settlement of importance, is situated in the southeastern corner. The county is principally a sheep raising and agricultural community, and Soda Springs is one of the largest sheep shipping points in the United States.

The southeastern corner of the county is served by the main line of the O. S. L. Railroad, with an 8-mile branch road to Conda, the scene of the Anaconda Copper Mining Co.'s operation, and by the main east and west State highway, the Old Oregon Trail.

The principal mineral resources are phosphate rock, salt, sulphur, and mineral springs, and there are excellent possibilities for the discovery of petroleum. These resources are different from those of most counties, and when properly exploited will be a material factor in the prosperity of the county and State.

A large part of the five billion tons of minable phosphate rock, estimated by geologists of the U. S. Geological Survey, is in this county. These deposits are practically untouched, and constitute one of the greatest potential mineral resources of the State. They are fully described, including analyses and tonnage estimates, in the numerous publications referred to in the bibliography. The Anaconda Copper Mining Co. is pioneering in the development of the rock phosphate industry and has expended over $1,000,000 in its mine, mine plant, mill, railroad, power lines, and townsite.

One of the most outstanding publications issued by the U. S. Geological Survey in recent years is Professional Paper 152, by G. R. Mansfield: "Geography, Geology, and Mineral Resources of Part of Southeastern Idaho". This appeared during 1927; it is profusely illustrated with pictures, maps, and diagrams, and describes in detail the subjects mentioned in its title, dealing especially with the immense areas of phosphate rock found in this county.

The only salt found in the State is in Caribou County. Geologists of the U. S. Geological Survey conservatively estimate five million tons in one deposit, with the possibility of a large tonnage in adjacent areas. The deposits are located on Stump and Tygee creeks, near the State line.

The mineral springs, which are located at Soda Springs, constitute an important resource which is lying dormant. The waters from these springs have exceptional medicinal qualities, are excellent for table use, and offer a great possibility if properly developed and exploited.

A number of structures favorable to the accumulation of petroleum are found in the eastern part of the county. The location and geology of these areas are fully described in the publications issued by the Idaho Bureau of Mines and Geology.

The Anaconda Copper Mining Co. maintained production at its phosphate mine at the rate of 200 tons per day throughout the year, in addition to constructing a large number of new homes for its employees. This company's mine plant is the largest in the State, and possibly in the United States, for the mining of this mineral. The rock mined is shipped to Anaconda, Montana, where it is converted into concentrated phospatic fertilizer, the finished product being known as Anaconda treble superphosphate.

During the year, the Great Western Oil Co., whose property is located in the eastern part of the county near the Wyoming line, deepened its well a few feet under contract. At the close of the year, it had reached a total depth of about 2700 feet.

ANACONDA COPPER MINING CO.

Office: Anaconda, Mont. **Officers:** C. F. Kelley, Pres.; A. H. Melin, Sec., both of 25 Broadway, New York City; C. E. Nighman, Local Mgr., Conda, Idaho. **Inc.:** Filed in Idaho: Apr. 10, 1916. **Capital:** 6,000,000 shares; par value $50; 3,000,000 shares issued. **Property:** 23 patented claims; 3403 acres, unorganized dist.; Conda. **Development:** 2 adits, 45 ft. above railroad-track level, 9x9 ft. inside of timbers: No. 1, 5450 ft. long; No. 2, 2660 ft. long. The main operating tunnels are equipped with 25-pound rail, 36-in. gauge track, 15-ton storage-battery locomotive capable of hauling a 100-ton net load at a speed of 4 to 7 miles per hour, 10-ton side dump ore cars, power loading machines operated by compressed air and No. 4 sirocco fan. **Plant:** MINE: 1000-cu.-ft. compressor; drill sharpeners; machine, blacksmith and carpenter shops with latest type power-driven equipment; switch boards and motor generator charging set; laboratory; electric sub-station and sawmill all housed in fireproof gunited and steel buildings. MILL: Crushing and drying plant. The mill feed and storage bins are connected with the main tunnels by large trestles. The storage bins, with a capacity of over 4000 tons, and houses over them are protected with several inches of gunite. The main storage bin is equipped with an Ottumwa boxcar loader and modern railroad scales. The rock drawn from the mill feed bin, which has a capacity of 450 tons, passes over shaking grizzlies, the oversize going to a 12-inch

Traylor gyratory crusher, which reduces it to about 2½ inches. The product from the crusher and the undersize is elevated and passed over a Mitchell vibrating screen. The rock passing through this screen goes to the dryer feed bin, and the oversize to 22x54-inch Anaconda rolls that reduce it to three-fourths of an inch. The product from the rolls is elevated and again passes over the Mitchell vibrating screen. The crushed rock drawn from the dryer feed bins is conveyed into class A-12 Ruggles-Coles dryers by apron feeders. After leaving the dryer the rock goes over a shaking feeder to a chain bucket elevator. This elevator carries it to the top of the mill where it passes through a Vezin sampler, and it is then conveyed to the storage bins. The present capacity of the mill is 400 tons in 24 hours. This output can be increased to 1000 tons in the same time by adding another dryer. **Railroad:** 8-mile branch from Soda Springs to mine, with storage tracks that will accommodate 100 fifty-ton railroad cars, spurs to mill and coal bins, and wyes at each end of the yards. The gradient of the storage tracks is such that the cars are operated by gravity to and from the storage bins. **Town:** The company has erected a model mine town consisting of modern homes, which are rented to the employees at a nominal figure. Company offices, bunk and boarding houses, superintendent's home, recreation hall and a number of small homes have been erected. A fully equipped store is maintained by the company, a postoffice has been established, and a modern school erected and maintained. A complete water system for the town and plant has been installed; the water is piped a distance of 2 miles to a 100,000-gallon storage tank from which it is distributed. **Ore:** Phosphate rock. **Men employed:** Average 50. **Remarks:** During the greater part of the year active production was maintained at the rate of approximately 200 tons per day. A large number of new homes for the employees were constructed during the year. Note pages 26 to 31 of 1923 Annual Report for complete description of this operation.

GREAT WESTERN OIL CO.

Office: 1st National Bank Bldg., Pocatello. **Officers:** Thomas Hopper, Pres.; Harvey W. Dice, Sec., both of Pocatello. **Inc.:** Feb. 2, 1923. **Capital:** 1,000,000 shares; par value $1; 650,000 shares issued. **Property:** Oil and gas leases on 1383 acres of patented farm land situated on Stump and Tygee creeks, unorganized dist.; Auburn, Wyo.; R. R. Montpelier. **Development:** 2640 ft. well. **Plant:** Miller well-drilling outfit equipped with F-M 40-h. p. gas engine. **Mineral sought:** Oil and gas. **Remarks:** Small amount of drilling under contract during the year.

BIBLIOGRAPHY

See pages 11-12 for publisher's address, meaning of reference marks, and abbreviations.

Phosphate deposits in western United States, by F. B. Weeks and W. F. Ferrier: U. S. Geol. Survey Bull. 315, pp. 449-462, **1907.***

The salt resources of the Idaho-Wyoming border, with notes on the geology, by C. L. Breger: U. S. Geol. Survey Bull. 430, pp. 555-569, **1910.***

Preliminary report on a portion of the Idaho phosphate reserve, by R. W. Richards and G. R. Mansfield: U. S. Geol. Survey Bull. 470, pp. 371-439, **1910.***

Sulphur deposits near Soda Springs, Idaho, by R. W. Richards and J. H. Bridges: U. S. Geol. Survey Bull. 470, pp. 499-503, 1910; Eng. and Min. World, vol. 36, p. 12, Jan. 6, **1910.***

A geological reconnaissance in southeastern Idaho, by A. R. Schultz and R. W. Richards: U. S. Geol. Survey Bull. 530, pp. 267-284, **1911.***

Geology of the phosphate deposits northeast of Georgetown, Idaho, by R. W. Richards and G. R. Mansfield: U. S. Geol. Survey Bull. 577, **1914.**‡

Revision of the Beckwith and Bear River formations of southeastern Idaho, by G. R. Mansfield and P. V. Roundy: U. S. Geol. Survey Prof. Paper 98, pp. 75-84, **1916.***

Salt resources of the United States, by W. C. Phalen: U. S. Geol. Survey Bull. 669, pp. 131-137, **1919.**‡

Oil shale in western Montana, southeastern Idaho, and adjacent parts of Wyoming and Utah, by D. D. Condit: U. S. Geol. Survey Bull. 711, pp. 15-40, **1920.**‡

Petroleum possibilities of certain anticlines in southeastern Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Bull. 4, **1922.***

The Wasatch and Salt Lake formations of southeastern Idaho, by G. R. Mansfield: Am. Jour. Sci., vol. 49, pp. 390-406, June, **1920.**§

Triassic and Jurassic formations in southeastern Idaho and neighboring regions, by G. R. Mansfield: Am. Jour. Sci., vol. 50, pp. 53-64, July, **1920.**§

Types of Rocky Mountain structure in southeastern Idaho, by G. R. Mansfield: Jour. Geology, vol. 29, No. 5, pp. 444-468, July-August, **1921.**§

Phosphate mine of Anaconda Copper Company, by C. E. Nighman: Twenty-fifth Ann. Rept., Mining Industry of Idaho, **1923.***

Geology and oil possibilities of Bingham, Bonneville, and Caribou counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Bull. 8, **1924.****

Geography, geology, and mineral resources of part of southeastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Prof. Paper, 152, **1927.***

CASSIA COUNTY

Cassia is one of the principal southern counties, being bounded on the south by the States of Nevada and Utah, on the west by Twin Falls, and on the east by Oneida and Power counties. Snake River forms its northern boundary, which is also a part of the southern boundary of Jerome, Minidoka, Blaine, and Power counties. It has an area of 2595 square miles, and was accredited with a population of 15,659 in the 1920 census. The principal industries are stockraising and farming. Burley, which is on the Snake River, near the center of the Minidoka project of the U. S. Reclamation Service, is the largest town and county seat.

The northern part of the county is served by the Old Oregon Trail State Highway; the other parts by a well-maintained system of county roads. Its railroad is the Minidoka-Buhl branch of the O. S. L. Railroad, from which there are branch lines extending from Burley to Idahome, and from Burley to Oakley.

The minerals found in this county are silver, lead, copper, gold, limestone, building stone, marble, cinnabar, and lignite. In the past, a little drilling has been done for petroleum, but all the companies have been practically idle for the past four years. These varied mineral resources, particularly the high grade lead-silver and silver-copper ores of the Stokes and Dolomite districts, offer excellent opportunities and possibilities for prospectors and development companies.

The Silver Hills Mining Co. was the only active company during the year, although there was a large increase in the number of prospectors and the amount of work done by them.

GOOSE CREEK OIL AND DEVELOPING CO.

Office: 424 4th Ave., Pittsburgh, Pa. **Officers:** Edward Martin, Pres.; H. E. Wynn, Sec., both of Pittsburgh, Pa.; D. P. Carpenter, Mgr., Oakley. **Inc.:** Oct. 28, 1920. **Capital:** 1,000,000 shares; par value 50c; 346,600 shares issued. **Property:** Government prospecting permit on 8000 acres on Coal and Goose creeks; Oakley. **Development:** 1425 ft. well. **Mineral sought:** Oil and gas.

MELCHER MINING & MILLING CO.

Office: 503 McIntyre Bldg., Salt Lake City, Utah. **Officers:** Samuel McIntyre, Sr., Pres.; R. M. Wilkinson, Sec., both of Salt Lake City. **Inc.:** May 2, 1899. **Capital:** 500,000 shares; par value 10c; 345,396 shares issued.

OAKLEY MINING & MILLING CO.

Office: Oakley. **Officers:** John H. Fairchild, Pres.-Mgr.; Lucy A. Fairchild, Sec., both of Oakley. **Inc.:** Jan. 7, 1920. **Capital:** 1,000,000 shares; par value 10c; all shares issued. **Property:** Boulder group; 7 unpatented claims, Dolomite dist.; Oakley. **Development:** Principally by 1 tunnel 300 ft. long. **Remarks:** This company is owned by its president, who was actively developing it during the year.

SILVER HILLS MINING CO.

Office: 707 Utah Savings & Trust Bldg., Salt Lake City, Utah. **Officers:** W. J. Burridge, Pres.-Mgr., Black Pine; L. M. Francis, Sec., Salt Lake City, Utah. **Inc.:** Mar. 31, 1920. Charter forfeited Nov. 30, 1926. **Capital:** 800,000 shares; par value 10c; 532,102 shares issued. **Property:** Busy Bee and Joven groups; 23 unpatented mining claims, Black Pine dist.; Black Pine. **Development:** 3 tunnels, 1 shaft; approximately 2600 ft. total development. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** Active during the greater part of the year.

WEST PEARL OIL & GAS CO.

Office: Standard Life Bldg., Pittsburgh, Pa. **Officers:** Hugh Ferguson, Pres.; William Le Goullon, Sec., both of Pittsburgh, Pa. **Inc.:** Jan. 15, 1920. **Capital:** 1,000,000 shares; par value $1; 500,000 shares issued. **Property:** 3000 acres of leased land. **Development:** Well 2825 ft. in depth.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Alice	Stokes	W. E. Langford	229 W. 2d St. N., Salt Lake City
Albion Gr.	Stokes	J. E. Comerford	Rupert
Bimetallic	Stokes	F. E. Trayme	Albion
Giant	Stokes	Samuel McIntyre	Salt Lake City
Golden Eagle	Stokes	O. H. Melcher	Albion
Hazel Pine	Black Pine	F. B. Platt	265 E. Broadway, Salt Lake City
Ken-Sko	Dolomite	Robt. B. Kenner	Salt Lake City
Last Chance	Unorganized	Charles Ransom	Burley
Last Chance Gr.	Grape Creek	J. W. Durfee	Malta
Sample Placer	Snake River	Thomas C. Elgin	Neeley
Walton No. 2	Stokes	T. C. Walton	Burley

BIBLIOGRAPHY

See pages 11-12 for publisher's address, meaning of reference marks, and abbreviations.

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Lignite in the Goose Creek district, Cassia County, Idaho, by C. F. Bowen: U. S. Geol. Survey Bull. 531, pp. 252-262, **1913.***

Portland cement materials and industry in the United States, by E. C. Eckel, with contributions by E. F. Burchard and others: U. S. Geol. Survey Bull. 522, p. 135, **1913.***

Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****

Preliminary report on the clays of Idaho, by F. H. Skeels: Idaho Bureau of Mines and Geology Bull. 2, **1920.****

Geology and water resources of the Goose Creek Basin, Cassia County, Idaho, by A. M. Piper: Idaho Bureau of Mines and Geology Bull. 6, **1923.****

CLARK COUNTY

Clark is one of the southeastern counties, adjoining and lying east of Lemhi and Butte counties, and bounded on the north by the State of Montana, on the east by Fremont County, and on the south by Jefferson County. It contains an area of 1778 square miles and was accredited with a population of 1886 in the 1920 census. Dubois is the principal town and county seat.

The Pocatello-Butte division of the O. S. L. Railroad, and the Idaho-Montana State highway traverse the county north and south, thus giving it good transportation facilities.

The Lemhi Mountains, which extend into the northwest corner of the county, constitute the principal mining district. This district is named from Birch Creek, which flows in a southern direction and which divides the district. The western part is an extension of the Dome, or Hamilton, district of Butte County, and the eastern part is an extension of the Nicholia district of Lemhi County. The ores found throughout this area are lead-silver, copper-silver, and zinc. The deposits have been partially developed and a small tonnage has been marketed.

Deposits of coal and bentonite of sufficient extent to be of commercial importance occur in the Beaver Head Mountains, the summit of which is the state line between Idaho and Montana.

During the year, the mines and prospects in the Birch Creek district received considerable attention by individuals, although no operations were conducted by companies. The principal properties under development and investigation were: The Worthington-Kaufman groups; the Scott mine; and the Comstock.

The geography, geology, and non-metallic resources of this county are fully described, together with maps and illustrations, in a publication issued during the year by the Idaho Bureau of Mines and Geology as Pamphlet No. 19: "A Geological Reconnaissance of Clark and Jefferson and Parts of Butte, Custer, Fremont, Lemhi and Madison Counties, Idaho," by V. R. D. Kirkham.

BIRCH CREEK MINING CO., LTD.

Office: Idaho Falls. **Officers:** George Brunt, Pres.; A. T. Shane, Sec., both of Idaho Falls. **Inc.:** June 21, 1907. **Capital:** 1,000,000 shares; par value 10c; 500,000 shares issued. **Property:** Scott group; 8 unpatented claims, Birch Creek dist.; Winsper, R. R. Dubois, 35 miles. **Ore:** Lead-silver. **Remarks:** Idle.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Emma	Birch Creek	Chester J. Worthing	Winsper
Fairwell	Birch Creek	James F. Worthing	Ophir, Utah
Good Luck	Birch Creek	David Bloom	Idaho Falls
Kaufman Gr.	Birch Creek	Geo. Kaufman	Winsper
Overlooked	Birch Creek	Frank J. Worthing	Winsper

BIBLIOGRAPHY

See pages 11-12 for publisher's address, meaning of reference marks, and abbreviations.

Geology and ore deposits of the Mackay region, Idaho, by J. B. Umpleby: U. S. Geol. Survey Prof. Paper 97, **1917.**‡

Geology and water resources of the Mud Lake basin, Idaho, by H. T. Stearns and L. L. Bryan: U. S. Geol. Survey Water-Supply Paper 560-D, **1925.**‡

A geologic reconnaissance of Clark and Jefferson, and parts of Butte, Custer, Fremont, Lemhi and Madison counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 19, **1927.****

CLEARWATER COUNTY

Clearwater is one of the large northern counties, being bounded on the north by Shoshone County, on the east by the State of Montana, on the south by Idaho County, and on the west by Lewis, Nez Perce, and Latah counties. It has an area of 2508 square miles and was accredited with a population of 4993 in the 1920 census. Orofino, which is on the Clearwater River, near the western border, is the largest town and county seat. Except a small area adjacent to Orofino, which is devoted to agriculture, the entire county is mountainous and heavily timbered. The largest body of virgin white pine timber in the United States is located in this county.

It is served by three State highways which are partly constructed, by good county-maintained roads, and by the Lewiston-Stites branch of the Northern Pacific Railroad, which follows the Clearwater River.

Pierce City, which is the principal mining district in the county, was the scene of the first gold discovery in Idaho. This discovery was made in 1860, and the ensuing stampede soon crowded the district and the overflow spread into other sections. The stampede and resulting overflow formed the nucleus of the State, and shortly thereafter the Territory of Idaho was formed. Practically all the placer gold that could be recovered by hand methods or hydraulicking was exhausted years ago, and all recent operations have been devoted to dredging and lode mining.

Gold—placer and lode—silver, monazite, and copper are the principal minerals found in the Pierce City district. Lead, zinc, and silver occur in the Neva Hill section, and placer gold is still found in some of the isolated sections.

The year 1927 witnessed an increase in mining and mining activities throughout Clearwater County. Hydraulic operations were conducted at a few of the mines near Pierce City, and the Independence Placer Mining Co., Ltd., whose property is on Moose Creek, a tributary of the North Fork of the Clearwater River, completed the installation of its 6000 feet of hydraulic pipe and the necessary ditches, and conducted mining operations during the high water period.

The lead-silver deposits in the Neva Hill section, near Elk River, received a small amount of attention, the principal operations being those of the Ruby Creek Mining Co.

In 1925 construction work was started on a new branch line of the Northern Pacific Railroad from Orofino to Pierce City. The principal construction was done during 1926, being fully completed and opened to traffic early in 1927. While this railroad was constructed primarily to open the large timber resources of this section of the State, it is proving to be an important factor in furthering mining in the Pierce City district. This was noticeable throughout the year, as the mining activities and interest in mines greatly exceeded those of any other year since the placer mines became exhausted. Prior to the construction of the railroad, Pierce City had dwindled to a "ghost town"; the renewed interest in mining, the new logging enterprises, and the presence of the construction forces converted it into the second largest town in the county, and gave new birth to the first established town in the State.

ALDER CREEK MINING CO.

Office: 404 Court House, Duluth, Minn. **Officers:** Thos. Owens, Pres., Two Harbors, Minn.; H. J. Grannis, Sec., Duluth, Minn. **Inc.:** Apr. 4, 1902. **Capital:** 200,000 shares; par value $1; 178,000 shares issued. **Property:** 800 acres patented land, Pierce City dist.; Orofino. **Ore:** Placer gold.

AMERICAN PLACER MINING CO., LTD.

Office: Peyton Bldg., Spokane, Wash. **Officers:** J. M. Porter, Pres.; D. W. Porter, Sec., both of Spokane. **Inc.:** Nov. 18, 1893. **Capital:** 500,000 shares; par value $1; all shares issued. **Property:** 2 patented, 1 unpatented claim; Pierce.

BOLE CONSOLIDATED MINING CO.

Office: Pierce. **Officers:** F. J. McCurdy, Pres., Seattle; Alex Kasberg, Sec., Lewiston. **Inc.:** Jan. 5, 1922. **Capital:** 300,000 shares; par value $1; all shares issued. **Property:** Bole group; 32 unpatented claims, Pierce City dist.; Pierce. **Development:** 3 tunnels: No. 1, 620 ft. long; No. 2, 150 ft. long; No. 3, 100 ft. long; 1 inclined shaft 100 ft. long, in which are 200 ft. of crosscuts and drifts. **Plant:** Steam-driven hoist and pumps. **Ore:** Gold. **Remarks:** Annual labor only.

CLEARWATER DREDGING CO.

Office: 919 Lloyd Bldg., Seattle, Wash. **Officers:** R. H. Bailey, Pres.; Van G. Hammon, Sec., both of Seattle. **Inc.:** Feb. 24, 1927. Charter forfeited Nov. 30, 1927. **Capital:** 100,000 shares; par value 1c; no shares issued. **Property:** 3 unpatented claims, Pierce City dist.; Pierce. **Plant:** 4-cu.-ft. flume-type Bucyrus dredge. **Ore:** Placer gold. **Remarks:** Annual labor only.

CLEARWATER PLACER MINING CO.

Office: 601 Hutton Bldg., Spokane, Wash. **Officers:** H. E. Rhodehamel, Pres., Hyde Bldg., Spokane, Wash.; Chas. H. Ennis, Sec., 601 Hutton Bldg., Spokane, Wash. **Inc.:** Aug. 21, 1923. **Capital:** 1,400,000 shares; par value 10c; all shares issued. **Property:** 8 unpatented placer claims, 160 acres, Pierce City dist.; Pierce. **Ore:** Placer gold. **Remarks:** Annual labor only.

INDEPENDENCE PLACER MINING CO., LTD.

Office: Wallace. **Officers:** Wm. Fahle, Pres.-Mgr.; Hugh Toole, Sec., both of Wallace. **Inc.:** Oct. 25, 1906. **Capital:** 1,000,000 shares; par value $1; 912,226 shares issued. **Property:** 16 unpatented claims, Moose City dist.; Rivulet, Mont. **Men employed:** Average, 7. **Ore:** Placer gold. **Remarks:** Operations conducted for a period of 60 days. A stock assessment of 1c was levied on Feb. 12.

OXFORD COPPER MINING CO., LTD.

Office: Moscow. **Officers:** Samson Snyder, Pres., Orofino; L. F. Parsons, Sec., Moscow. **Inc.:** Apr. 10, 1907. **Capital:** 1,000,000 shares; par value $1; 611,185 shares issued. **Property:** 6 unpatented claims, Pierce City dist.; Pierce. **Development:** Approximately 500 ft. of underground workings. **Plant:** Steam-driven hoist. **Ore:** Copper. **Remarks:** Annual labor only.

RHODES CREEK MINING CO.

Office: Lewiston. **Officers:** Wm. Mallory, Pres.; L. M. Wolever, Sec., both of Lewiston. **Inc.:** June 29, 1925. Charter forfeited Nov. 30, 1927. **Capital:** 5,000,000 shares; par value 5c; 2,307,055 shares issued. **Property:** Dunn & Stowell group; 2 patented claims, Pierce City dist.; Pierce; held under lease and option to purchase. **Development:** By 1 tunnel 650 ft. long. **Plant:** Steam-driven compressor. **Ore:** Gold. **Remarks:** Idle.

RUBY CREEK MINING CO.

Office: Bovill, Idaho. **Officers:** P. A. Hughes, Pres.; J. M. Evans, Sec.; James Gilroy, Mgr., all of Bovill. **Inc.:** Sept. 14, 1925. **Capital:** 1,500,000 shares; par value 10c; 832,430 shares issued. **Property:** Ruby Creek group; 20 unpatented claims, Ruby Creek dist.; Bovill. **Development:** By 1 tunnel 560 ft. long, and a vertical shaft 170 ft. deep. **Plant:** Steam-driven compressor; complete mining equipment, and camp. **Ore:** Lead-zinc-silver. **Men employed:** Average 5. **Remarks:** A small amount of work during the summer months.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
American	Pierce City	J. M. Porter	Spokane, Wn.
Baltimore	Pierce City	Wm. A. Kelly	Pierce
Burlington Pl.	Pierce City	Wm. A. Kelly	Pierce
California Placer	Pierce City	L. F. Culver	Pierce
Collins	Pierce City	J. E. Collins	Pierce
Cow Creek	Pierce City	Jas. Crawford	Grangemont
Dream, The	Pierce City	Fred Forsman	Pierce
Gray Eagle	Pierce City	J. McDaniels	200 Que St., Sacramento, Cal.
Grubstake et al.	Burnt Creek	James Dwyer and Henry Elmer	2828 N. 4th St., Minneapolis, Minn.
Hardman Gr.	Moose Creek	C. W. Hardman	Elk River
Hay Creek Placers	Pierce City	Frank Alvord	Pierce
Helen Pl.	Pierce City	A. R. Kennedy et al.	Pierce
Jericho	Burnt Creek	F. A. Losekamp	Elk River
Lone Pine et al.	Pierce City	J. W. Bartlett	Pierce
Ozark	Pierce City	Chas. Meyers	Greer
Panama Gr.	Pierce City	F. P. Fitz	Pierce
Pick & Pan	Burnt Creek	John E. Rejala	Elk River
Quartz-Gold Pl.	Pierce City	A. S. Holmes	Pierce
Rummel et al.	Pierce City	James Clark	Pierce
Silver Creek Pl.	Pierce City	Gus Anderson	Pierce
Snake Creek Pl.	Pierce City	G. V. Friedman	Pierce
Trapper et al.	Pierce City	R. E. Willoughby	Pierce
Venus Placer	Burnt Creek	John Pearson	Dent
Victoria et al.	Ruby Creek	Geo. Brady	Bovill
Victory Loan	Pierce City	H. J. Steffey	Pierce
Wendell Placer	Burnt Creek	Walter Wendell	Dent
Wild Rose	Pierce City	John Gaffney	Pierce

BIBLIOGRAPHY

See pages 11-12 for publisher's address, meaning of reference marks, and abbreviations.

Bitterroot Forest Reserve (Idaho-Montana), by R. U. Goode: Nat. Geog. Mag., vol. 9, pp. 387-400, **1898.**§

Geology and water resources of Nez Perce County, Idaho, by I. C. Russell: U. S. Geol. Survey Water-Supply Papers 53 and 54, **1901.**‡*

Mineral deposits of the Bitterroot Range and Clearwater Mountains, by Waldemar Lindgren: U. S. Geol. Survey Bull. 213, pp. 66-70, **1903.***

A geological reconnaissance across the Bitterroot Range and Clearwater Mountains in Montana and Idaho, by Waldemar Lindgren: U. S. Geol. Survey Prof. Paper 27, **1904.***

Central Idaho gold districts, by S. P. Jellum: Northwest Min. News, vol. 3, pp. 83-91, 107-114, 134-139, **1908**; vol. 4, pp. 2-6, 31-37, 66-73, **1909.***

An occurrence of monazite in northern Idaho, by F. C. Schrader: U. S. Geol. Survey Bull. 430, pp. 184-191, **1909.***

Portland cement materials and industry in the United States, by E. C. Eckel, with contributions by E. F. Burchard and others: U. S. Geol. Survey Bull. 522, pp. 135-140, **1913.***

The Orofino coal field, Clearwater, Lewis, and Idaho counties, Idaho, by C. T. Lupton: U. S. Geol. Survey Bull. 621, pp. 99-108, **1915.***

Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 60, art. 3, pp. 1-33, **1921.**‡

Geology and gold resources of north central Idaho, by F. A. Thomson and S. M. Ballard: Idaho Bureau of Mines and Geology Bull. 7, **1924.****

CUSTER COUNTY

Custer County is bounded on the north by Lemhi County, on the east by Butte, on the south by Blaine, and on the west by Boise and Valley counties. Its principal area comprises the drainage basins of the headwaters of the Salmon River, Big Lost River, and Little Lost River. It has an area of 4921 square miles, and was accredited with a population of 3550 in the 1920 census, or 0.7 persons to the square mile. A comparison of the area and density of population with the State of Connecticut, which contains 4845 square miles and a population of 286.4 persons to the square mile, conveys a good idea of the size of Custer County and its lack of population. It is one of the south-central counties, and the area within its borders comprises the greater part of the region known as "Central Idaho's Mineral Empire."

It is principally a mining county and always ranks as one of the principal mineral-producing counties of the State. It is also noted for its agricultural and stockraising industries, particularly sheep, as it is one of the largest sheep raising sections in the State.

The county is served by the Blackfoot-Mackay branch of the O. S. L. Railroad, by the Sawtooth Park and the Lost River State highways and by well-maintained county and Forest Service roads, which extend into all the various mining districts. The roads are kept in good repair and are open to travel during the larger part of the year. Mackay, the terminus of the railroad, is the largest town and the supply point for most of the mines. Challis, which is 60 miles northwest of Mackay, is the county seat and oldest settlement.

The principal mineral resources are lead, silver, copper, gold—placer and lode, zinc, antimony, molybdenum, tungsten, graphite, bentonite, and garnet. The deposits are widely distributed throughout the county, and many of them offer exceptionally favorable opportunities to prospectors and development companies. Excepting the flat land and river bottoms, which are suitable to dredging and which fully justify investigation, practically all the placer mines are exhausted. The diversity of mineralization and the favorable geological conditions are attracting some of the largest organizations in the United States to this county, and many resulting new discoveries fully prove the possibilities that are in store for those who possess a little courage.

During 1927, Custer County witnessed a larger amount of scouting, prospecting for new lead-silver and zinc mines, and the organization of more new mining enterprises than did any other county in southern Idaho. Practically all companies which were active in 1926 remained so throughout 1927, and some of them expanded their operations over those of the previous year.

The Livingston Mines Corporation, which attracted a large amount of attention during 1926 as a result of the announcement of an important discovery of new ore late in 1925, had the largest payroll of any mine in southern Idaho throughout the year, although it was only second in production. In addition to continuous production, this company re-designed and rebuilt its mill, performed a large amount of development work, and rebuilt and maintained over 20 miles of its road.

One of the largest new mine plants installed and constructed in the State during the year was that of the Seafoam Mines Corporation at its property in the Seafoam district. This work consisted of a 230-horse-power hydro-electric power plant; 3400 feet of flume; 4½ miles of transmission line; a 350-cubic-foot compressor; steel sharpener, and complete mining equipment; a 50-ton mill, fine grinding, amalgamation, and table concentration; 2 large bunk houses, a large boarding house, and 6 small houses; complete saw-mill; and water and electric-lighting systems. In addition to the installation of the foregoing, about 800 feet of development work was performed.

The Twin Apex Mines Co. installed a small gas-driven Sullivan compressor, with complete mining equipment, and contracted the driving of a 1000-foot crosscut tunnel, of which about 600 feet had been driven at the close of the year.

The Hecla Mining Co. maintained an active development campaign throughout the largest part of the year at the Mountain King group in the Sheep Mountain district; the Josephus Lake group at Seafoam; and the South Butte group in the Bay Horse district, adjoining the Red Bird mine of the Ford Motor Co. Operations at all these properties were suspended during the closing months of the year and all options were relinquished, although reports indicated that some of the work met with encouraging results.

The Red Bird mine of the Ford Motor Co. was idle throughout the year. However, all options were exercised, the property was paid for, and the mining claims were patented during the year. The entry of this company into Custer County attracted nation-wide attention a few years ago, and much new development work and some of the new enterprises can be accredited to this publicity. The fact that the property was purchased lends credence to the press stories circulated in 1926, to the effect that the diamond drilling and development work performed during 1925 and 1926 had proved a substantial tonnage of new ore.

The principal new companies to enter this county during the year and their chief activities were as follows: The Central Idaho Mining Co., a placer operation in the Yankee Fork district, performed a small amount of development work; the Crater Mines, Inc., whose property is at the head of Slate Creek near the Livingston mine, constructed new camp buildings, installed a small gas-driven compressor with complete mining equipment, and started active development work; the Idaho Hermit Mines, Inc., on Railroad Ridge adjoining the Livingston mine, perfected its organization, and performed a small amount of work during the summer months; the Clark Mining Co., whose property is on Kinnikinnick Creek near Clayton, did a large amount of development work, which resulted in exposing considerable additional ore, and constructed a small concentrating mill; the Sulphide Mining Co., on Salmon River about two miles below Clayton, drove its projected 900-foot tunnel about 400 feet; the Mule Shoe Mining Co., on the opposite side of the Salmon River from the Sulphide Mining Co.'s property, employed three men throughout the year in driving a lower tunnel; and the Golden Center Mining Co., which acquired the Black Rock group at the head of Big Lost River near the Blaine County line, constructed about four miles of new road at a high cost and purchased two small gas-driven compressors with complete mining equipment, but were unable to complete the road and install the equipment before winter set in. Prior to commencing operations at the Black Rock, this company performed a large amount of development work on the Williams-Dryden group in the Bay Horse district near Clayton.

The Empire mine at Mackay, owned by the Idaho Metals Co., continues to hold first place as the largest copper mine in the State. Active mining and milling operations were maintained throughout the year under the leasing system. This system does not permit the further development work which is necessary and fully warranted.

The MacGinniss-Walker Metals Co. employed six men throughout the year, in development work on the Phi Kappa group near the head of Big Lost River. Press reports averred that a large body of ore was disclosed by this work.

Lessees on the Blue Jay mine, near Mackay, owned by the White Knob Mining Co., and on the Ramshorn, Pacific and Beardsley-Excelsior mines near Bay Horse were active throughout the year, all of them producing and marketing a substantial tonnage of high-grade lead-silver ore.

The Kay Development Co., Ltd., which is operating the Horse Shoe mine of the Horse Shoe Copper Co., Ltd., near Mackay, conducted active operations during the early part of the year. This work disclosed a large body of complex lead-zinc ore.

AZTEC MINING & MILLING CO.

Office: 839 W. Lander St., Pocatello. **Officers:** T. W. Galigher, Pres.-Mgr., 915 N. 21st St., Boise; B. F. Anderson, Sec., Pocatello. **Inc.:** May 26, 1917. Capital stock increased Feb. 2, 1925. **Capital:** 50,000 shares; par value $1; 32,165 shares issued. **Property:** Kingfisher group; 3 unpatented claims, Stanley dist.; Stanley. **Development:** Inclined shaft 650 ft. long. Total development, approximately 1750 ft. **Plant:** MINE: 25-h. p. steam-driven hoist. MILL: Partly installed Gibson mill and amalgamation plates. **Remarks:** Small amount of labor in excess of annual requirement.

BURNS MINING & MILLING CO.

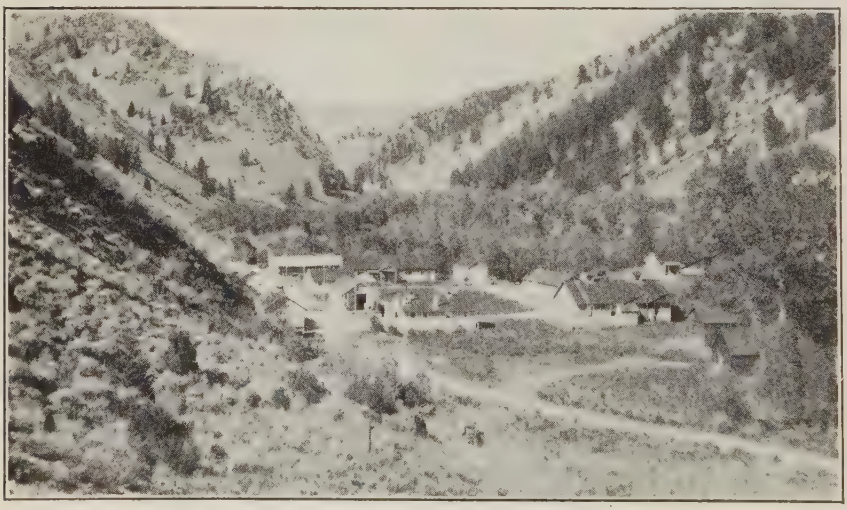
Office: Meridian. **Officers:** G. W. Parkin, Pres., J. M. Evans, Sec., both P. O. Box 63, Meridian. **Inc.:** May 3, 1911. **Capital:** 500,000 shares; par value $1; 337,877 shares issued. **Property:** Burns group; 8 unpatented claims, Seafoam dist.; Stanley. **Development:** Approximately 750 ft. of workings. **Ore:** Lead-silver, gold. **Remarks:** Annual labor only.

CENTRAL IDAHO MINING CO.

Office: Shelley. **Officers:** Roy Young, Pres.-Mgr.; A. J. Mickelson, Sec., both of Shelley. **Inc.:** Jan. 20, 1927. **Capital:** 50,000 shares; par value $1; 20,200 shares issued. **Property:** Muley Creek group; 11 unpatented claims, Yankee Fork dist.; Clayton. **Ore:** Placer gold. **Remarks:** Small amount of work during the summer months.

CLARK MINING CO.

Office: Clayton. **Officers:** E. L. Clark, Pres.-Mgr., Clayton; Harmon E. Hosier, Sec., Rupert. **Inc.:** July 15, 1927. **Capital:** 1000 shares; par value $100; 893 shares issued. **Property:** Camp Bird group; 13 unpatented claims, part of which are held under lease and option, Kinnikinnick Creek, Bay Horse dist.; Clayton. **Development:** Principally by 1 tunnel 400 ft. long. **Plant:** MINE: Small gas-driven Sullivan compressor; complete mining equipment and camp. MILL: Small concentrator. **Ore:** Lead-silver. **Men employed:** Average, 7. **Remarks:** After organization, this company performed a large amount of development work, which resulted in exposing considerable new ore; a small concentrating mill was then erected.



MINE CAMP: FORD MOTOR CO.

CRATER MINES, INC.

Office: Rigby. **Officers:** H. A. Anderson, Pres.; Geo. E. Hill, Sec.; Harry S. Thayer, Mgr., all of Rigby. **Inc.:** Aug. 30, 1927. **Capital:** 1,000,000 shares; par value $1; shares issued, unknown. **Property:** Crater group; 9 unpatented claims at the head of Slate Creek, Boulder dist.; Mackay; held under lease and option. **Development:** By 1 tunnel. **Plant:** Small gas-driven compressor. **Ore:** Lead-antimony-silver. **Men employed:** Average, 3. **Remarks:** New camp buildings were constructed, equipment was installed, and development work started during the latter part of the year.

EAST STAR MINING CO.

Office: Downey. **Officers:** Albert Christenson, Pres.; G. T. Hyde, Sec., both of Downey; L. W. Johnson, Mgr., Arco. **Inc.:** Apr. 16, 1924. **Capital:** 1,000,000 shares; par value 25c; 800,000 shares issued. **Property:** East Star group; 4 unpatented claims, Alder Creek dist.; Mackay. **Development:** By 1 tunnel 290 ft. long. **Remarks:** Small amount of development work throughout the year, funds for which were derived from stock assessments.

FORD MOTOR CO.

Office: Highland Park, Mich. **Officers:** Edsel B. Ford, Pres.; B. J. Craig, Sec., both of Highland Park, Mich. **Inc.:** Filed in Idaho, Jan. 6, 1925. **Capital:** 1,000,000 shares; par value $100. **Property:** Red Bird and Silver Rule groups; 44 patented claims and 6 millsites, Bay Horse dist.; Clayton; R. R. Mackay, 70 miles. **Development:** Principal development on Red Bird group consists of 4 tunnels: No. 1, 500 ft. long; No. 2, 1300 ft. long; No. 4, 510 ft. long; No. 9, 2127 ft. long, giving a total depth of 900 ft. on the vein; total development approximately 23,000 ft. **Plant:** 2 I-R semi-Diesel engines, type POC-2, direct connected to compressors; complete mining equipment including 2 diamond drills; shops and mining camp consisting of 11 buildings. **Ore:** Lead-silver. **Men employed:** 1 watchman. **Remarks:** Idle; all options were exercised, property was paid for, and mining claims patented during the year.

GOLDEN CENTER MINING CO.

Office: 120 Broadway, New York. **Officers:** Walter J. Mellody, Pres., New York; Wayne Darlington, Mgr., Mackay. **Inc.:** Never filed in Idaho. **Capital:** Unknown.

WILLIAMS-DRYDEN GROUP

Property: 5 unpatented claims, held under lease and option, Bay Horse dist.; Clayton. **Development:** By a 500-ft. crosscut, in which is 1000 ft. of drifting. **Ore:** Lead-silver **Men employed:** Average, 6. **Remarks:** A large amount of work was performed under contract, resulting in developing a small amount of new ore. However, options were forfeited and the enterprise was abandoned in October.

BLACK ROCK GROUP

Property: 17 unpatented claims on Big Fall Creek, Alto dist.; Mackay. **Plant:** 2 gas-driven portable compressors and complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 25. **Remarks:** Work started in July. About 4 miles of new road was constructed and mining equipment purchased, but as the road was not completed before winter set in, it was impossible to install the equipment and commence operations.

GREYHOUND MINING & MILLING CO., LTD.

Office: Gem Bldg., Boise. **Officers:** W. C. Annett, Pres.; Edward Smith, Sec., both of Boise. **Inc.:** Sept. 2, 1902. **Capital:** 1,500,000 shares; par value $1; 1,483,299 shares issued. **Property:** Greyhound group; 7 patented claims, Seafoam dist.; Stanley. **Plant:** Stamp mill, 10 1050-lb. stamps; crusher; 2 Dorr classifiers; 4 vanners and a small circular blast furnace. **Remarks:** Idle since 1910.

HECLA MINING CO. (See Shoshone County)

Office: Wallace. **Officers:** James F. McCarthy, Pres.-Mgr.; L. E. Hanley, Sec., both of Wallace. **Inc.:** Sept. 26, 1898. **Capital:** 1,000,000 shares; par value 25c; all shares issued.

SOUTH BUTTE GROUP

Property: 17 unpatented claims, Bayhorse dist.; Clayton; held under lease and option. R. R. Mackay, 70 miles. **Development:** Principally by 1 tunnel 1000 ft. long, in which is a vertical shaft 50 ft. deep. **Plant:** Gas-driven hoist; camp and complete hand mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 10. **Remarks:** In 1926 the property was acquired, mine plant and camp installed and work started on extending the shaft. In 1927 the shaft was extended to a total depth of 250 ft., at which depth a large amount of crosscutting and drifting was performed. Operations were suspended in October, and the equipment was removed.

MOUNTAIN KING GROUP

Property: 15 unpatented claims, Sheep Mountain dist.; Stanley; held under lease and option from J. B. Eldridge, Boise. R. R. Ketchum, 115 miles. **Development:** By 2 tunnels: No. 1, 250 ft. long; No. 2, 800 ft. long. They are connected by a 70-ft. raise. **Ore:** Lead-silver. **Men employed:** Average, 7. **Remarks:** Active development work maintained until August, at which time the option was surrendered.

JOSEPHUS LAKE GROUP

Property: 6 unpatented claims, Seafoam dist.; Stanley; held under lease and option from E. H. Hasbrouck, Boise. R. R. Ketchum, 110 miles. **Men employed:** Average, 4. **Remarks:** Small amount of development work during the summer months.

HORSE SHOE COPPER CO., LTD.

Office: Mackay. **Officers:** Geo. L. Morgan, Pres.-Mgr.; D. V. Archbold, Sec., both of Mackay. **Inc.:** Dec. 10, 1903. **Capital:** 1,000,000 shares; par value $1; 916,150 shares issued. **Property:** Horse Shoe group; 20 unpatented claims, Alder Creek dist.; Mackay. **Development:** This mine is developed principally by 3 tunnels and 1 vertical shaft, 350 feet deep, and a large amount of crosscuts, drifts and raises, totalling over 2000 ft. **Plant:** MINE: Electrically-driven 2-drill compressor and hoist. Complete mine camp. **Ore:** Lead-zinc-silver, copper-silver. **Remarks:** Property under lease and option to Kay Development Co., which see.

IDAHO HERMIT MINES, INC.

Office: 25 Broadway, New York. **Officers:** Kirby Thomas, Pres.-Mgr.; Geo. Hoy, Sec., both of New York. **Inc.:** May 16, 1927. **Capital:** 3,000,000 shares; par value $1; 1,500,000 shares issued. **Property:** Hermit group; 19 unpatented claims, Boulder dist.; Mackay. **Development:** Principally by 1 tunnel 600 ft. long. **Ore:** Lead-zinc-silver. **Men employed:** Average, 2. **Remarks:** Small amount of work during the summer months.

IDAHO METALS CO.

Office: Mackay. **Officers:** L. R. Eccles, Pres., Ogden, Utah; J. L. Bills, Mgr., Mackay. **Inc.:** Oct. 8, 1921. **Capital:** 1,200,000 shares; par value $1. Capitalization increased on November 27, 1926, to 2,000,000 shares; par value $1; all shares issued. **Property:** Empire Copper group; 19 patented, 21 unpatented claims, Alder Creek dist.; Mackay. **Development:** Over 20 miles of underground workings, the principal entries being the Cossack and Alberta tunnels; the Cossack is 650 ft. below the Alberta tunnel; the principal shaft is the Empire, which is in the Alberta tunnel and extends 350 ft. below. **Plant:** MINE: Air-driven hoist; 20-drill, steam-driven Laidlaw-Dunn-Gordon compressor, and an aerial tramway 16,300 ft. long connecting mine with railroad. MILL: 200-ton concentrator, consisting of fine grinding and flotation. **Ore:** Copper-silver-gold. **Men employed:** Average, 50. **Remarks:** Active mining and milling operations were maintained throughout the year under the leasing system. This system does not permit further development work, which is necessary and fully warranted, particularly in the Cossack tunnel at a depth of 1600 ft. on the vein. An attempt to finance this work was made during the year.

IVANHOE MINING CO.

Office: 485 California St., San Francisco, Cal. **Officers:** Harry L. Tevis, Pres.; William Letson, Sec., Both of San Francisco, Cal. **Inc.:** Filed in Idaho, July 28, 1909. **Capital:** 2500 shares; par value $1; all shares issued. **Property:** Badger group; 6 patented claims, Yankee Fork dist.; Clayton. **Remarks:** Idle for many years.

KAY DEVELOPMENT CO., INC.

Office: 253 Broadway, New York. **Officers:** Wayne Darlington, Pres.-Mgr., Mackay; Kenneth O'Brien, Sec., New York City. **Inc.:** March 17, 1924. **Capital:** 5000 shares; par value $100; shares issued, unknown. **Property:** Lease and option on the property of the Horse Shoe Copper Co., Ltd., Alder Creek dist.; Mackay. **Development:** Principally by 2 tunnels, No. 1, 450 ft. long; No. 2, 600 ft. long; and a 2-compartment vertical shaft 350 ft. deep, in which are 4 intermediate levels. **Plant:** Electrically-driven 2-drill compressor, and hoist; complete mining equipment and mine camp. **Ore:** Lead-zinc-silver, copper-silver. **Men employed:** Average, 4. **Remarks:** Small amount of work during the early part of the year which disclosed a large body of complex lead-zinc ore.

LIVINGSTON MINES CORPORATION

Office: 25 Broad St., New York. **Officers:** A. W. Walker, Pres.-Mgr., Mackay; James A. Dayton, Sec., New York. **Inc.:** July 23, 1923. **Capital:** 2,000,000 shares; par value $1. Capitalization increased on Sept. 21, 1926, to 3,000,000 shares; par value $1; 2,255,000 shares issued. **Property:** Livingston group; 7 patented, 13 unpatented claims, Boulder dist.; Mackay, 62 miles. **Development:** Principally by 7 tunnels, averaging from 200 to 2400 ft. in length; No. 2, or Livingston, tunnel is 2000 ft. long, in which are 3000 ft. of crosscuts and drifts. Total development on Livingston lode, approximately 8700 ft. **Plant:** MINE: 3 electrically-driven compressors, a 12x14 Sullivan, a 10x10 I-R, and a 12x16 I-R; storage-battery locomotive haulage; complete mining equipment and mine camp; 3-mile aerial tramway connecting Livingston No. 2 tunnel with the mill. MILL: 300-ton concentrator, including flotation, Blake crusher, Symonds disc-crusher, Davis rolls, 2 6-ft. Hardinge ball mills, 6 Wilfley tables, Callow flotation, complete mill camp. POWER PLANT: 380-h. p. hydroelectric power plant, supplemented with a 250-h. p. I-R vertical Diesel engine; 8-mile electric tranmission and telephone lines connecting power plant, mill and mine. **Ore:** Lead-silver. **Men employed:** Average, 128. **Remarks:** This company maintained the largest payroll of any mine in southern Idaho throughout the year. In addition to continuous production, it re-designed and rebuilt its mill, performed a large amount of development work, and rebuilt and maintained over 20 miles of its road.

LOON CREEK HYDRAULIC PLACER MINING CO., LTD.

Office: 301 S. Main St., Salt Lake City, Utah. **Officers:** J. Frank Judge, Pres., Los Angeles; John J. Harvey, Sec., Salt Lake City; John P. Boyle, Mgr., Stanley. **Inc.:** May 17, 1905. **Capital:** 300,000 shares; par value $1; all shares issued. **Property:** 4 unpatented placer claims, Loon Creek dist.; Stanley. **Plant:** 4000 ft. timber flume, 5 ft. wide and 3 ft. high; two-thirds of a mile of ditch; sawmill, and complete mine camp. **Remarks:** This company owns a large tract of placer ground suitable for hydraulic mining. Annual labor only.

LUCKY STRIKE MINING CO. NO. 1.

Office: Hollister. **Officers:** Henry Jones, Pres.; A. F. Craven, Sec.; Ora Jones, Mgr., all of Hollister. **Inc.:** April 27, 1917. **Capital:** 500,000 shares; par value $1; 465,000 shares issued. **Property:** Lucky Strike group; 5 patented claims, Joe's Gulch, Stanley dist.; Stanley. **Development:** By 3 tunnels; total development approximately 1000 ft. **Ore:** Gold. **Remarks:** Idle.

MAC GINNISS-WALKER METALS CO.

Office: Room 1618, 25 Broad St., New York City. **Officers:** John MacGinniss, Pres.; James A. Dayton, Sec., both of New York; A. W. Walker, Mgr., Mackay. **Inc.:** May 25, 1925. **Capital:** 3,000,000 shares; par value $1; all shares issued.

WHY NOT GROUP

Property: 2 patented, 3 unpatented claims, Yankee Fork dist.; Clayton. **Development:** Principally by 1 tunnel, which is over 700 ft. long. **Ore:** Gold-silver. **Men employed:** Average, 4. **Remarks:** Work was maintained throughout the year in extending the principal tunnel, which is a crosscut.

PHI KAPPA GROUP

Property: Phi Kappa group, 1 patented, 8 unpatented claims; Alto dist.; Mackay. R. R. Ketchum, 15 miles. **Plant:** Gas-driven compressor, complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Men employed:** Average, 6. **Remarks:** Continuous development throughout the year.

MONTE CRISTO GOLD MINES CO.

Office: Pocatello. **Officers:** W. H. Bohlscheid, Pres.-Mgr.; E. W. Larsen Sec., both of Pocatello. **Inc.:** March 19, 1917. **Capital:** 1,000,000 shares; par value $1; 639,000 shares issued. **Property:** Monte Cristo group; 6 unpatented claims, Loon Creek dist.; Clayton. **Development:** By 2 tunnels: No. 1, 340 ft. long; No. 2, 780 ft. long. **Ore:** Gold. **Remarks:** Annual labor only.

MULE SHOE MINING CO.

Office: 580 Hamilton Court, Salt Lake City, Utah. **Officers:** R. W. Johnson, Pres.-Mgr.; R. L. Johnson, Sec., both of Salt Lake City. **Inc.:** June 6, 1927. **Capital:** 1,000,000 shares; par value 10c; 70,000 shares issued. **Property:** Mule Shoe group; 7 unpatented claims, Bayhorse dist.; Clayton. **Development:** By 2 tunnels: No. 1, 225 ft.; No. 2, 400 ft. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** Active development work throughout the year, consisting of driving a lower tunnel.

PHEMSPACE MINES CO.

Office: 721 Seventh St., Rochelle, Ill. **Officers:** E. M. Wagner, Pres., P. A. Wagner, Sec., both of Rochelle, Ill. **Inc.:** Jan. 3, 1906. **Capital:** 1,000,000 shares; par value $1; 100,000 shares issued. **Property:** Phemspace group; 14 unpatented claims, Stanley dist.; Stanley. **Development:** By 5 tunnels, totaling approximately 1400 ft.

RAMSHORN MINES CO.

Office: 321 Felt Bldg., Salt Lake City, Utah. **Officers:** O. J. Salisbury, Pres.; C. B. Felt, Sec., both of Salt Lake City, Utah. **Inc.:** July 14, 1919. **Capital:** 150,000 shares; par value $10; all shares issued. **Property:** Ramshorn and Beardsley groups; 14 patented, 2 unpatented claims, Bay Horse dist.; Bay Horse. **Development:** Approximately 6½ miles of underground workings with 10 intermediate levels. **Plant:** MINE: Laidlaw-Dunn-Gordon duplex 13x8x10 compressor, electrically driven; complete mine equipment and camp. MILL: 60-ton fine grinding flotation, gyratory crusher; primary and secondary rolls; ball mill; Dorr classifier; Fagergren and Janney flotation cells; American vacuum filter; dryer. Entire mill electrically driven. **Ore:** Silver-copper, lead. **Men employed:** 10 lessees. **Remarks:** Property operated throughout the year by lessees, who produced and marketed a small tonnage of ore.

SALMON RIVER MINING CO.

Office: c-o U. S. Trust Co. Terre Haute, Ind. **Officers:** John T. Beasley, Pres.; William K. Hamilton, Sec., both of Terre Haute, Ind. **Inc.:** July 6, 1910. **Capital:** 500,000 shares; par value $1; 400,000 shares issued. **Property:** Pacific group; 12 patented claims, Bay Horse dist.; Bay Horse. **Remarks:** Idle for 14 years.

SEAFOAM MINES CORPORATION

Office: Seafoam. **Officers:** J. C. Hungerman, Pres.; Geo. L. Lafbury, Sec., both of Pittsburgh, Pa.; Walter Hovey Hill, Managing Director, Seafoam. **Inc.:** Oct. 17, 1923. **Capital:** 500,000 shares; no par value; 350,000 shares issued. **Property:** 16 patented, 1 unpatented claim, Seafoam dist.; Stanley. R. R. Ketchum, 104 miles. **Development:** Total development approximately 2300 ft., the principal part of which is confined to the Silver King claim, where it opens the vein 200 ft. in depth. **Plant:** MINE: Electrically-driven 8x10 I-R compressor; steel sharpener; complete mining equipment; steam-driven saw-mill; mine camp consisting of a large boarding house, 2 two-story bunkhouses, and 10 residences. MILL: 50-ton amalgamation, including fine grinding and table concentration. POWER PLANT: 230-h. p. hydroelectric power plant, operating under a 270-ft. head through a 3400-ft. flume; 4-mile transmission line. **Ore:** Gold-silver-lead. **Men employed:** Average, 40. **Remarks:** During the year a saw-mill, hydroelectric plant, mine plant and mill were constructed and installed; 2 large bunkhouses and 6 small houses erected; and water and electric-lighting systems installed. In addition to the foregoing, about 800 ft. of development work was performed on the Silver King claim. A post office, known as Seafoam, was created, and a mail route from Stanley established.

SULPHIDE MINING CO.

Office: Clayton. **Officers:** A. G. Clark, Pres.-Mgr., Clayton; C. E. Crissinger, Sec., Pocatello. **Inc.:** July 29, 1927. **Capital:** 50,000 shares; par value $1; 18,000 shares issued. **Property:** 17 unpatented claims, Bay Horse dist.; Clayton; held under lease and option. **Development:** Principally by 1 tunnel 400 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** A new organization, which drove its projected 900-ft. tunnel about 400 ft. during the year.

TWIN APEX MINES CO.

Office: 423 Ness Bldg., Salt Lake City. **Officers:** H. S. Brooks, Pres.; G. F. McGonagle, Sec., both of Salt Lake City; Wm. McClure, Mgr., Clayton. **Inc.:** Sept. 19, 1925. **Capital:** 1,000,000 shares; par value 5c; 683,720 shares issued. **Property:** Twin Apex group; 9 unpatented claims, on Squaw Creek, Bay Horse dist.; Clayton. **Development:** Principally by 2 tunnels: No. 2, 410 ft. long; No. 3, or crosscut, 580 ft. long. **Plant:** Gas-driven 8x9 Sullivan compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 7. **Remarks:** On Nov. 2 contract was let for driving a 1000-ft. crosscut tunnel which will open the vein 300 ft. below No. 2 tunnel; 580 ft. of this crosscut had been driven at the close of the year.

WHITE KNOB MINING CO.

Office: Newhouse Bldg., Salt Lake City, Utah. **Officers:** D. D. Muir, Jr., Pres.; W. W. Rager, Sec., both of Salt Lake City, Utah. **Inc.:** Aug. 23, 1919. **Capital:** 500,000 shares; par value $1; 127,510 shares issued. **Property:** White Knob group; 3 unpatented claims, Alder Creek dist.; Mackay. **Development:** Principally by 2 tunnels and 1 vertical shaft 250 feet deep. **Plant:** 40-h. p. gas-driven hoist. **Ore:** Lead-silver. **Remarks:** Operated by lessees who made a number of shipments during the year.

YANKEE FORK PLACER CO., LTD.

Office: 605 Eastman Bldg., Boise. **Officers:** James H. Hawley, Pres.; James H. Hawley, Jr., Mgr., both of Boise. **Inc.:** April 7, 1906. **Capital:** 400,000 shares; par value $1; all shares issued. **Property:** Bonanza group; 5 patented placer claims; 320 acres on Yankee Fork Creek, Yankee Fork dist.; Clayton.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Anderson et al.	Boulder	Wm. Anderson	New Grand Hotel, Salt Lake City, U.
American et al.	Bay Horse	Ivie Bros.	Mackay
Alto Coppers	Alto	Hannah Donahue	Mackay
Andromeda et al.	Alder Creek	J. S. Taylor	Mackay
Badger	Stanley	Henry Duffy	Stanley
Basin Creek Placer	Stanley Basin	W. K. Lynch	Stanley
Bellevue	Bay Horse	A. D. Sargent	Challis
Big Chief	Alto	J. C. Martin	Mackay
Big Liz	Alder Creek	John Turner	Mackay
Birdie Girl	Seafoam	P. H. Rasche	Stanley
Bisbee et al.	Alder Creek	Le Roy Rhodes	Mackay
Black Daisy	Alder Creek	Geo. R. Morgan	Mackay
Blossom Placer	Yankee Fork	Peter Burch	Bonanza
Blue Bird	Bay Horse	J. D. Sullivan	Clayton
Blue Bird	Alder Creek	W. Darlington, Agt.	Mackay
Blue Jay	Alder Creek	A. W. Canady Est.	Mackay
Bob Cat	Bay Horse	Ralph Gianoli	Clayton
Broadway Gr.	Boulder	Ed. Hinze	Challis
B. R. S.	Seafoam	F. P. Richards	Mackay
Buckhorn et al.	East Fork	John R. Creist	Clayton
Buckskin	Alder Creek	H. P. Hunter	Mackay
Carbonate	Alder Creek	Wm. Stevenson Est.	Mackay
Cash Box	Loon Creek	Geo. Bowden	Bonanza
Cave	Bay Horse	Chris Peterson	Bay Horse
Chas. Dickens	Yankee Fork	Chase Clark	Mackay
Columbia Standard	Alder Creek	George Manwaring	Salt Lake City, Utah
Compass	Bay Horse	D. Gekeler Est.	Clayton
Consolidated	Alto	Hannah Donahue	Mackay
Copper Basin	Alder Creek	F. A. Stacy	Mackay
Copper Cut	Alto	E. W. Hovey	Mackay
Copperopolis	Alder Creek	H. P. Hunter	Mackay
Corn Gressor	Copper Basin	S. W. Anderson	Mackay
Crater	Boulder	R. M. Black	Clayton
Deer Trail	East Fork	Geo. Blackman	Clayton
Democrat et al.	Bay Horse	Mrs. Lee Watson	Challis
Dewey	East Fork	Andrew Nielson	Obsidian
Dougherty	Bay Horse	E. A. Dougherty	Challis
Dryden	Bayhorse	E. D. Williams	Challis
Elkhorn Gr.	Seafoam	Joseph Singer	Boise
Ella B. Gr.	Seafoam	A. R. Smith	Stanley
Enterprise	Yankee Fork	I. U. Hager	Mackay
Flag Staff	Alder Creek	H. E. Gilbert	Mackay
Florence	Stanley	H. H. Benzer	Stanley
Forest Bell	Yankee Fork	Chase A. Clark	Clayton
Forest Rose	Bay Horse	Pietro Pedrini	Challis
Golden Glow	Stanley	J. E. Smith	Stanley
Gold King	Alder Creek	Ed. Maelzer	Mackay
Gold Star et al.	Yankee Fork	B. W. Clark	Idaho Falls
Good Friend et al.	Bay Horse	John Ernst	Clayton
Greenhorn et al.	Seafoam	Chas. H. Smith	Stanley
Grey Copper	Bay Horse	Dewey Bros.	Jerome
Grub Getter	Alder Creek	Gardener Bros.	Mackay
Hermit Gr.	Bay Horse	W. E. Smith, Agt.	Challis
Hidden Treasure	Yankee Fork	J. A. Franklin, Agt.	Custer
Hohmann Placer	Stanley Basin	Walter K. Lynch	Stanley
Home Stake et al.	Bay Horse	James Beattie	Challis

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Horse Shoe	Alder Creek	Chas. Nolan, Adm.	Mackay
Hummer	Yankee Fork	Chase A. Clark	Clayton
Idaho	Bay Horse	Wm. Swigert	Challis
Idaho Girl	Stanley	Robt. McAllister	Stanley
Idaho Gr.	Seafoam	Wm. Chevier	Stanley
International	Alder Creek	Hannah Donahue	Mackay
Iron Nugget	Alto	N. B. Baugness	Mackay
Joe Gulch	Yankee Fork	F. Georgetta	Clayton
Joe's Gulch Placer	Stanley Basin	W. W. Smith	Stanley
Josephus Lake	Seafoam	E. H. Hasbrouck	224 E. Idaho St., Boise
Katherine	Bay Horse	C. A. Torrey	Clayton
Kelly Gulch Placer	Stanley Basin	Henry Sturkey	Stanley
Kerr & Kerr	Alder Creek	Custer Devel. Co.	Mackay
Keystone	Bay Horse	Wilson & Fox	Challis
Kingfisher et al.	Yankee Fork	Frank G. Fisher	Obsidian
Last Chance et al.	Bay Horse	Robert E. Muir	Challis
Last Resort	East Fork	Rosa V. Carman	Clayton
Left Wing	Bay Horse	E. J. Michael, Agt.	Challis
Little Johnny	Alder Creek	F. A. Stacey	Mackay
Lodge Pole	Alto	J. W. Brown	Mackay
Lost Eagle	Loon Creek	Carl Malm	Challis
Lost Packer	Loon Creek	Henry Welsh	724 E. 2d St., Salt Lake City
Lucky Boy	Yankee Fork	W. S. McCornick	Salt Lake City, U.
Lucky Strike	Stanley	Henry Jones	Stanley
May Fowler	East Fork	Wm. Fisher	Clayton
Morning Star	Yankee Fork	J. B. Foltz	Ririe
Mountain Girl	Stanley Basin	J. H. Thompson	Stanley
Mt. Sullivan No. 1	Alder Creek	G. W. Stewart	Mackay
Niagara	Seafoam	F. P. Richards	Mackay
Orelena	Loon Creek	Juanitta Eddy	Salt Lake City, U.
Peerless	Alder Creek	J. E. Campbell	Mackay
Pinion Gr.	Sheep Mountain	J. A. May	Boise
Piolet House	Alder Creek	M. S. Vaught	Mackay
River Queen	Bay Horse	Phillip Gossi	Clayton
Rob Roy	Bay Horse	Caesar Maraffio	Clayton
Rough Creek	Yankee Fork	G. W. Friend	Clayton
Silver	Yankee Fork	F. G. Fisher	Obsidian
Silver Bell	Alder Creek	Johnson & Haney	Mackay
Silver Bell	Bay Horse	Jas. H. Marker	Challis
Singer Gr.	Sheep Mountain	W. H. Brose	Boise
Snowdrift	Yankee Fork	Frank Casto	Challis
Solon Jr.	Alto	Martin & Clark	Mackay
South Butte	Bay Horse	William McClure	Mackay
Speculator	Alder Creek	H. P. Hunter	Mackay
Square Deal	Bay Horse	M. E. Crawford	Clayton
Sun Rise	Alder Creek	F. A. Stacy	Mackay
Sunrise et al.	Loon Creek	J. T. Metcalf	Clayton
Taylor Gr.	Alder Creek	Taylor & Munson	Mackay
Tip Top	Alder Creek	Gus Munson	Mackay
Tracy et al.	Seafoam	A. R. Smith	Challis
Turtle	Bay Horse	N. S. Churchill	Mackay
Vulture et al.	East Fork	Antonio Caprilla	Clayton
Waxahachia	Alder Creek	S. W. Anderson	Mackay
White Elephant	Alder Creek	Daniel Clark	Mackay
Whynot	Yankee Fork	Amos Franklin	Clayton
Yellow Jacket	Stanley	Ed. Martin	Stanley
Zodiac	Bay Horse	E. J. Michael, Agt.	Challis

BIBLIOGRAPHY

See pages 11-12 for publisher's address, meaning of reference marks, and abbreviations.

The volcanic tuffs of Challis, Idaho, by A. A. Julian: Trans. New York Acad. Sci., vol. 1, pp. 49-53, **1882.**§

A geological reconnaissance across Idaho, by G. H. Eldridge: U. S. Geol. Survey, Sixteenth Ann. Rept., pt. 2, pp. 217-276, **1895.***

Central Idaho gold field, by Don Maguire: Mines and Minerals, vol. 19, pp. 289-291, February, **1899.***

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey, Twentieth Ann. Rept., pt. 3, pp. 75-256, **1900.***

The deepest mine in Idaho, the Ramshorn at Bay Horse, by R. N. Bell: Mines and Minerals, vol. 21, pp. 174-176, November, **1900.***

An outline of Idaho geology and of the principal ore deposits of Lemhi and Custer counties, by R. N. Bell: Proc. Int. Min. Cong. 4th sess., pp. 64-80, **1901.**§

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Thunder Mountain and Mackay, Idaho, by R. N. Bell: Min. and Sci. Press, vol. 84, p. 62, Feb. 1, **1902.***

An extinct glacier of the Salmon River Range, by G. H. Stone: Am. Geology, vol. 11, pp. 406-409, **1903.***

The Lost Packer copper-gold lode, by E. P. Jennings: Jour. Canadian Min. Inst., vol. 9, pp. 54-57, **1906**; Min. and Sci. Press, vol. 92, pp. 435-436, June 30, **1906**; Salt Lake Min. Review, Mar. 30, **1906.***

The White Knob copper deposits, Mackay, Idaho, by J. F. Kemp and G. G. Gunther: Trans. Am. Inst. Min. Eng., vol. 38, pp. 269-296, **1907.**§

Resources of Custer and Lemhi counties, Idaho: Salt Lake Min. Review, vol. 12, pp. 17-19, Mar. 15, **1911.**§

A preliminary account of the ore deposits of the Loon Creek district, Idaho, by J. B. Umpleby: U. S. Geol. Survey Bull. 530, pp. 66-74, **1911.***

Some ore deposits in northwestern Custer County, Idaho, by J. B. Umpleby: U. S. Geol. Survey Bull. 539, **1913.**‡

The genesis of the Mackay copper deposits, by J. B. Umpleby: Econ. Geology, vol. 9, pp. 307-358, June, **1914.**§

Ore deposits in the Sawtooth quadrangle, Blaine and Custer counties, Idaho, by J. B. Umpleby: U. S. Geol. Survey Bull. 580, pp. 221-249, **1915.**‡

The occurrence of ore on the limestone side of garnet zones, by J. B. Umpleby: University of California publications, Bull. Dept. of Geology, vol. 10, No. 3, pp. 25-37, Oct. 14, **1916.****

Geology and ore deposits of the Mackay region, Idaho, by J. B. Umpleby: U. S. Geol. Survey Prof. Paper 97, **1917.**‡

A reconnaissance of south central Idaho, embracing Thunder Mountain, Big Creek, Stanley Basin, Sheep Mountain, and Seafoam districts, by J. B. Umpleby and D. C. Livingston: Idaho Bureau of Mines and Geology Bull. 3, pp. 13-22, **1920.****

Brannerite, a new uranium mineral (Stanley Basin, central Idaho), by F. L. Hess: Franklin Inst. Jour., vol. 189, No. 2, pp. 225-237, February, **1920**; No. 6, pp. 779-780, June, **1920.****

Ground water in Pahsimeroi Valley, Idaho, by O. E. Meinzer: Idaho Bureau of Mines and Geology Pamphlet 9, **1924.****

The Livingston mine, Custer County, Idaho, by J. B. Stewart: Mining and Metallurgy, vol. 7, No. 233, pp. 223-224, May, **1926.**§

A geologic reconnaissance of Clark and Jefferson, and parts of Butte, Custer, Fremont, Lemhi and Madison counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 19, **1927.****

Ore deposits in Tertiary lava in the Salmon River Mountains, Idaho, by C. P. Ross: Idaho Bureau of Mines and Geology Pamphlet 25, **1927.****

ELMORE COUNTY

Elmore is one of the southwestern counties, being bounded on the south by Owyhee, on the west by Ada, on the north by Boise, and on the east by Blaine, Camas, and Gooding counties. A large part of the drainage basin of the Boise River is included within its 2808 square miles, which was accredited with a population of 5087 in the 1920 census. The chief industries are stockraising—principally sheep—farming, and mining.

The southern part of the county is served by the main line of the O. S. L. Railroad and the principal east-west State highway, the Old Oregon Trail; a well built and maintained system of county roads extends into all the various mining districts and sections. Mountain Home is the largest town and county seat.

The principal mineral resources are gold, silver, copper, lead, zinc, arsenic, molybdenum, diatomaceous earth, and potassium nitrate.

In past years this county was a noted producer of high-grade gold-silver ores and placer gold, particularly when the mines in the Atlanta and Rocky Bar districts were being worked. The placer ground which could be hydraulicked has long been exhausted, and the quartz mines have been dormant for years, having been closed down either through litigation, lack of power, or finances. These districts offer many opportunities to development companies and, since power is within easy reach from Featherville, there appears to be no reason why the mines are not receiving more attention.

The South Park Dredging Co. at Featherville continues to be the largest mining enterprise in the county. The dredge was operated the greater part of the year, and the tailing stacker and digging ladder were lengthened to permit digging at a greater depth. The record this enterprise is making is a big factor in the welfare of the district and is attracting attention to the mineral resources and possibilities of this part of the State.

The Rocky Bar district witnessed a little improvement over that of the previous year in the starting of new enterprises, although no work of any importance was performed.

The Atlanta district was more active, witnessing more investigations and the initiation of more new enterprises than at any time during the past ten years. Two old deep mines resumed operations under new organizations, and plant construction on a hydraulic placer mine by the La Trinidad Mining Co. was maintained throughout the summer months.

The Franklin Consolidated Gold Mines Co., at the old Franklin mine in the Pine Grove district, was idle during most of the year, due to litigation.

The Omo Mines Corporation at the Mountain View mine and the S. E. Mining Co., both at Pine; the Apex Gold Mining Co. and the Blake's Gulch Gold Mining Co., both at Rocky Bar, actively developed their mines throughout the year.

APEX GOLD MINING CO.

Office: Box 165, Nampa. **Officers:** Dr. J. C. Lay, Pres., M. A. Cook, Sec., both of Nampa. **Inc.:** Oct. 15, 1926. **Capital:** 400,000 shares; par value $1; 220,000 shares issued. **Property:** West Ophir group; 5 unpatented claims; Rocky Bar. **Development:** By 5 tunnels, totaling about 800 ft. **Ore:** Gold. **Men employed:** Average, 4. **Remarks:** Active work during the summer months.

BLACKSTONE MINING CO., LTD.

Officers: James H. Hawley, Pres.; Charles W. Mack, Sec., both of Boise. **Inc.:** Dec. 26, 1899. **Capital:** 1,000,000 shares; par value 10c; shares issued, unknown. **Property:** 5 patented claims, Blackstone dist.; Hill City.

BLAKE'S GULCH GOLD MINING CO.

Office: Mountain Home. **Officers:** Seth Harris, Pres.-Mgr.; C. B. Clays, Sec., both of Mountain Home. **Inc.:** May 11, 1927. **Capital:** 100,000 shares; par value $1; 62,800 shares issued. **Property:** Commonwealth group; 2 unpatented claims, Bear Creek dist.; Rocky Bar. **Development:** By 2 tunnels: No. 1, 185 ft.; No. 2, 600 ft. **Ore:** Gold. **Men employed:** Average, 2. **Remarks:** Active work throughout the year.

DALEY CONSOLIDATED MINES CO.

Office: Mountain Home. **Officers:** Daniel Reber, Pres.-Mgr.; Max Wagener, Sec., both of Mountain Home. **Inc.:** Nov. 1, 1913. Charter forfeited Nov. 30, 1927. **Capital:** 1,500,000 shares; par value $1; 1,200,000 shares issued. **Property:** Daley group; 50 unpatented claims, Dixie, unorganized dist.; Bennett. **Development:** Approximately 4500 ft. of underground workings, the principal of which are: A tunnel 1800 ft. long; a vertical shaft 100 ft. deep; and an inclined shaft 460 ft. long with 5 intermediate levels. **Plant:** Two 40-h. p. boilers; steam-driven hoist and compressor; complete mining equipment and camp. **Ore:** Gold-lead-silver. **Remarks:** Annual labor only.

EUREKA OIL CO.

Office: Twin Falls. **Officers:** A. Beverly Howard, Pres.-Mgr.; Orville S. Peet, Sec., both of Twin Falls. **Inc.:** April 2, 1927. **Capital:** 500,000 shares; par value $1; all shares issued. **Property:** Oil and gas leases on 610 acres of patented farm land near Hammett. **Mineral sought:** Oil and gas. **Remarks:** The president of this company states: "This company owns 3 leases in the Hammett Structure, acquired about a month ago. This company expects to be a lease-holding company until a test is completed in the Hammett Valley."

FRANKLIN CONSOLIDATED GOLD MINES CO.

Office: Pine. **Officers:** John J. Stanford, Pres.; Fred T. Kelly, Sec.-Mgr., both of Pine. **Inc.:** Dec. 22, 1925. **Capital:** 1,250,000 shares; par value $1; 634,400 shares issued. **Property:** Franklin group; 2 patented, 4 unpatented claims, held under lease and option, Pine Grove dist.; Pine. **Development:** Approximately 3000 ft. of underground workings, the principal of which is No. 3 tunnel, 860 ft. in length. **Plant:** An old 10-stamp mill including cyanide equipment. **Ore:** Gold. **Men employed:** Average, 2. **Remarks:** Owing to litigation, only the necessary annual labor was performed.

GAS DOME OIL CO.

Office: Smith-Rice Bldg., Twin Falls. **Officers:** A. Beverly Howard, Pres.-Mgr., Twin Falls; Freda Maxwell, Sec., Buhl. **Inc.:** June 20, 1927. **Capital:** 500,000 shares, par value $1; 200,000 shares issued. **Property:** Oil and gas leases on patented farm lands near Hammett. **Mineral sought:** Oil and gas.

GEORGE F. ROTH CO.

Office: P. O. Box 147, Rochester, N. Y. **Officers:** George F. Roth, Pres.; Walter J. Duffy, Sec., both of Rochester, N. Y. **Inc.:** June 17, 1909. **Capital:** 2500 shares; par value $100; 2102 shares issued. **Property:** Homestake group; 7 patented, 3 unpatented claims; Neal dist.; c-o Mayfield Stage, Boise. **Ore:** Gold. **Remarks:** Idle.

LA TRINIDAD MINING CO.

Office: Las Vegas, Nev. **Officers:** Fred Hess, Pres.; Peter Buol, Sec., both of Las Vegas, Nev.; E. P. Jeanes, Mgr., Atlanta. **Inc.:** Filed in Idaho Sept. 9, 1926. **Capital:** 2,500,000 shares; par value $1; 1,500,000 shares issued. **Property:** Black Warrior Placers; 12 unpatented claims, held under lease and option; Black Warrior dist.; Atlanta. **Plant:** Saw-mill and complete hydraulic mining equipment. **Ore:** Placer gold. **Men employed:** Average, 30. **Remarks:** During the summer months a large amount of ditching was done; camp buildings and 7 miles of road were constructed; and hydraulic equipment was installed.

LITTLE QUEEN GROUP

Owner: E. F. Money, 937 34th St., Seattle, Wash. **Inc.:** Not incorporated. **Property:** 3 unpatented claims, Middle Boise dist.; Atlanta. **Development:** Principally by 1 tunnel 100 ft. long. **Plant:** 7-ton Ellis mill and amalgamation. **Ore:** Gold. **Remarks:** Small amount of work during the year.

MARSH CREEK MINING CO.

Officers: Roy Y. Bogard, Pres.-Mgr., Burns, Ore.; Curtis F. Pike, Sec., 1317 Idaho St., Boise. **Inc.:** July 9, 1921. **Capital:** 1,000,000 shares; par value $1; 39,985 shares issued. **Property:** 2 unpatented claims on Marsh Creek, Bear Creek dist.; Featherville.

NORTHWESTERN DEVELOPMENT CO.

Office: P. O. Box 1035, Boise. **Officers:** William Williams, Pres.-Mgr.; Geo. L. Fleharty, Sec., both of Boise. **Inc.:** April 30, 1927. **Capital:** 1,500,000 shares; par value $1; 900,000 shares issued. **Property:** 5 unpatented placer claims on Boise River; unorganized dist. **Ore:** Placer gold.

OMO MINES CORPORATION

Office: 326 Lindelle Blk., Spokane, Wash. **Officers:** J. T. Omo, Pres.-Mgr.; Alfred Hage, Sec., both of Spokane. **Inc.:** Jan. 19, 1926, as Omo Mining & Leasing Co., name changed March 3, 1926. **Capital:** 2,000,000 shares; par value 5c; 1,500,500 shares issued. **Property:** Mountain View group; 3 unpatented claims held under lease and option; Pine Grove dist.; Pine. **Ore:** Gold. **Men employed:** Average, 3. **Remarks:** Active throughout the year in extending its crosscut, the funds for which work were derived from 7 stock assessments, each at the rate of 2 mills per share.

ROCKY BAR MINING CO.

Office: 1001 Paulsen Bldg., Spokane, Wash. **Officers:** M. G. Martindale, Pres.-Mgr.; R. C. Corbet, Sec., both of Spokane. **Inc.:** Sept. 18, 1922. **Capital:** 50,000 shares; par value $1; 18,369 shares issued. **Property:** 5 patented, 7 unpatented claims, Bear Creek dist.; Rocky Bar.

S. E. MINING CO.

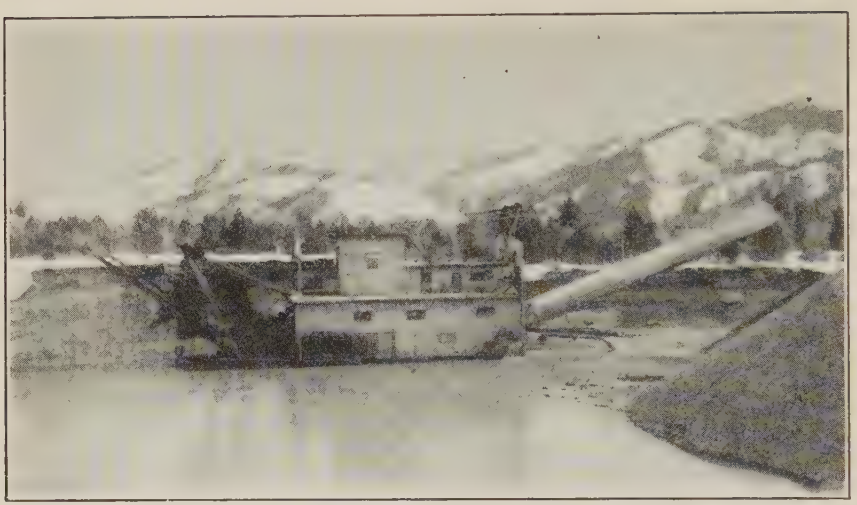
Office: Pine. **Officers:** W. C. Settle, Pres., Pine; G. T. Ellison, Sec., Glenns Ferry. **Inc.:** Sept. 30, 1926. **Capital:** 50,000 shares; par value $1; all shares issued. **Property:** 1 patented claim, held under lease; Pine Grove dist.; Pine. **Development:** By 2 tunnels: No. 1, 180 ft. long; No. 2, 275 ft. long. **Ore:** Gold. **Men employed:** Average, 2. **Remarks:** Active development work throughout the year.

SOUTH PARK DREDGING CO.

Office: 351 California St., San Francisco, Cal. **Officers:** W. P. Hammon, Pres.; A. L. Dahl, Sec., both of San Francisco, Cal. **Inc.:** Sept. 12, 1921. **Capital:** 50,000 shares; no par value; all shares issued. **Property:** 1100 acres of dredging land on Feather River, Featherville dist.; Featherville. **Plant:** Yuba dredge, 9-cu.-ft. buckets, close connected. The hull is constructed entirely of Oregon fir, 105 ft. long with 44 ft. 7 in. beam, 10 ft. deep, drawing 7 ft. water. The bucket line is composed of 67 buckets connected with pins weighing 150 lbs. each; the buckets weigh approximately 2000 lbs. each. The digging ladder is of the plate girder type, 75 ft. long and weighs approximately 50 tons. The lower tumbler is round and spool shaped; the upper tumbler is hexagonal. The tailing stacker is 124 ft. long and provided with a 36 in. conveyor belt. The entire dredge is electrically driven, 520 h. p. being required, and is operated from the winch room. The pump capacity is 5000 gallons per minute. **Ore:** Placer gold. **Men employed:** Average, 20. **Remarks:** Construction work was started in October, 1921, and the dredge commenced digging on August 21, 1922; a very remarkable record, as the entire dredge had to be transported 43 miles over rough mountain roads. In addition to building the dredge, a power line 43 miles long from Mountain Home to the dredge was built. The entire plant, including power line, involved an expenditure of over half a million dollars before a wheel was turned. Since digging was started active operation has been maintained. During 1926 the digging and stacker ladders were lengthened to permit mining at a greater depth. Continuous operations throughout the greater part of the year.

STANLEY-FIVE BARS MINING CO.

Office: 517 Idaho Bldg., Boise. **Officers:** O. O. Haga, Pres.; Mrs. Anna S. Waters, Vice.-Pres.-Treas., both of Boise. **Inc.:** Sept. 8, 1925. **Capital:** 25,000 shares; par value $1; 20,000 shares issued. **Property:** Five Bars group; 4 unpatented placer claims, Middle Boise dist.; Atlanta.



FEATHERVILLE DREDGE OF SOUTH PARK DREDGING CO.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Ada Elmore Gr.	Bear Creek	Grant McCargo	Pittsburgh, Pa.
Alice et al.	Bear Creek	R. Y. Bogard	Burns, Ore.
Alma Placer Gr.	Bear Creek	F. M. Dodge	Rocky Bar
April Fool	Middle Boise	J. C. Birdwell	Atlanta
Avis et al.	Pine Grove	Ray J. Allison	Pine
Badger No. 1	Neal	Chas. Fell	R. D. 5, Boise
Badger et al.	Neal	John T. Hammack	R. D. 5, Boise
Baltimore et al.	Middle Boise	Robt. B. Browne	Atlanta
Bear Gr. et al.	Bear Creek	F. M. Dodge	Rocky Bar
Ben Hur	Bear Creek	R. R. Osborne	Mountain Home
Benton Gr.	Middle Boise	G. L. Bixby	Atlanta
Big Five et al.	Bear Creek	Frank Bayhouse	Boise
Big Four et al.	Bear Creek	Rupert Winters	Featherville
Big Lode	Middle Boise	Frank T. Wyman	Boise
Bird Gr.	Pine Grove	Mrs. Alice M. Reecy	Mountain Home
Black Diamond	Bear Creek	Clara R. Brassch	Mountain Home
Black Ribbon	Bear Creek	E. C. Helfrich	Mountain Home
Black Warrior	Bear Creek	C. H. Allison	Beverly Hills, Cal.
Bobolink et al.	Bear Creek	Walter Walsh	Rocky Bar
Boise Bar	Middle Boise	Thomas Walker	Atlanta
Boise-Rochester	Middle Boise	Jas. W. Stewart	Atlanta
Bonanza et al.	Bear Creek	Chas. Wyatt	Rocky Bar
Bonaparte Gr.	Bear Creek	Rupert Winters	Featherville
Bonnie Annie Gr.	Pine Grove	B. F. Skelton	Pine
Bowerman	Volcano	M. R. Wood	606 Marion St., Seattle, Wash.
Brooklyn et al.	Bear Creek	V. O. Neiswander	Rocky Bar
Cabin Claim	Middle Boise	Chester W. Rose	Glenns Ferry
Capital et al.	Middle Boise	John Bell	Atlanta
Cock Robin et al.	Bear Creek	Walter Walsh	Rocky Bar
Colorado et al.	Bear Creek	Francis M. Nixon	Rocky Bar
Cornucopia et al.	Neal	John Hermo	427 Thatcher St., Boise
Cubin Flat et al.	Featherville	R. E. Reid	Featherville

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Debs Gr.	Bear Creek	J. C. Edwards	Rocky Bar
Doolittle Gr.	Bear Creek	Elmer C. Towne	Rocky Bar
Edna et al.	Bear Creek	E. C. Helfrich	Mountain Home
Eureka	Twin Springs	W. L. West	Twin Springs
Evelyn	Bear Creek	Marion House	Mountain Home
Feather River	Featherville	R. E. Reid	Featherville
Flagstaff et al.	Bear Creek	Francis M. Nixon	Rocky Bar
Forest King et al.	Bear Creek	Mrs. E. Tregonning	Box 893, Boise
Fourth of July	Middle Boise	Grant Wilson	Atlanta
Gold Bug et al.	Bear Creek	Chas. Wyatt	Rocky Bar
Gold Eagle	Neal	C. C. Anderson	Boise
Gold Gate No. 2	Bear Creek	Irving Brooks	Rocky Bar
Gold Hill et al.	Featherville	R. E. Reid	Featherville
Gold Key	Bear Creek	Ah Sing	Rocky Bar
Gold King Gr.	Middle Boise	Harry Teskey	Atlanta
Granby et al.	Middle Boise	G. L. Bixby	Atlanta
Gray Warrior et al.	Middle Boise	P. M. Swan	Atlanta
Greenback	Middle Boise	J. C. Birdwell	Atlanta
Gunny Sack Gr.	Middle Boise	John Timmons	Atlanta
Hazel Queen	Middle Boise	L. N. Franke	Atlanta
Hjordis et al.	Neal	Chas. A. Nelson	R. F. D. 4, Boise
Humming Bird	Middle Boise	Jas. A. Comer	Atlanta
Jericho Gr.	Middle Boise	Fritz Scholl	Atlanta
Kierman Gr.	Bear Creek	Dan Kirby	Boise
Keystone et al.	Featherville	E. N. Stone	Featherville
Kitty Hicks	Neal	J. F. Wilson	Mayfield
Last Chance	Pine Grove	Chas. V. Price	Pine
Last Chance et al.	Middle Boise	Frank E. Erickson	Atlanta
Last Chance	Twin Springs	Cyrus H. Pickens	Twin Springs
Little Joker Pl.	Featherville	Asa J. Durant	Featherville
Middle Boise et al.	Black Warrior	Max Mayfield	Boise
Middle Boise Lode	Middle Boise	Thomas Walker	Atlanta
Midnight Pl.	Snake River	H. S. Olson	Glenns Ferry
Minnehaha Pl.	Bear Creek	Frank Galbraith	Rocky Bar
Monarch	Middle Boise	Dan Kirby	913 Hays St., Boise
Montezuma Pl.	Middle Boise	Dick Miller	Atlanta
Mountain Boy	Neal	C. M. Williams	Mayfield
Mountain View	Featherville	E. N. Stone	Featherville
Mountain View	Pine Grove	Fred Skelton	Pine
New Century	Middle Boise	Henry Button	Atlanta
Northwestern	Bear Creek	W. N. Nixon	Rocky Bar
Old Oliver Diggins	Middle Boise	A. S. Longwill	Atlanta
Ontario	Bear Creek	Mary A. Lison	Boise
Ophir	Bear Creek	Elmer C. Towne	Rocky Bar
Overland et al.	Bear Creek	S. Howard	Pine
Owens Gr.	Pine Grove	Thos. Potter	Pine
Piney Gr.	Middle Boise	J. C. Birdwell	Atlanta
Pittsburgh Gr.	Bear Creek	Mrs. Emily Frew	Pittsburgh, Pa.
Queen River Pl.	Middle Boise	Fred Felix	Atlanta
Red Warrior	Bear Creek	Frank Pon	Rocky Bar
Republic et al.	Neal	C. M. Williams	Mayfield
Rosetta Gr.	Bear Creek	I. W. Tucker	Rocky Bar
Silver Horde	Middle Boise	W. T. Burnett	Atlanta
Silver Star Gr.	Pine Grove	May Larson	Pine
Silver Tide et al.	Middle Boise	Frank L. Erickson	Atlanta
Sunrise	Twin Springs	John Vaughn	Twin Springs
Sunrise Gr.	Bear Creek	Wm. H. Stowell	Spokane, Wash.
Sunshine et al.	Bear Creek	E. C. Helfrich	Mountain Home
Sunny Side	Pine Grove	Monroe E. Shraft	Pine

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Tahoma No. 3	Middle Boise	W. P. Richards	Boise
Tekla et al.	Featherville	Paul V. Lambrix	Featherville
Trinity Gr.	Featherville	Sara S. Durant	Featherville
Tumble Bug	Bear Creek	Walter Walsh	Rocky Bar
Uncle Ben	Bear Creek	B. J. Nordyke	Featherville
Uncle Sam Gr.	Pine Grove	May Larson	Pine
Verdun Gr.	Pine Grove	W. R. Deckard	Pine
Vibrator Gr.	Bear Creek	Elmer C. Towne	Rocky Bar
White Bird et al.	Bear Creek	A. L. Reardon	Rocky Bar
Wide West	Bear Creek	John J. Allen	109 Montague St., Brooklyn, N. Y.
Wonder	Pine Grove	Lou Roberts	Pine
Yuba Gold Chest	Middle Boise	C. W. Joy	Emmett

BIBLIOGRAPHY

See pages 11-12 for publisher's address, meaning of reference marks, and abbreviations.

Atlanta district, by J. E. Clayton: Trans. Am. Inst. Min. Eng., vol. 5, pp. 468-473, February, **1887.**§

A geological reconnaissance across Idaho, by G. H. Eldridge: U. S. Geol. Survey, Sixteenth Ann. Rept., pt. 2, pp. 217-276, **1895.***

The Atlanta lode, Idaho, by J. B. Hastings: Eng. and Min. Jour., vol. 59, p. 128, Feb. 9, **1895.**§

Mining districts of the Idaho Basin and the Boise Ridge, Idaho, by Waldemar Lindgren: U. S. Geol. Survey, Eighteenth Ann. Rept., pt. 3, pp. 625-736, **1898.***

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey, Twentieth Ann. Rept., pt. 3, pp. 75-256, **1900.***

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Geology of southwestern Idaho, and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Bull. 217, **1903.**‡

Atlanta gold district, by R. N. Bell: Eng. and Min. Jour., vol. 86, pp. 176-177, July 25, **1908.**§

Rich gold ore found in Idaho, by R. N. Bell: Eng. and Min. Jour., vol. 102, pp. 783-785, Oct. 28, **1916.**§

Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 60, art. 3, pp. 1-33, **1921.**‡

A preliminary reconnaissance of the gas and oil possibilities of southwestern and south-central Idaho, by J. P. Buwalda: Idaho Bureau of Mines and Geology Pamphlet 5, **1923.****

Molybdenite in the Rocky Bar district, Idaho, by F. C. Schrader: U. S. Geol. Survey Bull. 750, pp. 87-99, **1924.**‡

Ground water for irrigation on Camas Prairie, Camas and Elmore counties, Idaho, by A. M. Piper: Idaho Bureau of Mines and Geology Pamphlet 15, **1926.****

FREMONT COUNTY

Coal, phosphate rock, oil shale, and asbestos occur in different sections of this county. The occurrence of coal in commercial quantities in the northeastern corner of the county has been reported, but these deposits are too far removed from transportation to be available. The other deposits have never been sufficiently developed to prove their extent.

BIBLIOGRAPHY

See pages 11-12 for publisher's address, meaning of reference marks, and abbreviations.

Fifth, Sixth and Eleventh Ann. Repts., U. S. Geol. and Geog. Survey of the Territories, by F. V. Hayden, **1871, 1873,** and **1879.***

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Guidebook of the western United States, by W. T. Lee and others: U. S. Geol. Survey Bull. 612, pp. 114-147, **1915.**‡

Coal in eastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 716, pp. 123-153, **1920.**‡

Oil shale in western Montana, southeastern Idaho and adjacent parts of Wyoming and Utah, by D. D. Condit: U. S. Geol. Survey Bull. 711, pp. 15-40, **1920.**‡

Geology and water resources of the Mud Lake basin, Idaho, by H. T. Stearns and L. L. Bryan: U. S. Geol. Survey Water-Supply Paper 560-D, **1925.**‡

A geologic reconnaissance of Clark and Jefferson, and parts of Butte, Custer, Fremont, Lemhi and Madison counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 19, **1927.****

GEM COUNTY

Gem is one of the smallest counties in area in the State, but one of the largest in population per square mile. Its area is 567 square miles, and the 1920 census credited it with a population of 6427, or 11.3 persons per square mile. The chief industries are fruit growing, farming, and livestock. It is particularly noted for its fruit farming, which is confined to the valley of the Payette River, which flows westerly through the southern end of the county.

It is one of the southwestern counties, being bounded by Ada, Canyon, Payette, Washington, Adams, Valley, and Boise counties. The drainage basin of Squaw Creek and twenty-five miles of the Payette River valley make up the larger part of its area. Emmett, the county seat and only settlement of importance, is near the center of the southern part of the county.

The county is served by a good system of locally maintained roads and by the Nampa-McCall and Payette-Emmett branches of the O. S. L. Railroad.

The Pearl district, once a famous gold-producing camp, and a few undeveloped sections where a small amount of prospecting has been done, are the only mineralized areas in the county. The principal minerals occurring in these districts are gold, silver, lead, zinc, copper, and arsenic. Gold predominates, and occurs in a free-milling quartz and combined with the sulphides of lead, zinc, and iron. The deposits containing the complex sulphide ore are of commercial importance and have not been mined, as transportation and the metallurgical methods in use at the time the Pearl district was active prevented profitable operations. The sulphide ores are amenable to modern flotation methods, and, as there is a large tonnage in many of the old mines that are lying dormant, they will again become profitable operations when properly equipped, financed, and managed.

During the year much publicity was given to the possibility of finding petroleum in this county. A preliminary investigation of conditions was made by geologists of the Idaho Bureau of Mines and Geology in 1926. These men collected a large amount of fossil material, which was examined by the U. S. Geological Survey. The Bureau summarized its findings with: "* * * It

appears that the hoped-for evidence of marine strata, with which oil throughout the world is associated, has not yet been found."

The Lincoln Mine Operating Co., which acquired the old Lincoln mine in 1926 and commenced its rehabilitation, was active throughout the year. The reconstruction of the mill was completed and a few tons of high-grade concentrate were marketed, the ore being derived from the upper part of the vein through a small secondary shaft. After the removal of this ore, mining operations were suspended and work was started on reopening the main shaft.

FELIX MINING CO.

Office: Boise. **Officers:** T. J. Jones, Pres.-Mgr., Boise. **Inc.:** July 25, 1917. **Capital:** 500 shares; par value $10; all shares issued. **Property:** Felix group; 5 patented claims, West View dist.; Pearl.

LINCOLN MINE OPERATING CO.

Office: Pearl. **Officers:** Wm. I. Phillips, Pres., Miami, Fla.; M. W. Hallam, Sec.; F. C. Mitchell, Mgr., both of Pearl. **Inc.:** May 20, 1926. **Capital:** 1,000,000 shares; par value 25c; all shares issued. **Property:** Lincoln group; 3 patented, 5 unpatented claims, held under lease and option from Alexander Lewis, 115 Broadway, New York. West View dist.; Pearl. **Development:** By 2 vertical shafts, one of which is 540 ft. deep; total development, approximately 8000 ft. **Plant:** MINE: 2 electrically-driven hoists, complete mining equipment. MILL: 100-ton concentrator, including flotation. **Ore:** Gold-silver-lead. **Men employed:** Average, 20. **Remarks:** This company, which acquired the old Lincoln mine in 1926 and commenced its rehabilitation, was active throughout the year. The reconstruction of the mill was completed and a few tons of high-grade concentrate were marketed, the ore being derived from the upper part of the vein through a small secondary shaft. After the removal of this ore, mining operations were suspended and work was started on reopening the main shaft.

YELLOW GOLD PLACER CO.

Office: Mountain Home. **Officers:** Ernest Tacho, Pres.; Hilla M. Tacho, Sec.; Edward N. Crawford, Mgr., all of Mountain Home. **Inc.:** May 16, 1927. **Capital:** 500,000 shares; par value $1; 250,015 shares issued. **Property:** Lease on 320 acres of farm land, West View dist.; Pearl.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Apache	West View	Jas. H. Hawley	Boise
Burton Bell	West View	John Ackley	Boise
Double Eagle Gr.	West View	Mrs. C. N. Boone	Box 1177, Boise
I X L	West View	H. W. Dorman	Boise
North Basque	West View	J. C. Dunbar	Pearl
Virginia Mines	West View	G. L. Loope	Seattle, Wash.

BIBLIOGRAPHY

See pages 11-12 for publisher's address, meaning of reference marks, and abbreviations.

Description of the Boise quadrangle, by Waldemar Lindgren: U. S. Geol. Survey Geol. Atlas, Folio No. 45, **1898.***

Mining districts of the Idaho Basin and the Boise Ridge, Idaho, by Waldemar Lindgren: U. S. Geol. Survey, Eighteenth Ann. Rept., pt. 3, pp. 625-736, **1898.***

The gold and silver veins of Silver City, De Lamar and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey, Twentieth Ann. Rept., pt. 3, pp. 75-256, **1900.***

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Description of the Nampa quadrangle, by Waldemar Lindgren and N. F. Drake: U. S. Geol. Survey Geol. Atlas, Folio No. 103, **1914.***

A preliminary reconnaissance of the gas and oil possibilities of southwestern and south-central Idaho, by J. P. Buwalda: Idaho Bureau of Mines and Geology Pamphlet 5, **1923.***

GOODING COUNTY

Placer gold, which is found in the gravel bars and sand along the Snake River, constitutes the only mineral resource of this county. These deposits are worked in a limited manner, and generally return the operator a fair profit on his labor.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Big Body Placer	Snake River	John Criswell	Clear Lake
Black Butte Placer	Snake River	A. S. Madalena	Clear Lake
Boulder Hill Placer	Snake River	Charles N. Ingersoll	Bliss
Brown Placer	Snake River	C. E. Jenkins	Hagerman
----------Pl.	Snake River	H. C. Bryant	Hagerman
----------Pl.	Snake River	Hand & Seburn	Hagerman
Zeolite Gr.	Unorganized	Geo. H. Chaffin	Gooding

BIBLIOGRAPHY

See Snake River Gold under General Bibliography.

IDAHO COUNTY

This county occupies a vast region about midway between the northern and southern boundaries of the State, extending from Montana, on the east, to Oregon, on the west. It is bounded on the north by Nez Perce, Lewis, and Clearwater counties, on the east by the State of Montana, on the south by Lemhi, Valley, and Adams counties, and on the west by the State of Oregon. It contains 8539 square miles, or an area which is larger than the combined areas of the States of Rhode Island, Delaware, and Connecticut. The 1920 census accredited it with a population of 11,749, or 1.4 persons to the square mile. The larger part of the population is located on Camas Prairie, a table-land of about 400 square miles. The chief industries are farming, principally wheat, for which Camas Prairie is famous; stockraising, and mining.

The western part of the county is served by the North and South State Highway, which extends from the southern to the northern boundary, and by the Elk City and Lewis & Clark highways, which are partly constructed. Its railroads are the Lewiston-Stites branch of the Northern Pacific Railroad, and the Lewiston-Grangeville branch, which is owned jointly by the Union Pacific and Northern Pacific railroads. Both these railroads serve Camas Prairie, or the northwestern part of the county. Grangeville is the largest town and county seat.

Idaho County is the largest in the State in area, and one of the greatest in diversity of mineral resources and mining opportunities. The principal metals and minerals which occur in sufficient extent to be of commercial importance are gold—placer and lode—silver, copper, lead, zinc, antimony, tungsten, asbestos, molybdenum, talc, and mica.

During the early days of Idaho this county was one of the largest gold-producing districts in the United States, and at the present time it offers more possibilities for profitable gold mining than any other section. Many of the millions produced during those days were won from placer deposits which occur in practically all the 17 mining districts within the county. Excepting the flat land and river bottoms, which are suitable for dredging, and which fully justify investigation, practically all the placer mines are exhausted.

The greatest handicap which the county is compelled to undergo is the lack of transportation, and under present road conditions only the highest grade free-milling ores can be successfully handled. Railroads into the various mining districts are a far removed possibility; however, a good automobile or motor truck road would serve to open many of the districts which are now dormant.

Much of the ore is a free-milling gold, and if not, a high-grade concentrate can be made which will permit a long haul. The latter statement applies particularly to the ores of the Ten Mile, Orogrande, Elk City, Buffalo Hump, and Dixie districts. The highway from Harpster to Elk City up the South Fork of the Clearwater River will make all these districts accessible by a water grade road, and their development will soon follow. This highway is one of the most meritorious projects in the State, and everyone interested in mining in these districts is looking forward to its early completion. In July, 1926, the prospectors and companies holding unpatented claims in the Elk City, Orogrande, Dixie, and Buffalo Hump districts voted to do their annual labor on this road. As a result of their faith in these districts, over six miles of road and a bridge crossing the Red River were constructed on the Elk City end during 1926 and 1927. The lower end of the road was extended a distance of six miles, and a further extension of eight miles during 1928 was provided for by the Forest Service in its allotment of expenditures for that year.

The gradual return to a more normal condition, under which gold mining is again becoming profitable, was reflected in this county during the year by a small, though substantial, increase in mining operations, investigations, and new enterprises. The most important of these was an investigation of the so-called dikes—low-grade free-milling gold ore—in the Elk City district by two large mining organizations. These investigations extended over a period of 60 days, and it was reported that the properties examined were favorably recommended.

The Empire Metals Co., owning 27 claims, built about four miles of road, constructed new cabins, installed a laboratory, and drove about 2000 feet of open cuts and tunnels. Seven other companies that are holding large acreages on the "dike zones" performed the necessary annual labor.

Mining in the Ten Mile district witnessed a decided impetus during 1927, in anticipation of the completion of the Elk City highway to Huston's in 1928, which will give an outlet to the mines in this district. Four new companies were organized and commenced operations; a large number of new claims were located; more work was performed; and the influx of prospectors and others was sufficient to justify the re-establishment of the post-office at Golden and the mail route into it. The principal new companies and operations were: The Buffalo-Idaho Mining Co. at the Mackey group, where a new gas-driven compressor was installed and active development work started; the Golden Mining & Power Co., whose property was optioned late in the year and work started; Miller & Sons, at the Yellow Pine group, who conducted work throughout the year which resulted in the development of some high-grade ore; and the optioning of the Pioneer Hill group at Newsome, owned by Timin and Braig, to Seattle, Washington, interests; A. S. Johnson at the Franklin mine; F. O. Muller of Clarkston, Washington, at the Lone Pine group; the Sphinx Gold Mining Co.; and William Huntley of Spokane, Washington, at the New York mine, were active throughout the year; Huntley's activities included milling operations.

Prospecting and development work in the Orogrande district exceeded that of 1926. Drilling operations to test the placer deposits on Crooked River were started, and one company conducted a small amount of hydraulicking. Discovery of new veins containing high gold values was reported by Frank Peck, a prospector, and by the Una Mine Co.

In the Dixie district the Mammoth Mine Corporation resumed operations with a small crew; Henry S. Hazlitt at the Pacific group operated his mill for a few weeks; and a new discovery by George L. Esh and associates caused considerable attention to be directed toward the district.

The American Eagle mine, owned by the Homestake Gold Mining Co., was operated for a few months by lessees; and the discovery of lead-silver ore in Success Gulch was reported. Some work was done also at the Black Pine group. These properties are all in the Elk City district.

The Florence district was more active than at any time in the past few years. There was an increase in company operations, as well as in prospecting, and one new discovery was reported.

The Garner Electric Range Co. was a new entry into the county. This company is interested in the development of the talc deposits on Little Salmon River near Riggins. Two grades of talc were being developed: The massive, which is carved into various shapes for use in electrical appliances; and the powdered variety.

The Warren district witnessed but little new work during the year, although it was reported that the Unity Gold Mines Co. at Warren, which was idle throughout 1926, resumed operations.

The Marshall Lake district was a little more active than in 1926. Two companies, whose organization is unknown, and the Old Kentuck Mining & Milling Co., a new company, conducted prospecting operations during the summer months. The Holte Mining Co. performed a little maintenance work in addition to the annual labor requirements.

Several placer mines in the Simpson district along the Salmon River, near Lucile and Riggins, were the scene of active operations and of small plant installations. The funds for this work were derived from active stock-selling campaigns. The Irbis Placer Co. constructed a 200-horsepower hydroelectric plant and new camp buildings, and installed power-driven pumps for hydraulicking; the Ruby-Gold Development Co. constructed a small gas-driven concentrating mill, designed to recover the "black sands" contained in its gravel deposit.

ABBA CORPORATION

Office: 128 Broadway, New York City. **Officers:** Henry W. Allen, Pres.; Charles H. Suhl, Sec., both of New York City. **Inc.:** Mar. 6, 1926. **Capital:** 50,000 shares; par value $1; 45,750 shares issued. **Property:** 4 patented claims, Warren dist.; Warren. **Ore:** Silver.

ALTA-IDAHO GOLD & COPPER MINING CO.

Officers: M. C. Hetler, Pres., Berwick, Pa.; James H. Fine, Sec., Cassadaga, Fla.; Geo. M. Snyder, Mgr., Pardee. **Inc.:** Filed in Idaho, June 17, 1903. **Capital:** 1,000,000 shares; par value $1; 758,000 shares issued. **Property:** Empire group; 11 unpatented claims, on South Fork of Clearwater River, Lolo dist.; Pardee. **Development:** Approximately 450 ft. of underground workings, the principal of which is 1 tunnel 250 ft. long. **Ore:** Gold-silver-copper. **Men employed:** 1 watchman.

BADGER MOUNTAIN MINING CO.

Office: Grangeville. **Officers:** Markus Lies, Pres., Cottonwood; Will C. Jones, Sec., Route 3, Seattle, Wash. **Inc.:** Feb. 13, 1925. **Capital:** 10,000,000 shares; par value 1c; 108,800 shares issued. **Property:** 2 patented, 7 unpatented claims, held under lease and option from Homestake Gold Mining Co.; Orogrande dist.; Orogrande. **Development:** By 3 tunnels, the longest of which is 460 ft. **Ore:** Gold.

BLACKTAIL MINING CO.

Office: 1517 E. 9th Ave., Spokane, Wash. **Officers:** R. E. Wakeley, Pres.-Mgr.; N. L. Wakeley, Sec., both of Spokane. **Inc.:** Dec. 3, 1914. **Capital:** 200,000 shares; par value $1; 121,920 shares issued. **Property:** 10 unpatented claims, Harpster dist.; Harpster. **Development:** By 2 tunnels: No. 1, 370 ft. long; No. 2, 70 ft. long. **Ore:** Gold. **Remarks:** Annual labor only.

BLUE RIBBON MINE

Owner: A. W. Boyd, Agent. **Property:** Blue Ribbon group; 5 unpatented claims, Elk City dist.; Elk City. **Development:** 1 tunnel about 400 ft. long; 1 shaft 100 ft. deep. **Ore:** Gold-silver. **Remarks:** One of the principal prospects in the Elk City district in which a large tonnage of ore has been developed.

BUFFALO-IDAHO MINING CO.

Office: 264 Jersey St., Buffalo, N. Y. **Officers:** Ray R. Becker, Sec., 372 Pearl St., Buffalo, N. Y.; Joseph A. Fields, Mgr., Newsome. **Inc.:** Nov. 7, 1927. **Capital:** 250,000 shares; par value $1; 75,000 shares issued. **Property:** Mackey group; 8 unpatented claims, Ten Mile dist.; Golden. **Development:** By 2 tunnels: No. 1, 273 ft.; No. 2, 320 ft. **Ore:** Gold. **Remarks:** After incorporation, this company installed a gas-driven compressor and complete mining equipment and started work on developing the property.

CLEARWATER MINING CO.

Office: Elk City. **Officers:** Wm. Hogan, Pres.-Mgr., Elk City; Lucy Schafer, Sec., New York City. **Inc.:** May 18, 1925. **Capital:** 10,000 shares; par value $10; all shares issued. **Property:** Clearwater group; 42 unpatented claims, Elk City and Orogrande dist.; Elk City. **Development:** Approximately 7000 ft. of short open cuts and tunnels. **Ore:** Gold. **Men employed:** Average, 6. **Remarks:** Annual labor only.

COMMODORE GOLD MINING CO.

Office: Lewiston. **Officers:** Wm. C. McNutt, Pres.-Mgr.; M. R. Morgan, Sec., both of Lewiston. **Inc.:** Mar. 28, 1921. **Capital:** 1,000,000 shares; par value $1; 241,515 shares issued. **Property:** Commodore group; 38 unpatented claims, at junction of Crooked River and South Fork of Clearwater River, Orogrande dist.; Elk City. **Development:** By 10 short tunnels, totaling approximately 500 ft., and 253 discovery pits. **Ore:** Gold. **Remarks:** Annual labor only.

CROOKS CORRAL MINES, LTD.

Office: Grangeville. **Officers:** Frank McGrane, Pres.; A. F. Parker, Sec., both of Grangeville. **Inc.:** Sept. 13, 1897. **Capital:** 1,000,000 shares; par value $1; 990,000 shares issued. **Property:** 8 patented placer claims, Crooks Corral dist.; Lucile.

EMPIRE METALS CO.

Office: Elk City. **Officers:** Wm. Hogan, Pres.-Mgr.; Carl Vermillion, Sec., both of Elk City. **Inc.:** Jan. 20, 1927. **Capital:** 999,000 shares; par value 50c; all shares issued. **Property:** 27 unpatented claims, Orogrande dist.; Orogrande. **Development:** By 10 open cuts and tunnels. **Ore:** Gold. **Men employed:** Average, 10. **Remarks:** During the year about 4 miles of new road and new cabins were constructed, a laboratory installed, and about 2000 ft. of open cuts and tunnels driven.

ERICKSON RIDGE DEVELOPMENT CO., INC.

Office: Elk City. **Officers:** Wm. Hogan, Pres.-Mgr., Elk City. **Inc.:** Aug. 25, 1926. **Capital:** 200,000 shares; par value $10; all shares issued. **Property:** Erickson Ridge group; 30 unpatented claims, Elk City dist.; Elk City. **Development:** Approximately 1500 ft. of short tunnels and open cuts. **Ore:** Gold. **Men employed:** Average, 3. **Remarks:** Annual labor only.

ESPERANZA GOLD DIKES MINING CORPORATION

Office: 802 Gasco Bldg., Portland, Ore. **Officers:** Edward M. Griffith, Pres., Grangeville; C. W. Twining, Sec., Portland, Ore. **Inc.:** Sept. 14, 1925. **Capital:** 1,000,000 shares; par value 25c; all shares issued. **Property:** Champion group; 18 patented claims, Orogrande dist.; Orogrande. **Development:** Approximately 4000 ft. of old workings. **Ore:** Gold.

GARNER ELECTRIC RANGE CO.

Office: P. O. Box 1166, Kellogg. **Officers:** W. C. Garner, Pres.; Sheldon C. Cox, Sec., both of Kellogg. **Inc.:** An association. **Capital:** 1,000,000 shares; par value $1; 450,530 shares issued. **Property:** 80 acres patented farm land near Pollock, held under lease and option; Riggins. **Mineral sought:** Talc. **Men employed:** Average, 4. **Remarks:** During the year this company actively developed a talc deposit near Riggins, on the Little Salmon River.

GOLDEN MINING & POWER CO.

Office: Golden. **Officers:** A. Marcuson, Pres.; R. B. Harris, Sec., both of Golden. **Inc.:** Nov. 12, 1926. **Capital:** 100,000 shares; par value $1; 52,250 shares issued. **Property:** French Pete group; 6 unpatented claims, Ten Mile dist.; Golden. **Development:** By 2 tunnels: No. 1, 300 ft.; No. 2, 1610

ft. **Plant:** Partly installed small stamp-mill. **Ore:** Gold. **Men employed:** Average, 5. **Remarks:** Small amount of repair and development work during the year.

GOLD ZONE MINING & MILLING CO., LTD.

Office: Grangeville. **Officers:** W. W. Brown, Pres.; Frank van Deventer, Sec., both of Grangeville; J. J. Schoner, Mgr., Elk City. **Inc.:** Sept. 9, 1919. **Capital:** 1,000,000 shares; par value 5c; 700,000 shares issued. **Property:** Gold Zone group; 3 unpatented claims, Elk City dist.; Elk City. **Ore:** Gold. **Remarks:** Annual labor only.

GOODENOUGH UNITED MINING & MILLING CO., LTD.

Office: Payette. **Officers:** L. I. Purcell, Pres.-Mgr., Payette; Tim Barton, Sec., Weiser. **Inc.:** Nov. 1, 1905. **Capital:** 1,000,000 shares; par value 25c; 535,560 shares issued. **Property:** Goodenough group; 10 patented claims, Marshall Lake dist.; Burgdorf. **Remarks:** Idle for many years.

HOLTE MINING CO.

Office: 112 N. 6th St., Boise. **Officers:** Leif T. Holte, Pres.-Mgr., Burgdorf; C. H. Nixon, Sec., Boise. **Inc.:** Jan. 12, 1920. **Capital:** 2,500,000 shares; par value $1; 1,000,000 shares issued. **Property:** Holte group, 22 unpatented claims, Marshall Lake dist.; Burgdorf. **Development:** Approximately 3200 ft. of underground workings, the principal of which are 4 tunnels: No. 1, 400 ft. long; No. 2, 1860 ft. long; No. 3, 600 ft. long; No. 4, 400 ft. long; 1 vertical shaft 150 ft. deep. **Plant:** MINE: Steam-driven compressor, complete mining equipment, sawmill, assay office and complete camp. MILL: 50-ton steam-driven Lane Chilean mill; cyanide plant. **Ore:** Gold. **Men employed:** Average, 3. **Remarks:** The principal tunnel was extended 40 ft. and roads and camp were repaired during the year.

HOMESTAKE GOLD MINING CO.

Office: 345 Peyton Blk., Spokane, Wash. **Officers:** Markus Lies, Pres., Cottonwood; W. Hubert Jones, Sec., Spokane, Wash.; Will C. Jones, Mgr., Seattle, Wash. **Inc.:** Jan. 7, 1919. **Capital:** 250,000 shares; par value $1; 247,000 shares issued. **Property:** American Eagle group; 26 patented, 6 unpatented claims, Elk City dist.; Elk City. **Development:** By 4 tunnels: No. 1, 345 ft.; No. 2, 1500 ft.; No. 3, 307 ft.; No. 4, 1157 ft.; and a vertical shaft 200 ft. deep. **Plant:** MINE: Steam-and-water-driven compressor; complete mining equipment and camp. MILL: Steam-driven 10-stamp mill with concentrating tables. **Ore:** Gold. **Men employed:** Average, 6. **Remarks:** The mill was repaired, and a small amount of mining and milling operations were conducted during the summer months by lessees.

IDAHO BUSTER MINING CO., LTD.

Office: 1022 Crocker Bldg., San Francisco, Cal. **Officers:** F. W. Bradley, Pres.; J. S. Wallace, Sec., both of San Francisco, Cal. **Inc.:** Dec. 9, 1908. **Capital:** 300,000 shares; par value $1; all shares issued. **Property:** Idaho Buster group; 4 patented claims, Elk City dist.; Elk City. **Remarks:** Idle since November, 1909.

IDAHO-COMSTOCK

Office: 803 Leary Bldg., Seattle, Wash. **Officers:** Thos. H. Minear, Pres.-Mgr., People's Store, Tacoma, Wash.; Chas. E. Shepard, Sec., 803 Leary Bldg., Seattle, Wash. **Inc.:** An association. **Capital:** 2,000,000 shares; no par value; all shares issued. **Property:** Idaho-Comstock group; 12 patented claims, Dixie dist.; Dixie. **Development:** By 3 tunnels: No. 1, 700 ft. long; No. 2, 200 ft. long; No. 3, 200 ft. long; 1 vertical shaft 140 ft. deep. **Ore:** Gold. **Remarks:** Idle.

IDAHO GOLD FIELD MINING CO.

Office: 601 Mohawk Bldg., Spokane, Wash. **Officers:** J. H. LeClaire, Pres., Los Angeles, Cal.; Irene Jones, Sec.; J. E. Long, Mgr., both of Spokane. **Inc.:** Oct. 10, 1924. **Capital:** 1,000,000 shares; par value $1; no shares issued. **Property:** 14 unpatented placer claims, Newsome dist.; Newsome. **Ore:** Placer gold. **Remarks:** A small amount of work was done during the summer months.

IDAHO & NEVADA MINING CO.
Office: 209 4th St., Portland, Ore. **Officers:** Richard Becker, Pres.; Norman W. Nute, Sec., both of Portland, Ore. **Inc.:** June 9, 1924. **Capital:** 5,000,000 shares; par value 5c; 2,244,620 shares issued. **Property:** Major group; 8 unpatented claims, Elk City dist.; Elk City. **Development:** 4 tunnels; 7 shafts. **Plant:** MINE: Steam-driven hoist. MILL: 10 stamps; steam-driven. **Ore:** Gold. **Remarks:** Annual labor only.

IRBIS PLACER CO.
Office: Grangeville. **Officers:** G. S. DeWolf, Pres.-Mgr., Grangeville; J. M. McIntire, Sec., Casper, Wyo. **Inc.:** Never filed in Idaho; form of organization unknown. **Capital:** 75,000 shares; par value $1; 50,000 shares issued. **Property:** Butcher Bar group; 6 unpatented claims, Simpson dist.; Lucile. **Ore:** Placer gold. **Men employed:** Average, 10. **Remarks:** A 200-h. p. hydroelectric plant and new camp buildings were constructed, and power-driven pumps for hydraulicking partly installed.

JUMBO MINING & MILLING CO., LTD.
Office: Lewiston. **Officers:** J. C. Jansen, Pres., Lewiston Orchards; W. E. Howard, Sec., 537 San Francisco St., Pomona, Cal. **Inc.:** Aug. 13, 1902. **Property:** Jumbo group; 5 patented claims, Robins dist.; Orogrande.

LUCKY FIVE MINING CO.
Office: P. O. Box 1182, Spokane, Wash. **Officers:** Jos. Clinkenbeard, Pres.; C. Clinkenbeard, Sec.-Mgr., both of Spokane. **Inc.:** Never filed in Idaho; form of organization unknown. **Capital:** 1,499,990 shares; par value 10c; 626,590 shares issued. **Property:** Relief Creek placers; 12 unpatented claims, Orogrande dist.; Orogrande. **Ore:** Placer gold. **Men employed:** Average, 2. **Remarks:** Small amount of ditch and flume repair work done during the year.

McKINLEY GOLD MINING CO.
Office: Kellogg. **Officers:** P. P. Weber, Pres.; A. H. Polson, Sec., both of Kellogg. **Inc.:** Dec. 29, 1899. **Capital:** 1,500,000 shares; par value $1; 932,793 shares issued. **Property:** McKinley group; 4 patented, 4 unpatented claims, Simpson dist.; Lucile. **Development:** 4 tunnels: No. 1, 145 ft. long; No. 2, 1020 ft. long. Total development, approximately 1300 ft. **Ore:** Gold. **Remarks:** Annual labor only.

MAMMOTH MINE CORPORATION
Office: Lewiston. **Officers:** R. S. Erb, Pres.; R. G. Bailey, Sec., both of Lewiston. **Inc.:** Feb. 25, 1925. **Capital:** 500,000 shares; par value $1; 277,130 shares issued. **Property:** Mammoth group; 6 unpatented claims, Dixie dist.; Dixie. **Development:** By 14 open cuts and 2 short tunnels. **Men employed:** Average, 2. **Ore:** Gold. **Remarks:** A small amount of work during the latter part of the year.

MONTE CRISTO MINING CO.
Office: Lewiston Bank Bldg., Lewiston. **Officers:** Fred Johnson, Pres.-Mgr., Troy; A. P. Hagglund, Sec., Lewiston. **Inc.:** Oct. 22, 1927. **Capital:** 200,000 shares; par value $1; 80,000 shares issued. **Property:** Monte Cristo group; 2 unpatented claims, Robins dist.; Waverly; 1 patented claim, Florence dist.

NORTH HILL MINING CO.
Office: 617 Hutton Bldg., Spokane. **Officers:** J. M. McLean, Pres.; Ralston McCaig, Sec., both of Spokane. **Inc.:** Apr. 18, 1925. **Capital:** 1,500,000 shares; par value 1c; 573,464 shares issued. **Property:** Summit Flat group; 5 unpatented claims, Orogrande dist.; Orogrande. **Development:** Principally by 1 tunnel, 1150 ft. long. **Plant:** Steam-driven Gardner-Ricks compressor and hoist; camp; complete mining equipment. **Ore:** Gold. **Men employed:** Average, 2. **Remarks:** This company is a reorganization of the Summit Flat Mining Co. A small amount of work was done during the summer months.

OLD KENTUCK MINING & MILLING CO.
Office: 106 Coeur d'Alene Ave., Coeur d'Alene. **Officers:** Harvey W. Peterson, Pres.-Mgr., Burgdorf; Reginald Mellor, Sec., Coeur d'Alene. **Inc.:** July 30, 1927. **Capital:** 1,500,000 shares; par value 10c; 757,200 shares

issued. **Property:** Old Kentuck group; 14 unpatented claims, Marshall Lake dist.; Burgdorf; held under lease and option from H. H. Hackett. **Development:** Principally by 1 tunnel 900 ft. long. **Plant:** Small gas-driven compressor; complete mining equipment and camp. **Ore:** Gold. **Men employed:** Average, 3. **Remarks:** Small amount of development work during the summer months.

OROGRANDE GOLD MINING CO.

Office: 218 Columbia Bldg., Spokane, Wash. **Officers:** J. N. Pickrell, Pres., Colfax, Wash.; J. E. Pickrell, Sec., Spokane, Wash. **Inc.:** March 14, 1919. **Capital:** 3,500,000 shares; par value $1; 1,800,000 shares issued. **Property:** Orogrande group; 5 patented, 32 unpatented claims, Orogrande dist.; Orogrande. **Development:** Approximately 6000 ft. of underground workings and 4000 ft. of surface cuts on all claims. **Plant:** Stamp mill with partly completed cyanide plant; water-driven. **Ore:** Gold. **Men employed:** 1 watchman. **Remarks:** Idle.

RAPID RIVER MINING & MILLING CO.

Office: Genesee. **Officers:** D. Scharnhorst, Pres.; J. G. Meyer, Sec.; A. F. Wolff, Director, all of Genesee. **Inc.:** July 14, 1910. **Capital:** 1,500,000 shares; par value $1; 341,529 shares issued. **Property:** 4 unpatented claims, Rapid River dist.; Pollock. **Development:** By 5 tunnels; total development approximately 1600 ft. **Plant:** Small water-driven compressor. **Ore:** Copper. **Men employed:** Average, 3. **Remarks:** Small amount of development work during the summer months, the funds for which were derived from stock assessments.

REVENUE MINING & MILLING CO.

Office: 511 Kuhn Blk., Spokane, Wash. **Officers:** J. E. McCormack, Pres.; Walter Guthridge, Sec.-Treas., both of 511 Kuhn Blk., Spokane, Wash. **Inc.:** April 10, 1912. **Capital:** 500,000 shares; par value $1; 391,693 shares issued. **Property:** Revenue group; 8 patented claims, Elk City dist.; Elk City. **Development:** 2 tunnels: No. 1, 700 ft. long; No. 2, 100 ft. long. **Remarks:** Idle.

RICE MINING & MILLING CO.

Officers: Geo. F. Carson, Pres.; E. P. Adkison, Sec., both of Lewiston. **Inc.:** Apr. 8, 1920. **Capital:** 1,000,000 shares; par value $1; 530,978 shares issued. **Property:** Mother Lode group; 9 unpatented claims, Orogrande dist.; Orogrande. **Development:** Approximately 1700 ft. of underground workings. **Remarks:** Annual labor only.

RUBY-GOLD DEVELOPMENT CO.

Office: Whitebird. **Officers:** W. M. Fredericks, Pres., Whitebird; L. L. Bassett, Sec., Washtucna, Wash.; J. M. Worton, Mgr., Whitebird. **Inc.:** Apr. 29, 1927. **Capital:** 250 shares; par value $100; 177 shares issued. **Property:** Hawk group; 5 unpatented placer claims, Simpson dist.; Lucile. **Plant:** Small gas-driven concentrating mill. **Ore:** Placer gold. **Men employed:** Average, 3. **Remarks:** A small concentrating mill, which is designed to recover the "black sands" found in the gravel deposits, was constructed during the year.

SALMON RIVER DEVELOPMENT CO.

Office: Whitebird. **Officers:** W. M. Fredericks, Pres., Whitebird; L. L. Bassett, Sec., Washtucna, Wash.; J. M. Worton, Mgr., Whitebird. **Inc.:** Sept. 10, 1927. **Capital:** 500,000 shares; par value $1; 9 shares issued. **Remarks:** The president of the company stated: "Company owns 1 claim outright through transfer of holdings of Ruby-Gold Development Co. to this company, and a contract to purchase the remaining 6 claims for $5000."

SLATE CREEK GOLD MINING CO.

Office: Whitebird. **Officers:** G. A. Thomson, Pres.; W. W. White, Sec., both of Whitebird. **Inc.:** Sept. 21, 1925. **Capital:** 600,000 shares; par value 50c; 30,250 shares issued. **Property:** Lease and option on 480 acres patented farm land, Simpson dist.; Lucile. **Development:** By 3 tunnels, with a total of approximately 600 ft. **Ore:** Gold. **Men employed:** Average, 4. **Remarks:** Active throughout the year.

SPHINX GOLD MINING CO.

Office: 832 Old National Bank Bldg., Spokane, Wash. **Officers:** Sam A. McCoy, Pres.-Mgr.; E. J. Johnson, Sec., both of Spokane, Wash. **Inc.:** May 3, 1923. **Capital:** 500,000 shares; par value $1; 425,000 shares issued. **Property:** Sphinx group; 5 unpatented claims, Ten Mile dist.; Newsome. **Ore:** Gold. **Remarks:** A small amount of development work was done during the summer months.

SPRING BARR PLACER CO.

Office: 210 Eiler Bldg., Spokane, Wash. **Officers:** N. L. Wakeley, Pres.; Geo. W. McCallum, Sec.; W. L. Wakeley, Mgr., all of Spokane, Wash. **Inc.:** May 14, 1927. **Capital:** 25,000 shares; par value $1; 15,000 shares issued. **Property:** Spring Barr group; 3 unpatented placer claims, Simpson dist.; Lucile. **Ore:** Placer gold.

STOWELL GOLD MINING CO.

Office: 218 Columbia Bldg., Spokane, Wash. **Officers:** Wm. H. Stowell, Pres.; Robert A. Koontz, Sec., both of Spokane. **Inc.:** Dec. 4, 1926. **Capital:** 5,000,000 shares; par value 15c; 2,500,000 shares issued. **Property:** South Fork group; 12 unpatented claims, Elk City dist.; Elk City. **Development:** Approximately 3500 ft. of underground workings, the principal of which are: No. 1 tunnel, 1200 ft. long; No. 2, 1050 ft. long; No. 3, 1000 ft. long. **Plant:** 5-stamp mill. **Ore:** Gold. **Rrmarks:** Annual labor only. This company is a reorganization of the South Fork Mining & Milling Co.

SYLVANITE GOLD-COPPER CO.

Office: 408 E. Bridgeport Ave., Spokane, Wash. **Officers:** Wesley L. Wakeley, Pres.-Mgr.; R. L. Alexander, Sec., both of Spokane, Wash. **Inc.:** Aug. 20, 1919. **Capital:** 100 shares; par value $100; all shares issued. **Property:** Maud Randall group; 5 unpatented claims, 2 of which are held under lease and bond from Joseph Himmelspack of Grangeville; Harpster dist.; Harpster. **Development:** By 2 tunnels: No. 1, 825 ft. long; No. 2, 80 ft. long. **Plant:** Gas-driven Gardner-Ricks 6x6 compressor; complete mining equipment. **Ore:** Copper. **Remarks:** Annual labor only.

TRI METALLIC MINING CO., LTD.

Office: Pardee, Idaho. **Officers:** Frieda M. Bethmann, Pres.; Miner Bethmann, Mgr., both of Pardee. **Inc.:** Sept. 26, 1917. **Capital:** 250,000 shares; par value $1; 144,649 shares issued. **Property:** Tri Metallic group; 5 unpatented claims, Lolo dist.; Pardee. **Development:** By 3 tunnels: No. 1, 520 ft.; No. 2, 185 ft.; No. 3, 950 ft. **Ore:** Gold-silver-copper. **Remarks:** Annual labor only.

UNA MINE CO.

Office: 617 Hutton Bldg., Spokane, Wash. **Officers:** J. M. McLean, Pres.; Ralston McCaig, Sec.-Mgr., both of Spokane. **Inc.:** Feb. 6, 1925. **Capital:** 1,250,000 shares; par value 1c; 850,000 shares issued. **Property:** Una group; 4 unpatented claims, Orogrande dist.; Orogrande. **Development:** By 1 tunnel, 1100 ft. long. **Ore:** Gold. **Men employed:** Average, 2. **Remarks:** Active work during the summer months in extending the principal tunnel. The secretary reported that this work resulted in exposing a good showing of new ore.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Alberta	Elk City	H. T. Thompson	Elk City
American Flag	Elk City	Pat Brennan	Elk City
Americanus	Marshall Lake	Ed Luzadder	Burgdorf
Americus	Cottonwood Buttes	J. W. Bartlett	Greencreek
Annie Laurie et al.	Florence	S. A. Deflong	Grangeville
Apex	Florence	Anderson & Seaberg	Florence
Arles	Warren	Kelley & Patterson	Warren
Bauer Gr.	Elk City	Frank Bauer	Elk City
Bengal	Elk City	Perry Bros.	Elk City

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Bevier Pl.	Florence	Wm. D. Bevier	Elk City
Big Buffalo	Robins	M. J. Sweeney	Spokane, Wash.
Big Four	Warren	Patterson Bros.	Warren
Black Bear	Cottonwood Buttes	L. J. Anderson	Woodland
Bluebird	Warren	Walter B. Martin	Warren
Blue Ribbon	Elk City	J. E. Brown	Elk City
B & M Mine	Elk City	John Montgomery	Elk City
Bolinski Gr.	Elk City	Len Bolinski	Elk City
Bonanza Pl.	Elk City	Frederick Gribi	1546 Toberman St., Los Angeles, Cal.
Bonanza Pl.	Simpson	Hart & Richardson	1078 Stratton St., Portland, Ore.
Brown Gr.	Warren	Frank H. Brown	Warren
Buck Diggins Pl.	Warren	John Becker	Warren
Buck Meadows Pl.	Unorganized	George Davis	Grangeville
Buster et al.	Dixie	Oscar Waller	Warren
Buttercup Gr.	Florence	Samuel Dunn	Grangeville
Cape Horn	Camp Howard	C. H. Lyons	Whitebird
Carson Pl.	Warren	Frank Carson	Warren
Carter Gr.	Elk City	Geo. M. Carter	Jackson, Mich.
Center Star	Elk City	Herman Brown	Elk City
Chicago et al.	Elk City	R. Greckwell	Elk City
Clearwater Gr.	Elk City	Geo. L. Esh	Elk City
Cleveland	Elk City	S. W. Smith	Palo Alto, Cal.
Coeur d'Alene	Ten Mile	Peter Proulix	Golden
Columbia	Elk City	John Massam	Elk City
Concord Gr.	Robins	Galen S. Stone	Boston, Mass.
Congress	Elk City	S. W. Smith	Palo Alto, Cal.
Cove Placers	Clearwater	M. B. Geary	Grangeville
Crescent Pl.	Orogrande	Geo. P. Kelley	Newsome
Crooked River Pl.	Elk City	George Brown	Orogrande
Dandy Pl.	Simpson	E. W. Butcher	Lucile
Davis Gr.	Ten Mile	J. G. Kowalski	Newsome
Deadwood	Elk City	Chas. Forman	Los Angeles, Cal.
Diamond Hitch	Orogrande	Orin Lamb Est.	Orogrande
Discovery	Maggie Creek	W. E. Smith	Los Angeles, Cal.
Eagle	Warren	Gus Kupper	Warren
El Toro Gr.	Newsome	L. A. Strong	Fontana, Cal.
Erickson Reef	Elk City	Wm. Hogan	Elk City
Evergreen Gr.	Harpster	Albert Kincaid	Grangeville
Fall Cr. Pl.	Marshall Lake	H. H. Hackett	McCall
Florence	Florence	A. R. Smith	Spokane, Wash.
Foss Gr.	Elk City	R. E. Foss	Elk City
Fourth of July	Dixie	Thomas Pritchard	Dixie
Franklin	Ten Mile	A. S. Johnson	Golden
Free Gold	Dixie	Geo. L. Esh	Dixie
Frisco Gr.	Elk City	E. J. Comley	Elk City
Gem & Midnight	Elk City	Thomas McArthur	Elk City
Gilt Edge	Ten Mile	Frank Osgood	Seattle, Wash.
Gold Dollar	Warren	M. W. Hubbard	New Meadows
Gold Dove	Elk City	Pat Brennan	Elk City
Gold Drop	Elk City	Geo. W. Widemeyer	Elk City
Gold King	Orogrande	Geo. Peterson	Newsome
Golden Brown	Crooks Corral	Revillo Johnson	Lucile
Golden Placer	Ten Mile	Edward Timm	Golden
Golden Rule	Maggie Creek	O. W. Montgomery	Kooskia
Golden Rule Pl.	Elk City	Chas. Tiedeman	Elk City
Golden Rule Pl.	Maggie Creek	A. E. Davis	Kooskia
Golden Rule Pl.	Warren	A. L. Freehafer	Payette

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Golden Scale et al.	Elk City	Wm. C. McNutt	Elk City
Grangeville	Elk City	Joe Schoner	Elk City
Great Nugget Pl.	Simpson	Hart & Richardson	Lucile
Grey Pallor	Warren	W. T. Copenhaver	Warren
Gunboat Pl.	Dixie	R. Burke	Dixie
Haig & Haig	Orogrande	R. McGregor	Elk City
Hawkeye	Warren	J. T. Murphy	Warren
Headlight	Newsome	J. E. Davis	Newsome
Hecla	Elk City	C. E. Skoglar	Elk City
Hercules	Elk City	Alex Hendrie	125 Kent St., Hamilton, Ont.
Homestake Gr.	Orogrande	A. W. Boyd	Elk City
Hope Gr.	Elk City	Schuyler Simmons	Elk City
Iola	Orogrande	James H. Colgrave	Spokane, Wash.
James Moore	Dixie	James Moore	Dixie
Jim Crow Pl.	Simpson	Jacob Cassett	Lucile
Jumbo	Robins	A. F. Schultz	Lewiston
Jupiter Gr.	Marshall Lake	Chris Arnold et al.	Burgdorf
Keystone	Warren	Anthony Mohr	Warren
Keystone Gr.	Orogrande	Edw. Hansen	Orogrande
Kimberley & Jewel	Marshall Lake	D. L. Roy	Burgdorf
Klondyke	Camp Howard	George J. Burgund	Cottonwood
Knott & Delaware	Warren	James Long	Warren
Kramer Pl.	Simpson	Marion Kramer	Lucile
Last Chance	Elk City	James P. Larson	Elk City
Last Chance	Florence	John Lamont	Grangeville
Laurel Hill	Elk City	P. S. Prichard	Elk City
Liberty	Elk City	Wm. A. Copland	Elk City
Liberty Bell et al.	Robins	E. M. Griffith	Grangeville
Lick Creek Pl.	Elk City	Wm. Finley	Elk City
Lime Point	Simpson	Marion Kramer	Lucile
Little Leggat	Orogrande	Simpson & Overman	Newsome
L. & L.	Dixie	Louis Larson	Dixie
Local Option	Ten Mile	Frank McGrane	Grangeville
Lolo	Dixie	Don A. Burpee	Dixie
Lone Pine	Ten Mile	F. O. Muller	Clarkston, Wash.
Loper	Marshall Lake	George Loper	Burgdorf
Lost Lake	Robins	R. McGregor	Elk City
Lost Meadows	Florence	W. A. Paul	Grangeville
Lot Lake et al.	Florence	Claud Flint	Florence
Lucky Ben	Warren	Jay A. Czizek	Warren
Lucky Strike	Warren	Grindle & Curtis	Warren
Lusitania	Cottonwood Buttes	J. W. Bartlett	Green Creek
Mackay & Lamb	Ten Mile	W. A. Harvey	Newsome
Madre d'Or	Elk City	S. W. Litchfield	Elk City
Malone Pl.	Simpson	John Struck	Cottonwood
Mammoth	Newsome	W. H. Baldwin	Stites
Mammoth Gr.	Dixie	C. A. Carpenter	Dixie
Mascot et al.	Elk City	John Massam	Elk City
Mayflower	Warren	Patterson, Morris & Blake	Warren
Miller Creek Pl.	Florence	S. A. Moon	Florence
Mineral Zone et al.	Elk City	G. L. Baskett	Elk City
Minnehaha	Warren	Dr. G. M. Waterhouse	Weiser
Modoc	Marshall Lake	L. W. Wilcox	Burgdorf
Monadnock	Dixie	George O. Trader	Dixie
Monarch	Simpson	C. H. Prescott	Dixie

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Monmouth	Dixie	J. L. Hayes	Dixie
Moose Creek Pl.	Newsome	W. H. Giles	Newsome
Morgan Gr.	Marshall Lake	—— Barber	Burgdorf
Mother Lode	Elk City	Geo. Brown	Orogrande
Mount Eureka	Warren	W. G. Cadby	Warren
New Jersey	Elk City	Condit Bros.	Elk City
Newsome Pl.	Newsome	James Surridge	Harpster
New York	Ten Mile	Wm. Huntley	Spokane, Wash.
Occidental Gr.	Orogrande	Frank A. Bauer	Elk City
Ohio Placer	Orogrande	Geo. Overfield Est.	Orogrande
Old Channel Pl.	Simpson	Currier Bros.	Riggins
Old Kentuck	Marshall Lake	Peterson & Spencer	Burgdorf
Olivia Gulch	Dixie	Henry S. Hazlitt	Dixie
Pacific Gr.	Elk City	Rod Leggett	Butte, Mont.
Pioneer Hill	Ten Mile	Timm & Braig	Newsome
Poorman	Dixie	Oscar Eakin	Dixie
Queen Gr.	Elk City	Grant Litchfield	Elk City
Rainier Gr.	Warren	Gus Sindt	Warren
Rapid Creek	Warren	Frank Mitchell	Warren
Red Horse Pl.	Elk City	Schuyler Simmons	Elk City
Red Warrior	Orogrande	Frank Peck	Orogrande
Rigdon Placer	Warren	Geo. G. Rigdon	Meadows
Rocky Butte et al.	Cottonwood Buttes	J. L. Eckert	Cottonwood
Shamrock et al.	Marshall Lake	H. H. Hackett et al.	McCall
Shissler Creek Pl.	Warren	H. Cook	Warren
Silver King	Warren	Sigo Myers	Savannah, Ga.
Skylark	Warren	Warren D. Smith	Warren
South Fork	Elk City	Martin Heckman	Elk City
Spike Quartz	Elk City	James Hubbs	Elk City
Spring Bar Pl.	Simpson	J. A. Carr	Lucile
Star	Florence	W. A. Nicodemus	Spokane, Wash.
Stephenson Gr.	Elk City	Lu Stephenson	Elk City
Subway Gr.	Orogrande	H. W. Harris	Elk City
Summit Flat	Ten Mile	Ralston McCaig	Spokane, Wash.
Surprise Gr.	Dixie	J. R. Painter	Dixie
Syringa	Maggie Creek	J. M. Wisdom	Culdesac
Syringa	Orogrande	James Montgomery	Orogrande
Thompson Pl.	Warren	Ah Sam	Warren
Three Mile Pl.	Marshall Lake	Jensen Bros.	Burgdorf
Thunder Mt. Gr.	Elk City	E. M. Griffith	Clarkston, Wash.
Tippie Placer	Newsome	C. H. Whincey	Newsome
Tivola	Elk City	George Braig	Elk City
Trout Gr.	Elk City	Geo. Trout	Elk City
Twin Butte et al.	Orogrande	Frank M. Peck	Orogrande
Una Gr.	Ten Mile	Ralston McCaig	Spokane, Wash.
Uncle Sam	Elk City	J. E. Brown	Elk City
Umatilla Gr.	Orogrande	Orin Lamb Est.	Orogrande
Union Gr.	Orogrande	Robert Pulz	Orogrande
Venture	Robins	A. G. Schultz	Lewiston
Walker & Wilcox	Marshall Lake	E. S. Walker	Burgdorf
War Eagle	Robins	Geo. J. Bancroft	220 Broadway, Denver, Colo.
Wild Rose	Elk City	W. C. McNutt	Elk City
Wilson	Newsome	A. E. Carpenter	Newsome
Wizzard Gr.	Robins	Jack Cameron	Orogrande
Yellow Pine	Ten Mile	Miller & Sons	Newsome

BIBLIOGRAPHY

See pages 11-12 for publisher's address, meaning of reference marks, and abbreviations.

A geological reconnaissance across Idaho, by G. H. Eldridge: U. S. Geol. Survey, Sixteenth Ann. Rept., pt. 2, pp. 217-276, **1895.***

The Deadwood placer claims, Idaho, by W. H. Hill: Eng. and Min. Jour., vol. 60, pp. 225-226, Sept., **1895.**§

The Little Giant mine, Warren, Idaho, by W. H. Hill: Eng. and Min. Jour., vol. 62, p. 417, **1896.**§

Mining districts of Idaho Basin and the Boise Ridge, Idaho, by Waldemar Lindgren; U. S. Geol. Survey, Eighteenth Ann. Rept., pt. 3, pp. 625-716, **1898.***

Central Idaho gold field, by Don Maguire: Mines and Minerals, vol. 19, pp. 289-291, February, **1899.***

The Buffalo Hump mining camp, Idaho, by C. H. Whittle: Eng. and Min. Jour., vol. 68, pp. 215-216, Aug. 19, **1899.**§

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey, Twentieth Ann. Rept., pt. 3, pp. 75-256, **1900.***

Buffalo Hump, Idaho, by D. G. Doubleday: Mines and Minerals, vol. 21, pp. 296-298, February, **1901.***

Geology and water resources of Nez Perce County, Idaho, by I. C. Russell: U. S. Geol. Survey Water-Supply Papers 53 and 54, **1901.**‡*

Mineral deposits of the Bitterroot Range and Clearwater Mountains, Montana, by Waldemar Lindgren: U. S. Geol. Survey Bull. 213, pp. 66-70, **1903.***

Thunder Mountain, by W. E. L'Hame: Mines and Minerals, vol. 24, pp. 207-209, December, **1903.***

A geological reconnaissance across the Bitterroot Range and Clearwater Mountains in Montana and Idaho, by Waldemar Lindgren: U. S. Geol. Survey Prof. Paper 27, **1904.***

Central Idaho gold district, by S. P. Jellum: Northwest Min. News, vol. 3, pp. 83-91, 107-114, 134-139, **1908**; vol. 4, pp. 2-6, 31-37, 66-73, **1909.***

Asbestos of Kamiah, Idaho, by J. S. Diller: Asbestos in the United States, U. S. Geol. Survey Bull. 470, pp. 519-520, **1910.***

Development of the Elk City district, Idaho, by B. K. Welch: Min. World, vol. 32, pp. 65-66, Jan. 8, **1910.***

Mining and milling in Elk City district, by B. K. Welch: Min. and Eng. World, vol. 37, pp. 391-392, Aug. 31, **1912.***

Buffalo Hump mining district, by A. L. Flagg: Min. and Eng. World, vol. 38, pp. 813-814, **1913.***

The Elk City mining district, Idaho County, Idaho: Trans. Am. Inst. Min. Eng., vol. 45, pp. 113-122, **1913.**§

Geology and ore deposits of the Dixie mining district, Idaho, by D. C. Livingston and C. A. Stewart: Univ. of Idaho School of Mines Bull. 2, vol. 9, **1914.***

The Orofino coal field, Clearwater, Lewis and Idaho counties, Idaho, by C. T. Lupton: U. S. Geol. Survey Bull. 621, pp. 99-108, **1915.***

Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****

A preliminary report on the clays of Idaho, by Frank H. Skeels: Idaho Bureau of Mines and Geology Bull. 2, p. 59, **1920.****

The copper deposits of the Seven Devils and adjacent districts, by D. C. Livingston and F. B. Laney: Idaho Bureau of Mines and Geology Bull. 1, **1920.***

Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 60, art. 3, pp. 1-33, **1921.**‡

Central Idaho—A rugged mining region, by G. J. Bancroft: Eng. and Min. Jour., vol. 113, pp. 438-441, March 18, **1922.**§

Geology and gold resources of north central Idaho, by F. A. Thomson and S. M. Ballard: Idaho Bureau of Mines and Geology Bull. 7, **1924.****

Gold veins of sundry areas in the Idaho batholith, by F. A. Thomson: Eng. and Min. Journal-Press, vol. 118, pp. 533-540, Oct. 4, **1924.**§

KOOTENAI COUNTY

Kootenai is one of the northern counties and constitutes an important part of the Idaho Panhandle. It is bounded on the west by the State of Washington, on the north by Bonner County, on the east by Shoshone County, and on the south by Benewah County. It contains an area of 1253 square miles and was accredited with a population of 17,878 in the 1920 census. The principal industries are lumbering, dairying, and farming. Its lumbering industry is the most important and the largest in the State.

The county is exceptionally fortunate with respect to transportation facilities. It is served by three State highways, one of which is completed, and the other two partly so; by six railroads, which include main lines or their branches; and by lake boats on Lakes Pend d'Oreille and Coeur d'Alene. Coeur d'Alene is the largest town and county seat.

The principal mining districts are the Little North Fork of the Coeur d'Alene River, Hayden Lake, and isolated sections bordering on Lake Coeur d'Alene, throughout which zinc, lead, silver, copper, gold, arsenic, and high-grade clays occur. A limited amount of development work has been done on some of the veins, with encouraging results, and many others are worthy of further attention.

During the year surveys for a logging railroad were run up the Little North Fork River. The completion of this railroad will greatly stimulate mining and encourage the resumption of activities at those mines where the ore has been proved but operation has been impossible, on account of transportation difficulties. The companies in the Little North Fork section were idle throughout the year. Those on the West Fork of Pine Creek, near the Shoshone County line, performed the necessary annual labor.

One new lead discovery was reported in the Fourth of July Canyon section of this county, and much additional interest was shown by the old companies in the properties they were operating. The greater part of the work was confined to the sections adjacent to Coeur d'Alene Lake, particularly the Wolf Lodge and Beauty Bay districts, in which the Caribou Mining Co., Ltd.; the Beauty Bay Mining Co.; the Silver Tip Mining Association; and the Blue Bird Mining Co. were the most active.

BLUE BIRD MINING CO.

Office: Coeur d'Alene. **Officers:** Harry Phillips, Pres.-Mgr.; Wm. McFarland, Sec., both of Coeur d'Alene. **Inc.:** Sept. 2, 1924. **Capital:** 1,000,000 shares; par value 10c; 601,000 shares issued. **Property:** Blue Bird group; 9 unpatented claims, Beauty Bay and Wolf Lodge districts; Coeur d'Alene. **Development:** About 300 ft. of workings. **Ore:** Arsenic, copper, gold. **Men employed:** Average, 4. **Remarks:** Actively developed during the summer months.

BURNT CABIN MINING CO.

Office: Coeur d'Alene. **Officers:** Wm. James, Pres.; J. A. Cole, Sec., both of Coeur d'Alene. **Inc.:** Apr. 28, 1926. **Capital:** 1,500,000 shares; par value 10c; 635,927 shares issued. **Property:** Burnt Cabin group; 7 unpatented claims, Hayden Lake dist.; Hayden Lake. **Development:** By 2 tunnels: No. 1, 150 ft. long; No. 2, 547 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** Active throughout the summer months.

CARIBOU MINING CO., LTD.

Office: Coeur d'Alene. **Officers:** G. R. Scott, Pres.; C. O. Sowder, Sec., both of Coeur d'Alene. **Inc.:** July 15, 1918. **Capital:** 1,500,000 shares; par value 10c; 1,414,425 shares issued. **Property:** Caribou group; 10 unpatented claims, Wolf Lodge dist.; Coeur d'Alene. **Development:** Total development approximately 1174 ft.; consisting principally of No. 2 tunnel, 440 ft. long, and No. 3 tunnel, 580 ft. long. **Plant:** MINE: Gas-driven Gardner-Rix compressor; complete mining equipment. MILL: 75-ton concentrator, gas driven. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Active development work throughout the year.

COEUR D'ALENE CLAY CO., LTD.
Office: 216 Sherman Ave., Coeur d'Alene. **Officers:** Oscar Nelson, Pres.; H. H. Barton, Sec.-Treas., both of Coeur d'Alene. **Inc.:** Apr. 6, 1912. **Capital:** 100,000 shares; par value $1; 18,882 shares issued. **Property:** 40 acres patented land near Coeur d'Alene. **Plant:** 1 incomplete brick-making machine, 20,000-brick capacity.

COEUR D'ALENE OIL & DEVELOPMENT CO.
Office: Coeur d'Alene. **Officers:** L. T. Severson, Pres.-Mgr., Coeur d'Alene; W. H. Rogers, Sec., Hayden Lake. **Inc.:** Nov. 19, 1927. **Capital:** 100,000 shares; par value $1; 34,000 shares issued. **Property:** 5700 acres patented farm land in the vicinity of Hayden Lake; held under oil and gas leases.

COEUR D'ALENE ROBISH MOUNTAIN MINING CO., LTD.
Office: Coeur d'Alene. **Officers:** Andrew J. Razor, Pres.; Lawrence L. Lewis, Sec., both of Coeur d'Alene; Wm. M. Hill, Mgr., Spokane. **Inc.:** Oct. 9, 1909. **Capital:** 2,750,000 shares; par value $1; 1,505,000 shares issued. **Property:** 505 acres patented land and 4 unpatented claims; Little North Fork dist.; Linfor. **Development:** Approximately 600 ft. of underground workings. **Remarks:** Annual labor only on unpatented claims.

COEUR D'ALENE-SPOKANE MINING CO.
Officers: Roy L. Black, Sec., Pocatello. **Inc.:** Sept. 6, 1918. **Capital:** 1,000,000 shares; par value $1; 500,000 shares issued. **Property:** Strobel group; 3 unpatented claims, unorganized dist.; Lane. **Ore:** Lead-silver. **Remarks:** Annual labor only.

COMMONWEALTH METALS CO.
Office: Coeur d'Alene. **Officers:** F. W. Reed, Sec., both of Coeur d'Alene. **Inc.:** Mar. 19, 1924. **Capital:** 2,500,000 shares; par value $1; 279,288 shares issued. **Property:** Commonwealth group; 7 unpatented claims, Hayden Lake dist.; Hayden Lake. **Development:** 2 small shafts and 1 short tunnel. Total development approximately 1500 ft. **Plant:** Steam-driven I-R compressor, and complete mining equipment. **Ore:** Lead-silver-copper. **Remarks:** Idle.

CONNIE MINING & MILLING CO.
Office: 310 Ziegler Bldg., Spokane, Wash. **Officers:** C. Wm. Gralaffe, Pres.; Conrad T. Hartung, Sec., both of Spokane. **Inc.:** July 11, 1927. **Capital:** 4,000,000 shares; par value 10c; all shares issued. **Property:** Chilco group; 11 unpatented claims, Hayden Lake dist.; Hayden Lake. **Development:** By 1 tunnel, 670 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only. This company is a reorganization of the Chilco Mining & Milling Co.

ESTELLA METALLURGICAL CO.
Office: Route 5, Coeur d'Alene. **Officers:** W. C. Brower, Pres.-Mgr.; Ed. H. Preece, Sec., both of Coeur d'Alene. **Inc.:** Feb. 13, 1923. **Capital:** 5,000,000 shares; par value unknown; 3,000,000 shares issued. **Property:** 2 unpatented claims, Wolf Lodge dist.; Coeur d'Alene. **Development:** 3 short tunnels. **Ore:** Gold-silver-copper. **Remarks:** Annual labor only.

HAYDEN LAKE MINING & MILLING CO.
Office: Rathdrum. **Officers:** Fred H. Bradbury, Pres.; Chas. E. Gillespie, Sec., both of Rathdrum. **Inc.:** May 8, 1917. **Capital:** 1,000,000 shares; par value 5c; 409,000 shares issued. **Property:** Bradbury group; 14 unpatented claims, Hayden Lake dist.; Garwood. **Development:** By 2 tunnels: No. 1, 200 ft.; No. 2, 800 ft. **Plant:** Small gas-driven compressor; complete mining equipment. **Ore:** Lead-silver, copper. **Remarks:** Annual labor only.

LITTLE NORTH FORK COPPER MINING & MILLING CO., LTD.
Officers: T. R. Mason, Pres., Kellogg. **Inc.:** Sept. 29, 1903. **Capital:** 1,500,000 shares; par value $1; 1,300,000 shares issued. **Property:** Hand Spike group; 3 patented claims, Little North Fork dist.; Linfor. **Development:** 2 tunnels: No. 1, 1600 ft. long; No. 2, 500 ft. long. **Ore:** Copper.

PALISADE MINING & MILLING CO.

Office: Coeur d'Alene. **Officers:** T. W. Schmidt, Pres.-Mgr., Coeur d'Alene; A. K. Rogers, Sec., E. 1301 Providence Ave., Spokane, Wash. **Inc.:** Jan. 31, 1912. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Palisade group; 16 unpatented claims, unorganized dist.; Kellogg. **Development:** Approximately 1250 ft. of tunnels, the principal of which is No. 2, 1130 ft long. **Ore:** Silver-lead. **Remarks:** In addition to annual labor, a small amount of reconstruction work was performed, after mine plant had been destroyed by a snowslide.

RED HORSE MINING CO.

Office: Harrison. **Officers:** M. W. Frost, Pres., Harrison; Otto Borchardt, Sec., Springston. **Inc.:** July 14, 1904. **Capital:** 1,500,000 shares; par value $1; 250,000 shares issued. **Property:** Red Horse group; 18 unpatented claims, Lake Front dist.; Springston. **Development:** Approximately 2720 ft. of underground workings. **Plant:** MINE: 40-h. p. F-M gas engine driving a 2-drill Sullivan compressor; complete mining equipment and camp. MILL: 5-ton gas-driven concentrator. **Ore:** Copper. **Remarks:** Annual labor only, performed by contract.

RIVERSIDE COPPER MINING CO., LTD.

Office: Kellogg. **Officers:** T. R. Mason, Pres., Kellogg; S. S. Bonham, Sec., Spokane. **Inc.:** Sept. 17, 1906. **Capital:** 1,000,000 shares; par value $1; 600,000 shares issued. **Property:** 5 patented claims, Little North Fork dist.; Linfor. **Development:** 1 tunnel, 530 ft. long. **Ore:** Lead-silver.

SILVERTIP MINING ASSOCIATION

Office: Coeur d'Alene. **Officers:** B. A. Loveless, Pres.; F. W. Reed, Sec., both of Coeur d'Alene. **Inc.:** An association. **Property:** Silvertip group; 10 unpatented claims, Wolf Lodge dist.; Coeur d'Alene. **Development:** By 1 tunnel, 250 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Active throughout the summer months.

TWIN GULCH MINING CO.

Office: 721 Harrison Ave., Coeur d'Alene. **Officers:** J. O. Holman, Pres.-Mgr.; G. W. Sonnichsen, Sec., both of Coeur d'Alene. **Inc.:** Feb. 2, 1924. **Capital:** 1,000,000 shares; par value 10c; 352,000 shares issued. **Property:** Twin Gulch group; unorganized dist.; Coeur d'Alene. **Development:** By 2 short tunnels. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** A small amount of development work during part of the year.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Gold Coin		Ed. H. Harvey	Spirit Lake
Lake et al.	Lakefront	George Strobel	Lane
Quebec	Medimont	Lewis F. Faumot	Medimont

BIBLIOGRAPHY

See pages 11-12 for publisher's address, meaning of reference marks, and abbreviations.

A geological reconnaissance in northern Idaho and northwestern Montana, by F. C. Calkins, with notes on the economic geology, by D. F. MacDonald: U. S. Geol. Survey Bull. 384, **1909.***

Guidebook of the western United States, by M. R. Campbell and others: U. S. Geol. Survey Bull. 611, pp. 150-156, 160, **1915.**‡

The mining districts of northern Idaho, by E. K. Soper: Min. & Sci. Press, vol. 116, p. 125, **1918.***

Preliminary report on the clays of Idaho, by F. H. Skeels: Idaho Bureau of Mines and Geology Bull. 2, **1920.****

Coeur d'Alene Lake, Idaho, and the overflow lands, by R. W. Davenport: U. S. Geol. Survey Water-Supply Paper 500, **1921.***

Geology of the Latah formation in relation to the lavas of the Columbia plateau near Spokane, Washington, by J. T. Pardee and Kirk Bryan: U. S. Geol. Survey Prof. Paper 140A, **1926.**‡

Some Miocene and Pleistocene drainage changes in northern Idaho, by A. L. Anderson: Idaho Bureau of Mines and Geol. Pamphlet 18, **1927.****

LATAH COUNTY

Latah County is bounded on the north by Benewah, on the south by Nez Perce, on the west by the State of Washington, and on the east by Shoshone and Clearwater counties. It has an area of 1071 square miles, and was accredited with a population of 18,092 in the 1920 census. Moscow is the largest town and county seat, as well as the location of the University of Idaho and the Idaho Bureau of Mines and Geology. The county is recognized primarily as an agricultural community, particularly for wheat raising.

The principal mineral resources are copper, gold, silver, opals, mica, feldspar, and high-grade fire clay. The clay occurs near the town of Troy and two companies are engaged in manufacturing it into brick, which is used by different smelters in the northwestern states. The copper, gold, silver, and mica occur in the northern part of the county, north of the towns of Harvard and Vassar, in the Gold Hill, or Blackfoot, Hoodoo, and Avon districts. These districts are served by the Washington, Idaho and Montana Railroad, which connects with the Northern Pacific and the Spokane and Eastern railroads at Palouse, Washington, and the St. Maries-Elk River branch of the Chicago, Milwaukee and St. Paul Railroad at Bovill.

The mica mines have produced a large tonnage of high-grade mica. The resources of the old ones have not been exhausted, many of the prospects justify further development, and there are still many possibilities for the discovery of new veins. As there are many chances for the development of profitable enterprises, these deposits are worthy of more attention than they have been receiving in the past few years.

During 1927, the Troy Mica Co., a new organization at Avon, conducted a small amount of work and produced and marketed a few tons of mica; and the Idaho Ceramic Materials Co. at Troy, was organized to exploit the feldspar deposits in that vicinity.

A small amount of work has been done on the copper deposits in the Hoodoo district, from which several carloads of copper ore have been marketed. The heavy overgrowth and deep soil have hindered prospecting and development work, but the discoveries that have been made and the work done on them have proved that the deposits justify development, and that there are still possibilities for the discovery of additional veins.

The Copper Mountain Mining Co., and the Gold Nugget Mining Co. performed a small amount of development work during the year.

ACE MINING CO.

Office: N. 1405 Ash St., Spokane, Wash. **Officers:** Chas. G. Taylor, Pres.-Mgr., Harvard; R. E. Gallagher, Sec., Spokane. **Inc.:** Oct. 29, 1926. **Capital:** 1,500,000 shares; par value 10c; 620,660 shares issued **Property:** 4 patented, 2 unpatented claims, Hoodoo dist.; Harvard. **Development:** By 2 tunnels: No. 1, 200 ft. long; No. 2, 80 ft. long. **Ore:** Gold. **Remarks:** New buildings constructed and a small amount of road built during the year.

CASSIDY GOLD MINING & MILLING CO., LTD.

Officers: N. J. Stockbridge, Sec., Wallace. **Inc.:** Mar. 12, 1899. **Capital:** 600,000 shares; par value 5c; 437,000 shares issued. **Property:** Cassidy; 1 patented claim, Blackfoot dist. **Ore:** Gold.

COPPER CHIEF MINING & MILLING CO., LTD.

Office: Troy. **Officers:** Robert Olson, Pres.; Albert B. Olson, Sec., both of Troy. **Inc.:** July 27, 1914. **Capital:** 1,000,000 shares; par value $1; 487,229 shares issued. **Property:** Copper Chief group; 2 unpatented claims and 10 acres of deeded land, unorganized dist.; Troy. **Development:** By 3 tunnels: No. 1, 300 ft. long; No. 2, 500 ft. long; No. 3, 550 ft. long. **Ore:** Copper. **Remarks:** Annual labor only.

COPPER MOUNTAIN MINING CO.

Office: Palouse, Wash. **Officers:** R. A. Belvail, Pres.; J. C. Northrup, Sec., both of Palouse. **Inc.:** Oct. 29, 1925. **Capital:** 3,750,000 shares; par value 1c; 2,072,676 shares issued. **Property:** Mizpah group; 20 unpatented claims, Hoodoo dist.; Harvard. **Development:** Total development approximately 2600 ft. **Plant:** A 12x14 gas-driven compressor; complete mining equipment, and camp. **Ore:** Copper. **Remarks:** A reorganization of the Merger Mining Co., Ltd. Annual labor only.

GOLD HILL MINING & MILLING CO.

Office: Harvard. **Officers:** K. F. Pinnell, Pres.-Mgr.; May Pinnell, Sec., both of Harvard. **Inc.:** Nov. 6, 1922. **Capital:** 1,000,000 shares; par value 25c; 612,959 shares issued. **Property:** Gold Bug group; 4 patented claims, 65 acres; held under lease and bond from the Garfield Mining & Milling Co., of Garfield, Wash.; Blackfoot dist.; Harvard. **Development:** Approximately 1200 ft. of tunnels and drifts, and 1 vertical shaft 300 ft. deep. **Plant:** Steam-driven hoist and compressor. **Ore:** Gold, silver, copper.

IDAHO CERAMIC MATERIALS CO.

Office: W. 326 First Ave., Spokane, Wash. **Officers:** Carl R. Suksdorf, Pres.-Mgr.; L. P. Mills, Sec., both of Spokane, Wash. **Inc.:** Sept. 17, 1927. **Capital:** 275,000 shares; par value $1; 100,000 shares issued. **Property:** 288 acres of patented farm land near Troy; held under lease and option. **Mineral sought:** Kaolin, silica, mica. **Remarks:** A recent organization, based on the exploitation of a feldspar deposit.

TROY GOLD & COPPER MINING CO., LTD.

Office: Troy. **Officers:** E. J. Gemmill, Pres.-Mgr., Moscow; T. H. Christie, Sec., Troy. **Inc.:** May 26, 1909. **Capital:** 1,000,000 shares; par value $1; 510,100 shares issued. **Property:** 20 acres patented farm land, unorganized dist.; Troy. **Ore:** Copper. **Remarks:** Idle.

TROY MICA CO.

Office: Lewiston. **Officers:** A. N. Conger, Pres.-Mgr.; O. D. Burns, Sec., both of Lewiston. **Inc.:** Aug. 10, 1926. **Capital:** 150,000 shares; par value $1; 130,080 shares issued. **Property:** Bentz and Doerr groups, Hoodoo dist.; Avon. **Development:** By 3 tunnels: No. 1, 100 ft.; No. 2, 800 ft.; No. 3, 200 ft. **Plant:** Gas-driven I-R compressor; complete mining equipment and camp. **Ore:** Mica. **Men employed:** Average, 8. **Remarks:** Small amount of development work was conducted during the year, and a few tons of mica were produced and marketed.

MINING DIST.	NAME OF MINE	OWNER	P. O. ADDRESS
Anny Gr.	Hoodoo	P. Doffner	Harvard
Avon	Hoodoo	J. H. Nesbit	Deary
Blake Gr.	Hoodoo	M. W. Nelson	Spokane, Wash.
Bonanza Gold Pl.	Gold Creek	Wm. J. Schmidt	Potlatch
Carrico Pl.	Gold Creek	Paul Bocknier	Paulsen Bldg., Spokane, Wash.
Clara Lester Gr.	Gold Creek	F. N. Dyer	Potlatch
Eureka Gr.	Gold Creek	Edwin N. Carrico	Potlatch
Excelsior	Gold Creek	Arthur P. Gilliam	Potlatch
Gen. Jackson et al.	Gold Creek	Ludwig Swanson	Potlatch
Gold Bug	Gold Creek	Arthur P. Gilliam	Potlatch
Hard Work	Hoodoo	George Steffen	Harvard
Hathor Gr.	Hoodoo	T. A. Doud	Harvard
Idaho	Hoodoo	G. E. Arrasmith	Harvard
Knapp Bros.	Hoodoo	Harry Knapp	Harvard
LaDessa Gr.	Hoodoo	P. L. McKenzie	Portland, Ore.
Lead To Pl.	Gold Creek	Jo. Hougen	Potlatch
Midas	Hoodoo	H. N. Gray	Potlatch
Monday	Hoodoo	V. P. Wiesenthal	Palouse, Wash.

BIBLIOGRAPHY

See pages 11-12 for publisher's address, meaning of reference marks, and abbreviations.

Geology and water resources of Nez Perce County, Idaho, by I. C. Russell: U. S. Geol. Survey Water-Supply Papers 53 and 54, **1901.‡***

A geological reconnaissance across the Bitterroot Range and Clearwater Mountains in Montana and Idaho, by Waldemar Lindgren: U. S. Geol. Survey Prof. Paper 27, **1904.***

Mica in Idaho, New Mexico, and Colorado, by D. B. Sterrett: U. S. Geol. Survey Bull. 530, pp. 375-390, **1911.***

A preliminary report of the clays of Idaho, by F. H. Skeels, Idaho Bureau of Mines and Geology Bull. 2, **1920.****

The copper deposits of the Seven Devils and adjacent districts, by D. C. Livingston and F. B. Laney: Idaho Bureau of Mines and Geology Bull. 1, **1920.***

Mica deposits of the United States, by D. B. Sterrett: U. S. Geol. Survey Bull. 740, **1923.‡**

Mica deposits of Latah County, Idaho, by A. L. Anderson: Idaho Bureau of Mines and Geology Pamphlet 14, **1925.****

Ground water for municipal supply at Potlatch, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 23, **1927.****

LEMHI COUNTY

Lemhi County is situated in central-eastern Idaho, bounded on the north and east by the State of Montana, on the west by Idaho and Valley counties, and on the south by Custer, Butte, and Clark counties. It has an area of 4597 square miles, which is about equal to the State of Connecticut, and was accredited with a population of 5164 in the 1920 census, or 1.1 persons to the square mile. A provisional county government was organized in July, 1867, and in January, 1869, the Territorial Legislature permanently established the county with Salmon City as the county seat, an honor which it has always retained. The larger part of the population is located in the Lemhi River and Pahsimeroi River valleys, and is engaged in the pursuits of agriculture and stockraising.

It is one of the principal mining counties of the State, and always ranks as one of the largest producers. The extensive and varied mineral resources; the many veins that have been discovered, yet not developed; the many undiscovered veins; the excellent mining conditions; the many producing mines and prospects; and its location, both geographically and geologically, place this county within the area known as Central Idaho's Mineral Empire.

The county is served by the Pittsburg & Gilmore Railroad, which plies between Armstead, Montana, and Salmon, with a branch line from Leadore to Gilmore; by the Sawtooth Park State highway from Challis to Salmon, which follows the Salmon River and which is fully completed; and by a system of county roads which lead into all the outlying settlements and mining districts.

The principal mineral resources are lead, copper, silver, gold, zinc, tungsten, manganese, molybdenum, nickel, cobalt, gypsum, tin, and lignite. The formations in which the various mineral deposits occur range from early sedimentary rocks to late igneous rocks and include all those which are favorable to the deposition of ore in commercial quantities. The deposits are widely distributed throughout the vast mountainous areas which comprise a large part of the county. The wide distribution of the deposits, the diversity of mineralization, the favorable geological conditions, and the many opportunities for the development of profitable enterprises, make this county an exceptionally favorable field for prospectors and development companies.

In point of production and men employed Gilmore is the most active mining camp in Idaho, outside the Coeur d'Alene district. The Pittsburgh-Idaho mine of the United Idaho Mining Co., a subsidiary of the United States Smelting, Refining & Mining Co., is the largest lead-producing mine and maintains the second largest payroll in southern Idaho. During the year this company performed a large amount of development work and improved its mine plant, in addition to producing a large tonnage of high-grade direct-shipping ore, some of it being obtained by lessees. Part of the ore mined under company operation was derived from the 800-foot level, the greatest depth ever attained in the Gilmore district. The Allie mine, owned by the Gilmore Mercantile Co. and operated by lessees throughout the year, is developing into one of the largest lead mines in southern Idaho. A large amount of new ore was exposed and opened during the year and a substantial tonnage, derived principally from development work, was shipped. A few lessees at the Latest Out mine maintained development work throughout the year. Much of the new ore developed in this district during 1927 was a result of successfully solving a faulting problem which had previously been interpreted as a termination of the ore.

The Spring Mountain and Nicholia districts, whose supply point is Gilmore, witnessed a little increase in activity over that of the previous year. The Spring Mountain Mining Co., a new organization at the Big Windy mine, repaired the mine buildings, performed a small amount of development work, and produced and marketed a small tonnage of lead-silver ore. Lessees at the old Viola mine were active the entire year.

The Leadore district witnessed a large amount of scouting and mine examination by people seeking new lead-silver mines, but except for their necessary annual labor, practically all of the mines were idle.

In the vicinity of Salmon there was a marked improvement in mining conditions. More new companies were organized and started operations and there were more investigations than at any time during the past few years. All of the old companies were active the greater part of the year.

In the Leesburg district the principal new activities of importance were concerned with the revival of hydraulic placer mining. Two new enterprises constructed ditches, dams, and flumes, installed mining equipment and commenced hydraulicking. These were: The Bonanza Placers, Inc., and H. F. Byram at the McNutt placers on Moose Creek. One other company purchased some hydraulic equipment which it proposes to install during 1928. The number of new locations filed on placer claims exceeded that of any other year during the past decade.

The Harmony Mines Co. was active for a period of three months in the early part of the year; during this time new ore-bins and a sorting plant were added to the mill, the construction of a new aerial tramway was completed, further underground exploration work was done, a small tonnage of ore was produced and the resultant concentrate marketed, after which operations were suspended pending further financing through the sale of bonds.

During the first part of the year the Pope-Shenon mine was developed through the lower, or No. 6 tunnel, by lessees. This work was successful in opening considerable new ore, after which the lease was organized as the Winder-Stillman Copper Co. The reconstruction of the mill was financed, and at the close of the year the mine and mill were ready for continuous production.

The Uncle Sam Mining & Development Co., Ltd., near Tendoy, which is owned and financed by local people, actively prosecuted the driving of a lower tunnel throughout the year.

A new entry into the county was the Gold Ore Mines of Idaho, Inc., at the old Queen of the Hills mine, eight miles northeast of Salmon. During the year the mine plant and mill, which were installed in 1906, were rehabilitated; a small amount of new equipment was added; part of the old mine workings were reopened, and a small amount of new development work was performed.

In the Shoup district, the Kentuck Mining Co. performed its necessary annual labor. Also the Western Reward Mining Co., a new organization at the old Monolith, now known as the Merry Widow, conducted a small amount of exploratory work during the early part of the year.

The Patterson Mines Corporation, which was incorporated during the year, acquired under lease and option the Ima mine on Patterson Creek, repaired the power plant and mill, and commenced development work in December.

ALLIE MINE

Office: Gilmore. **Officers:** Edgar C. Ross, Lessee; Ervin Jewett, Mgr., both of Gilmore. **Property:** Allie group; 12 patented claims, Texas dist.; Gilmore; operated under lease from the Gilmore Mercantile Co. **Development:** Principally by 1 tunnel, 6000 ft. long, in which are 2 inclined shafts with 6 intermediate levels, opening the vein 290 ft. below the tunnel. **Plant:** 40-kw. electric generator, driven by Fairbanks-Morse semi-Diesel engine; 2 electrically-driven hoists; 1200-ft. aerial tramway; mine buildings. **Ore:** Lead-silver. **Men employed:** Average, 16. **Remarks:** during the year practically all of the equipment was installed; a large amount of development work was performed; and a substantial tonnage of ore, principally derived from the development work, was shipped. This mine is developing into one of the largest lead-silver mines in southern Idaho.

BEAVERHEAD LEAD MINES CO.

Office: Mills Bldg., San Francisco, Calif. **Officers:** John Salsberry, Pres., Mills Bldg., San Francisco; Hy. H. Meday, Sec., Cheney Bldg., Reno, Nev. **Inc.:** Filed in Idaho, May 12, 1927. **Capital:** 3,000,000 shares, par value 10c; shares issued, unknown. **Property:** Viola group; 1 patented, 1 unpatented claim, Nicholia dist.; Gilmore. **Ore:** Lead-silver. **Remarks:** Operated throughout the year by 2 lessees.

BLACK PINE COPPER MINING & MILLING CO., LTD.

Office: 501 Gloyd Bldg., Kansas City, Mo. **Officers:** F. J. Fetter, Pres., Kansas City, Mo. **Inc.:** Jan. 20, 1902. **Capital:** 40,000 shares; par value $1; all shares issued. **Property:** 4 patented claims, Blackbird dist.; Salmon. **Remarks:** Idle since 1904.

BLENWICK MINING CO., LTD.

Officers: R. E. Wickham, Pres.; E. H. Casterlin, Sec., both of Salmon. **Inc.:** May 22, 1919. Charter forfeited Dec. 1, 1922. **Capital:** 500,000 shares; par value $1; shares issued, unknown. **Property:** Blenwick group; 6 unpatented claims, Eureka dist.; Salmon. **Development:** By 3 tunnels: No. 1, 260 ft. long; No. 2, 100 ft. long; No. 3, 600 ft. long. **Ore:** Gold. **Remarks:** Annual labor only.

BONANZA PLACER, INC.

Office: Leesburg. **Officers:** Carl A. Poulsen, Pres.-Mgr., Los Angeles, Calif.; Frank A. Butschke, Sec., Leesburg. **Inc.:** Filed in Idaho, Dec. 6, 1926. **Capital:** 2,500,000 shares; par value 10c; 1,950,000 shares issued. **Property:** 9 unpatented placer claims, Mackinaw dist.; Leesburg. **Ore:** Placer gold. **Remarks:** Construction of ditches, dams, and flumes completed, hydraulic equipment installed, and a small amount of mining done prior to freezing weather.

CONTINENTAL STANDARD MINING CO.

Office: Leadore. **Officers:** Dr. I. B. Keller, Pres., Meridian; C. N. Friday, Sec.-Mgr., Leadore. **Inc.:** Jan. 2, 1926. **Capital:** 100,000 shares preferred, 1,000,000 shares common; par value $1; 520,155 shares issued. **Property:** Grizzly Hill group; 18 unpatented claims, Junction dist.; Leadore. **Development:** By 3 short tunnels. **Ore:** Lead-silver. **Remarks:** Annual labor.

GOLD FLOTATION DEVELOPMENT CO.

Office: 402 Empire State Bldg., Spokane, Wash. **Officers:** Harold Williams, Pres., Masonia; H. G. Loop, Sec., Spokane, Wash. **Inc.:** May 9, 1927. **Capital:** 1,500,000 shares; par value 10c; 638,950 shares issued. **Property:** Singiser group; 4 patented claims, Gravel Range dist.; Forney. **Ore:** Gold.

GOLD ORE MINES OF IDAHO, INC.

Office: 42 Broadway, New York City. **Officers:** Fremont Wood, Pres., Boise; Hugo G. A. von Reitzenstein, Sec., New York. **Inc.:** Filed in Idaho, March 25, 1927. **Capital:** 1,500,000 shares; par value $1; 750,000 shares issued. **Property:** Queen of the Hills group; 15 unpatented claims, Eureka dist.; Salmon. **Development:** Principally by 1 tunnel 2500 ft. long, in which is a vertical shaft open to a depth of 75 ft. **Plant:** MINE: Electrically-driven I-R compressor; complete mining equipment and camp. MILL: 15-stamp mill constructed in 1909. **Ore:** Gold. **Men employed:** Average, 10. **Remarks:** During the year the mine plant and mill were rehabilitated; a small amount of new equipment was added; part of the old mine workings were reopened, and a small amount of development work was performed.

HARMONY MINES CO.

Office: Salmon. **Officers:** A. W. Nieman, Pres., 5431 Lakewood Ave., Chicago; Mrs. O. K. Mitchell, Sec., 1221 Rosemont Ave., Chicago; E. F. Nieman, Mgr., Salmon. **Inc.:** April 8, 1916. **Capital:** 3,000,000 shares; par value $1; 2,100,000 shares issued. **Property:** Harmony group; 7 patented, 17 unpatented claims, Eldorado dist.; Baker. **Development:** By 6 tunnels: No. 1, 400 ft. long; No. 2, 350 ft. long; No. 3, 1000 ft. long; No. 4, 2400 ft. long; No. 5, 2700 ft. long; No. 6, 210 ft. long; and numerous small cuts and shafts totaling approximately 8000 ft. **Plant:** MINE: 1 I-R 800-cu.-ft., 1 C-P 350-cu.-ft., and 1 C-P 210-cu-ft. electrically-driven compressor; 6-ton Mancha storage battery locomotive; 2 aerial tramways, one 800 ft. long, the other 1900 ft. long. MILL: 175-ton concentrator, including flotation; primary and secondary crushers; Hardinge ball mill; 2 Dorr classifiers; 10 Wilfley tables; 1 12-ft. and 1 6-ft. K. & K. flotation cells; 2 Aikens classifiers. Built in 1919-1920. All electrically driven. **Ore:** Copper. **Men employed:** Average, 20. **Remarks:** Active for a period of 3 months in the early part of the year. During this time new ore-bins and sorting plant were added to the mill; construction of a new aerial tramway was completed, further underground exploration work done, and a small tonnage of ore produced, after which operations were suspended, pending further financing through the sale of bonds.

HORSE CREEK MINING CO.

Office: Salmon. **Officers:** P. H. Martin, Pres.-Mgr., Alta, Mont.; H. C. Packer, Sec., Hamilton, Mont. **Inc.:** May 1, 1923. **Capital:** 100,000 shares; par value $1; 56,872 shares issued. **Property:** Horse Creek group; 7 unpatented claims, 140 acres; Mineral Hill dist.; Alta, Mont. **Development:** About 500 ft. of tunnels. **Ore:** Lead-silver. **Remarks:** In addition to annual labor, a small amount of road building was done during the year.

IDAHO MINERALS CO.

Office: Idaho Falls. **Officers:** Simon Martin, Pres.-Mgr.; Louis Saar, Sec., both of Idaho Falls. **Inc.:** Aug. 13, 1919. **Capital:** 500 shares; par value $100; 325 shares issued. **Property:** Red Warrior group; 3 unpatented claims, Spring Mountain dist.; Gilmore. **Development:** By 2 tunnels: No. 1, 180 ft. long; No. 2, 275 ft. long. **Plant:** 50-ton steam-driven concentrator, built in 1921. **Ore:** Lead-silver. **Remarks:** Idle.

IDAHO PREMIER MINES CORPORATION

Office: Kellogg. **Officers:** A. C. Beal, Pres.-Mgr.; Lester S. Harrison, Sec., both of Kellogg. **Inc.:** Mar. 28, 1927. **Capital:** 1,000,000 shares common, par value $1; 200,000 shares preferred, par value $5; 50,000 shares common and 165,000 shares preferred issued. Preferred issued in exchange for property. **Property:** Leadore group; 38 unpatented claims. Junction dist.; Leadore. **Development:** By 2 tunnels: No. 1, 500 ft. long; No. 2, 876 ft. long. **Plant:** MINE: Small gas-driven compressor. MILL: Small gas-driven concentrator. **Ore:** Lead-silver. **Remarks:** Annual labor only.

IMA CONSOLIDATED MINING & MILLING CO.

Office: 608 Deseret Bank Bldg., Salt Lake City, Utah. **Officers:** Oscar W. Moyle, Pres.; Harry W. Rudine, Sec., both of Salt Lake City, Utah. **Inc.:** Dec. 16, 1902. **Capital:** 200,000 shares; par value 1c; all shares issued. **Property:** Ima group; 21 patented, 4 unpatented claims, Blue Wing dist.; May. **Development:** By 2 tunnels: No. 1, 1250 ft. long; No. 2, 1000 ft. long. **Plant:** MINE: Water-driven compressor; complete mining equipment and camp. MILL: 100-ton water-driven concentrator, constructed in 1915. **Ore:** Silver, copper, tungsten. **Remarks:** Property under lease to Patterson Mines Corporation.

LATEST OUT MINING & SMELTING CO., LTD.

Office: Salmon. **Officers:** D. L. Nichols, Sec.-Mgr., Salmon. **Inc.:** May 23, 1910. **Capital:** 500,000 shares; par value $1; all shares issued. **Property:** Latest Out; 1 patented claim, Texas dist.; Gilmore. **Development:** 1 tunnel, 365 ft. long; 2 inclined shafts, totaling 1100 ft., giving a vertical depth on the vein of 700 ft. Total development approximately 32,000 ft. **Plant:** F-M 40-h. p. gas-driven hoist; 145-cu.-ft. I-R gas-driven compressor; gravity tram; complete mining equipment and camp. **Ore:** Lead-silver. **Remarks:** Operated throughout the year by lessees.

LEADORE-LEMHI COPPER MINING CO.

Office: Leadore. **Officers:** J. D. Pritchett, Pres.-Mgr.; Roland Davidson, Sec., both of Leadore. **Inc.:** Aug. 22, 1927. **Capital:** 500,000 shares; par value 10c; shares issued, unknown. **Property:** Baltimore group; 3 unpatented claims, McDevitt dist.; Leadore. **Development:** By 2 short tunnels. **Ore:** Copper-silver. **Men employed:** Average, 1. **Remarks:** Active during the summer months.

LEESBURG GOLD DUST MINING CO.

Officers: D. H. Wenger, Pres.; W. S. Burton, Sec., both of Salt Lake City, Utah; O. E. Kirkpatrick, Vice-Pres. & Mgr., Leesburg. **Inc.:** Apr. 14, 1911. Charter forfeited Nov. 30, 1926. **Capital:** 1,500,000 shares; par value $1; 1,200,000 shares issued. **Property:** 8 patented, 8 unpatented claims, Mackinaw dist.; Leesburg. **Development:** Principally by 1 tunnel, 1100 ft. long. **Plant:** An old 10-stamp mill. **Men employed:** Average, 2. **Ore:** Gold and silver. **Remarks:** Active during the summer months.

LEMHI MINING CO.

Office: Winchester, Ind. **Officers:** R. W. Knowlton, Pres., Ashtabula, Ohio; A. L. Nichols, Sec., Winchester, Ind.; R. E. Lee Ramey, Mgr., Salmon. **Inc.:** Jan. 16, 1924. **Capital:** 5000 shares; no par value; 4942 shares issued. **Property:** Rabbit Foot group; 8 unpatented claims, Gravel Range dist.; Forney. **Development:** By 3 tunnels, the principal one of which is 1700 ft. long. **Plant:** MINE: Steam-driven hoist. MILL: 10-stamp amalgamation. **Ore:** Gold. **Remarks:** Annual labor only.

McNUTT PLACER

Lessee: H. F. Byram, Route 8, Portland, Ore. **Property:** McNutt placer; 3 patented, 4 unpatented claims, Leesburg dist.; Leesburg; held under lease from John E. Mullen, Salmon. **Plant:** Hydraulic equipment. **Ore:** Placer gold. **Men employed:** Average, 7. **Remarks:** Ditches, dams, and flumes were constructed; mining equipment was installed; and a small amount of hydraulicking was performed during the year.

MONTANA MINING & LIVESTOCK CO.

Office: 1037 S. Flower St., Los Angeles, Calif. **Officers:** C. A. Devlan, Pres.-Mgr., Leesburg; E. H. Devlan, Sec., Los Angeles, Calif. **Inc.:** Mar. 8, 1919. **Capital:** 5,000,000 shares; par value 10c; 4,875,213 shares issued. **Property:** Leesburg group; 11 unpatented placer claims, Mackinaw dist.; Leesburg. **Plant:** Steam-driven hoist and 100-cu.-ft. I-R compressor; complete mining and logging equipment; saw mill; complete camp and buildings. **Ore:** Placer gold. **Remarks:** Small amount of work during the summer months.

NORTHWESTERN DEVELOPMENT CO., LTD.
Office: Ashland, Ky. **Officers:** C. E. Williams, Pres.; Thomas Boggess, Sec., both of Ashland, Ky. **Inc.:** Aug. 28, 1916. **Capital:** 500,000 shares; par value $1; 239,840 shares issued. **Property:** Primrose group; 6 patented claims, Eldorado dist.; Salmon. **Plant:** Gas-driven compressor; complete mining equipment and mine camp. **Ore:** Gold-silver-copper. **Remarks:** Idle.

PARKER MINING CO., LTD.
Office: Blackfoot. **Officers:** F. W. Mitchell, Pres.; F. J. Cowen, Sec., both of Blackfoot. **Inc.:** Feb. 18, 1909; charter forfeited Dec. 1, 1925. **Capital:** 400,000 shares; par value $1; all shares issued. **Property:** Parker group; 3 unpatented claims, Parker dist.; Challis. **Development:** By 3 tunnels: No. 1, 150 ft. long; No. 2, 50 ft. long; No. 3, 40 ft. long. **Ore:** Gold, silver. **Remarks:** Annual labor only.

PATTERSON MINES CORPORATION
Office: First National Bank Bldg., Pocatello. **Officers:** Finis Bentley, Pres.; W. R. Howard, Sec., both of Pocatello; W. P. Barton, Mgr., May. **Inc.:** Apr. 3, 1927. **Capital:** 1,000,000 shares; par value $1; 530,500 shares issued. **Property:** Lease and option on property of Ima Consolidated Mining & Milling Co. **Men employed:** Average, 4. **Remarks:** Mill and power plant repaired during the year.

POPE-SHENON MINING CO.
Office: 408 Vermont Bldg., Salt Lake City, Utah. **Officers:** R. H. Winder, Pres.; George A. Smith, Sec.-Mgr., both of Salt Lake City, Utah. **Inc.:** Dec. 3, 1917. Charter forfeited Nov. 30, 1927. **Capital:** 1,000,000 shares; par value 20c; 571,714 shares issued. **Property:** Pope-Shenon group; 12 patented claims, Eureka dist.; Salmon. **Development:** 6 tunnels: No. 1, 70 ft. long; No. 2, 80 ft. long; No. 3, 400 ft. long; No. 4, 130 ft. long; No. 5, 800 ft. long; No. 6, 1000 ft. long. Total development approximately 3000 ft. of underground workings. **Plant:** MINE: 12x10 I-R electrically-driven compressor; Sullivan steel sharpener; complete mining equipment and camp. MILL: 60-ton electrically-driven concentrator, including fine grinding and flotation. **Ore:** Copper. **Remarks:** Under option to Winder-Stillman Copper Co., which see.

PORTLAND MINING CO.
Office: Butte, Mont. **Officers:** E. J. Carleton, Pres., N. Y. Life Bldg., Minneapolis, Minn.; W. S. Shaw, Sec., Butte, Mont. **Inc.:** Aug. 11, 1920. **Capital:** 500,000 shares; par value $1; all shares issued. **Property:** Portland group; 3 patented, 11 unpatented claims, Texas dist.; Gilmore. **Remarks:** Small amount of development work.

PROVIDENCIA MINING CO., LTD.
Office: Salmon. **Officers:** L. E. Glennon, Pres.; John E. Rees, Sec.; Camele Rock, Mgr., all of Salmon. **Inc.:** Sept. 6, 1927. **Capital:** 1,000,000 shares; par value $1; 225,000 shares issued. **Property:** Providencia group; 6 unpatented claims, Dahlonega dist.; Gibbonsville. **Development:** By 3 tunnels: No. 1, 308 ft.; No. 2, 360 ft.; No. 3, 400 ft. **Ore:** Gold. **Remarks:** Annual labor only.

RESCUE GOLD MINES CO.
Office: P. O. 624, Pasadena, Calif. **Officers:** Chas. Mushrush, Pres.; Willis H. Brown, Sec., both of Pasadena, Calif. **Inc.:** Apr. 25, 1919. Charter forfeited Nov. 30, 1926. **Capital:** 90,000 shares; par value $1; 13,303 shares issued. **Property:** Rescue group; 23 patented claims, Dahlonega dist.; Gibbonsville. **Ore:** Gold. **Remarks:** Idle.

SPRING MOUNTAIN MINING CO., INC.
Office: Newhall, Calif. **Officers:** E. G. Carlson, Pres.; A. S. Weiss, Sec., both of Newhall, Calif.; Ray Rasmussen, Mgr., Gilmore. **Inc.:** Filed in Idaho, Dec. 19, 1927. **Capital:** 1000 shares; par value $100; all shares issued. **Property:** Big Windy group; 8 unpatented claims, Spring Mountain dist.; Gilmore; held under lease and option. **Development:** By 3 tunnels: No. 1, 275 ft.; No. 2, 875 ft.; No. 3, 200 ft. **Ore:** Lead-silver. **Men**

employed: Average, 6. **Remarks:** Mine buildings repaired; small amount of development work performed; small tonnage of ore produced and marketed.

UNCLE SAM MINING & DEVELOPMENT CO., LTD.
Office: Salmon. **Officers:** Owen Swift, Pres.-Mgr.; L. E. Glennon, Sec., both of Salmon. **Inc.:** May 20, 1926. **Capital:** 250,000 shares; par value 10c; 133,350 shares issued. **Property:** Uncle Sam group; 4 unpatented claims, Eldorado dist.; Tendoy. **Development:** By 1 tunnel 200 ft. long. **Men employed:** Average, 2. **Ore:** Copper. **Remarks:** This property is owned and financed by local people, who actively prosecuted the driving of the tunnel throughout the year.

UNITED IDAHO MINING CO.
Office: No. 1, State St., c|o U. S. Smelting, Refining & Mining Co., Boston. **Officers:** C. A. Hight, Pres.; F. W. Batchelder, Sec., both of Boston; D. D. Muir, Jr., Mgr., Newhouse Bldg., Salt Lake City. **Inc.:** Oct. 18, 1924. **Capital:** 10,000 shares common, no par value; 10,000 shares preferred, par value $10; 7053 shares common issued. **Property:** Pittsburg-Idaho group; 5 patented claims, Texas dist.; Gilmore. **Development:** 4 tunnels: No. 1, 600 ft. long; No. 2, 950 ft. long; No. 3, 1600 ft. long; No. 4, 1300 ft. long, in which is an inclined shaft 970 ft. long, which gives a vertical depth of 850 ft. on the vein. **Plant:** MINE: 1 200-kw. Allis-Chalmers Diesel engine with generator, 1 I-R electrically-driven 9x8, and 1 C-P gas-driven compressor; 100-h. p. electrically-driven double-drum hoist; complete mining equipment, camp, and buildings. MILL: 50-ton gas-driven concentrator. **Ore:** Lead-silver. **Men employed:** Average, 69. **Remarks:** This mine is the largest lead-silver mine in southern Idaho and maintains the second largest payroll. A large tonnage was produced and marketed, part of which was extracted by lessees; and active mine development work was maintained throughout the year.

UTANA MINING CORPORATION
Office: 205 Felt Bldg., Salt Lake City, Utah. **Officers:** W. H. Penner, Pres.-Mgr.; Web Greene, Sec., both of Salt Lake City. **Inc.:** Aug. 4, 1921. **Capital:** 1,000,000 common, par value 10c; 100,000 preferred, par value $1; 119,000 shares issued. **Property:** Big Dyke group; 22 unpatented claims, Freeman dist.; Salmon. **Development:** Approximately 1600 ft. of underground workings. **Plant:** Steam-driven compressor; complete mining equipment and camp; complete machinery and equipment for a cyanide plant. **Ore:** Lead, silver, copper, zinc. **Remarks:** Annual labor only.

VIRGINIA GOLD MINING & MILLING CO.
Office: Atlas Bldg., Salt Lake City, Utah. **Officers:** W. A. Shaw, Pres.; L. M. Byers, Sec., both of Salt Lake City. **Inc.:** Aug. 21, 1925. **Capital:** 2,500,000 shares; par value 1c; 2,000,000 shares issued. **Property:** Virginia group; 18 patented, 7 unpatented claims, Eureka dist.; Baker.

WESTERN REWARD MINING CO.
Office: Salmon. **Officers:** Chas. E. Van Ness, Pres.-Mgr.; Nellie M. Gorman, Sec., both of Salmon. **Inc.:** Filed in Idaho, Feb. 15, 1927. **Capital:** 2,000,000 shares; par value 10c; 752,000 shares issued. **Property:** Monolith-Merry Widow groups; 2 unpatented claims, Shoup dist.; Shoup; held under lease and option. **Remarks:** Small amount of development work during the early part of the year.

WINDER-STILLMAN COPPER CO.
Office: Salmon. **Officers:** R. H. Winder, Pres., Salt Lake City; J. W. Jones, Sec.-Mgr., Salmon. **Inc.:** Unknown. **Capital:** 1,000,000 shares; par value 1c; 342,670 shares issued. **Property:** Lease and option on property of Pope-Shenon Mining Co., which see. **Men employed:** Average, 8. **Remarks:** In addition to performing a large amount of development work, the company repaired the mill, enlarged it, added a flotation unit, and placed the mine in condition to commence active production after the first of the year.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Alex Stevens	Texas	Wm. Howard	Gilmore
Anaconda Gr.	Eldorado	J. H. Adams Est.	Salmon
Anaconda et al.	Blackbird	A. C. Ludwig	Salmon
Andy Lee	Gravel Range	F. M. Pollard	Los Angeles, Cal.
Arnett Creek Pl.	Mackinaw	Busch & Stuckey	Leesburg
Baby Joe Gr.	Junction	W. F. Stone	Leadore
Belcher	Gibbonsville	Chas. Goff	North Fork
Big 8-Mile	Junction	J. D. Pritchett	Leadore
Big Windy	Spring Mountain	Joe Jugovich	Gilmore
Blue Bird	McDevitt	E. G. Lynch	Digby, N. S.
Boulder Gulch	Mineral Hill	John Brittain	Salmon
Brown Bull	Texas	E. C. Ross	Gilmore
Bryn Mawr et al.	Indian Creek	Davis Davies	North Fork
Buck-a-roo	Silverton	W. J. Shoup	Salmon
Cabin	Unorganized	Frank G. Worthing	Reno, Idaho
California Pl.	Mackinaw	A. C. Ludwig	Salmon
Carrie Cody	Texas	H. S. Knight	222 Kearns Bldg., Salt Lake City, U.
Castle Rock	Blue Wing	C. B. Graves	Patterson
Clara Morris Gr.	Gibbonsville	Largey Est.	46 E. Broadway, Butte, Mont.
Clipper Bullion	Mineral Hill	E. S. Suydam	North Fork
Columbia	Yellow Jacket	A. C. Ludwig	Salmon
Copper Glance	Yellow Jacket	Chas. Anderson	Leesburg
Copper King	Mackinaw	Earl R. Galbraith	Salmon
Daly Creek	Mackinaw	John M. Smith	Salmon
----------	Indian Creek	W. W. Smith	Ulysses
Democrat	Texas	Thos. Grooms	Gilmore
Diamond Gulch	Eureka	Geo. Matics	Salmon
Dig More No. 1	Junction	Rouche & Pottle	Leadore
Dreamer Gr.	Junction	Dr. I. B. Keller	Meridian
Dunton Placer	Gibbonsville	Fred Dunton	Gibbonsville
Eagle Mine	Gibbonsville	Alfred Anderson	Gibbonsville
Florence	Eight Mile	Fred Chase	Leadore
Forney Gr.	Gravel Range	R. E. Lee Ramey	Forney
Gladstone	Pratt Cr.	Mrs. Isadore Gies	Great Falls, Mont.
Golden Rule	Eureka	W. B. Horn	Salmon
Goldfield Gr.	Gibbonsville	A. W. Beason	Salmon
Gold Point	Eldorado	Dave Stilles	Salmon
Gold Star	Mackinaw	J. A. Fry	Leesburg
Gold Stone Gr.	Pratt Creek	Mrs. Isadore Gies	Great Falls, Mont.
Governor	Gibbonsville	F. C. Nohle	Gibbonsville
Grace	Mackinaw	Thos. Pope	Salmon
Greenhorn Mines	Eureka	F. S. Wright	Salmon
Grizzly Hill	Junction	W. F. Stone	Leadore
Grunter Gr.	Mineral Hill	M. M. McPherson	Pacific Grove, Cal.
Hard Carbonate	Spring Mountain	P. H. Clarke	Gilmore
Hawkeye Gr.	Blackbird	South & Weidner	Salmon
High Ore	Spring Mountain	J. W. Spiers	Gilmore
Hockensmith	Mackinaw	Chas. Goff	Leesburg
Hughes Creek Pl.	Gibbonsville	Justin Finch	Helena, Mont.
Iron Mask	Spring Mountain	F. L. Clark	Gilmore
Italian	Mackinaw	J. A. Herndon	Salmon
King Solomon	Eureka	Henry Pobst	Salmon
Last Chance	Mackinaw	Grant Rood	Leesburg
Last Chance	Gibbonsville	Henry Schreiber	Gibbonsville
Liberty Bell	Pratt Creek	Jasper Lyne	Tendoy
Liberty Bond Gr.	McDevitt	R. F. Morphey	Leadore
Lloyd Gr.	Junction	Chas. F. Lloyd	Dillon, Mont.
Lone Star	Eureka	Geo. Matics	Salmon

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Lone Star	Pratt Creek	Mrs. Jennie Turnblade	Salmon
McCarty et al.	Gibbonsville	Percy Anderson	Salmon
McKinley Gr.	Eureka	Geo. Coronkrite	Salmon
Mahogany	Mineral Hill	A. C. Amonson	Salmon
Maine Silver Moon	Texas	J. A. Nash	Gilmore
Mayflower	Mackinaw	Earl R. Galbraith	Salmon
Miser's Dream	Mineral Hill	R. A. Joseph	Gilmore
Moonshine	Silverton	W. W. St. Clair	Salmon
Modock Chief	Gibbonsville	J. Rathbun	Carmen
Moose Creek	Eureka	John E. Mullen	Salmon
Mountain Boy	Texas	Hugh Ferguson	512 W. Pearl St., Butler, Pa.
Murphy Gr.	Texas	Joe Denton	Gilmore
Musgrove Mine	Blackbird	Arthur Green	Salmon
Never Sweat Pl.	Mackinaw	Thos. Hungate	Leesburg
Patton Gr.	Junction	A. J. Smith, Mgr.	Leadore
Pope Gr.	Mackinaw	Thos. Pope	Salmon
.....	Spring Mountain	Oakley & Ellis	Dubois
Rabbit Foot	Gravel Range	R. E. Lee Ramey	Forney
Rainbow	Eureka	William Swan	Salmon
Ranger	Eldorado	Camele Rock	Salmon
Rattler	Kirtley Creek	Homer Harris	Salmon
Ready Cash	Mineral Hill	Peter Wasescha	Shoup
Red Cross Gr.	Unorganized	J. T. Pugh	Salmon
Red Gravel	Mackinaw	Ah Moon	Leesburg
Richardson Pl.	Mackinaw	Will Shoup	Salmon
Ring Bone Cayuse	Mackinaw	Fred Brough	Salmon
Road Agent	Junction	Dick Roach	Leadore
Robinson Lode	Blackbird	Chas. S. Miller	Leesburg
Rosebud	Texas	Rock Vezina	Leadore
Rose & Bohannon	Blackbird	Bohannon Est.	Salmon
Roxie	Silverton	Lemm Cummings	Salmon
Roy	Junction	W. F. Stone	Leadore
Royal Gold	Eureka	Blanche G. Williams	1059 Lexington Av., New York
Ruby	Eldorado	Alfred Erickson	Baker
Silver Moon	Texas	J. H. Lanyon	Gilmore
Sky Scraper	Junction	P. C. Sellers	Leadore
Smuggler et al.	Texas	Mac Carson	Gilmore
Speculation	Mineral Hill	Dave Sandilands	Salmon
Standard Placer	Eureka	Harry Kelly	Salmon
Sunbeam	Blackbird	Chas. Schultz	Salmon
Sunnyside	Texas	Jas. Sims	Salmon
Sunset	Mackinaw	Crist Stuckey	Leesburg
Tempest Gr.	Spring Mountain	Joseph G. Sims	Salmon
Tendoy	Unorganized	S. A. Matthews	Salmon
Tormey Gr.	Unorganized	Dr. F. S. Wright	Salmon
Uncle Sam	Spring Mountain	J. A. Nash	Gilmore
Union	Spring Mountain	James Sims	Salmon
Vaughn Placer	Mackinaw	T. Hungate	Leesburg
Verdun	Unorganized	Dr. F. S. Wright	Salmon
Vimedii	Carmen Creek	Burt W. Simer	Salmon
Viola	Nicholia	A. F. Shear	Reno
Walkover Placer	Hughes Creek	O. P. Kimmell	Salmon
White Horse	Spring Mountain	O. M. Perkins	Gilmore
Wickham & Bleness	Eureka	R. E. Wickham	Salmon
Yellow Jacket Pl.	Yellow Jacket	J. M. Burkhart, Jr.	Salmon

BIBLIOGRAPHY

See pages 11-12 for publisher's address, meaning of reference marks, and abbreviations.

A geological reconnaissance across Idaho, by G. H. Eldridge: U. S. Geol. Survey, Sixteenth Ann. Rept., pt. 2, pp. 217-276, **1895.***

Central Idaho gold field, by Don Maguire: Mines and Minerals, vol. 19, pp. 289-291, February, **1899.***

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey, Twentieth Ann. Rept., pt. 3, pp. 75-256, **1900.***

The Hayden Creek, Idaho, meteoric iron, by W. E. Hidden: Am. Jour. Sci., 4th ser., vol. 9, pp. 367-368, **1900.**§

An outline of Idaho geology and of the principal ore deposits of Lemhi and Custer counties, by R. N. Bell: Proc. Int. Min. Cong., 4th sess., pp. 64-80, **1901.**§

An extinct glacier of the Salmon River Range, by G. H. Stone: Am. Geology, vol. 11, pp. 406-409, **1903.**§

Mineral deposits of the Bitterroot Range and Clearwater Mountains, Montana, by Waldemar Lindgren: U. S. Geol. Survey Bull. 213, pp. 66-70, **1903.***

A geological reconnaissance across the Bitterroot Range and Clearwater Mountains in Montana and Idaho, by Waldemar Lindgren: U. S. Geol. Survey Prof. Paper 27, **1904.***

A complicated fault system (Gibbonsville, Idaho,) by H. C. Bacon: Eng. and Min. Jour., vol. 79, p. 324, Feb. 16, **1905.**§

Vein structure in the Monument mine, by H. C. Carr: Min. and Sci. Press, vol. 98, pp. 557-558, Apr. 17, **1909.***

Resources of Custer and Lemhi counties, Idaho: Salt Lake Min. Review, vol. 12, pp. 17-19, Mar. 15, **1911.**§

The Yellow Jacket mine, Idaho, by G. L. Sheldon: Eng. and Min. Jour., vol. 93, pp. 221-222, Jan. 27, **1912.**§

Gold deposits at Gibbonsville, Idaho, by F. C. Lincoln: Min. and Sci. Press, vol. 105, pp. 47-49, July 13, **1912.***

Lead-silver mines of Gilmore, Idaho, by Ralph Nichols: Trans. Am. Inst. Min. Eng., vol. 46, pp. 937-939, August, **1913.**§

Geology and ore deposits of Lemhi County, by J. B. Umpleby: U. S. Geol. Survey Bull. 528, **1913.***

Idaho placer operations, by Julius Hornbein: Eng. and Min. Jour., vol. 103, pp. 95-97, Jan. 13, **1917.**§

Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****

Note on cobalt-bearing veins, Lemhi County, Idaho (abstract), by F. L. Hess: Washington Acad. Sci. Journal., vol. 9, No. 16, p. 501, October 4, **1919.**§

Mining experiences in Idaho in the nineties, by G. L. Sheldon: Eng. and Min. Jour., vol. 110, pp. 1212-1214, Dec. 25, **1920.**§

The volatilization process at the Pope Shenon mine, by R. H. Bradford: Min. and Sci. Press, vol. 123, pp. 263-266, August 20, **1921.***

A new copper district near Salmon, Idaho, by C. P. Ross: Eng. and Min. Jour. Press, vol. 118, pp. 205-208, Aug. 9, **1924.**§

A glacially transported mine, by R. T. Walker: Eng. and Min. Jour.-Press, vol. 118, pp. 295-296, Aug. 23, **1924.**§

Ground water in Pahsimeroi Valley, Idaho, by O. E. Meinzer: Idaho Bureau of Mines and Geology Pamphlet 9, **1924.****

The copper deposits near Salmon, Idaho, by C. P. Ross: U. S. Geol. Survey Bull. 774, **1925.**‡

Geology and water resources of the Mud Lake Basin, Idaho, by H. T. Stearns and L. L. Bryan: U. S. Geol. Survey Water-Supply Paper 560-D, **1925.**‡

A geologic reconnaissance of Clark and Jefferson, and parts of Butte, Custer, Fremont, Lemhi and Madison counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 19, **1927.****

Ore deposits in Tertiary lava in the Salmon River Mountains, Idaho, by C. P. Ross: Idaho Bureau of Mines and Geology Pamphlet 25, **1927.****

LEWIS COUNTY

Lewis is one of the northern counties, being bounded on the north and west by Nez Perce, on the northeast by Clearwater, and on the east and south by Idaho County. Containing an area of but 470 square miles, and a population of 12.4 persons to the square mile, it is one of the smallest counties in the State in area and one of the largest in density of population. Excepting the small area occupied by Craig Mountains, practically all the county is tillable, and the principal industries are wheat raising and lumbering.

The county is served by the North and South State highway, by the Lewiston-Stites branch of the Northern Pacific Railroad, by the Lewiston-Grangeville branch, which is owned jointly by the Union Pacific and Northern Pacific railroads, by the Nez Perce & Idaho Railroad from Craigmont to Nez Perce, the county seat, and by the Craig Mountain Railroad from Reubens to Winchester.

The principal mineral resources are copper, gold, silver, marble, and limestone. Veins containing copper, gold, and silver have been discovered and developed in the Craig Mountains, principally along Deer Creek. At one time this section received considerable attention, and a small mill was constructed at one of the mines. The marble and limestone occur on Mission Creek near the Nez Perce County line. The marble occurs in all shades, colors, and diagrams familiar to the marble industry; it is exceptionally adaptable to commercial use and one enterprise has been started to utilize and manufacture the marble and limestone into marketable products.

The Winchester Copper Mining & Smelting Co., which acquired the Forest group of copper claims on Deer Creek in 1926, constructed new buildings, installed a small compressor, and commenced active development work during the latter part of the year.

CRAIG MOUNTAIN MINING & MILLING CO.

Office: Lewiston. **Officers:** Ben L. Schultz, Pres.-Mgr., Lewiston; W. W. Burr, Sec., Genesee. **Inc.:** Nov. 30, 1925. **Capital:** 600,000 shares; par value $1; 475,000 shares issued. **Property:** Craig Mountain group; 20 unpatented claims, Deer Creek dist.; Winchester. **Development:** Total development, approximately 5000 ft. **Plant:** Old mining and milling plant and equipment, installed in 1915. **Ore:** Copper. **Remarks:** Annual labor only.

WINCHESTER COPPER MINING & SMELTING CO.

Office: Winchester. **Officers:** D. Nicholson, Pres.; W. M. Nicholson, Sec., both of Winchester. **Inc.:** Aug. 7, 1926. **Capital:** 1,500,000 shares; par value 10c; 265,520 shares issued. **Property:** Forest group; 11 unpatented claims, Deer Creek dist.; Winchester. **Development:** By 2 tunnels: No. 1, 249 ft. long; No. 2, 200 ft. long. **Ore:** Copper-silver. **Remarks:** A small amount of development work during the year.

BIBLIOGRAPHY

See pages 11-12 for publisher's address, meaning of reference marks, and abbreviations.

A geological reconnaissance across the Bitterroot Range and Clearwater Mountains in Montana and Idaho, by Waldemar Lindgren: U. S. Geol. Survey Prof. Paper 27, **1904.***

Central Idaho gold districts, by S. P. Jellum: Northwest Min. News, vol. 3, pp. 83-91, 107-114, 134-139, **1908**; vol. 4, pp. 2-6, 31-37, 66-73, **1909.***

The Orofino coal field, Clearwater, Lewis, and Idaho counties, Idaho, by C. T. Lupton: U. S. Geol. Survey Bull. 621, pp. 99-108, **1915.***

A preliminary report on the clays of Idaho, by F. H. Skeels: Idaho Bureau of Mines and Geology Bull. 2, p. 59, **1920.****

The copper deposits of the Seven Devils and adjacent districts, by D. C. Livingston and F. B. Laney: Idaho Bureau of Mines and Geology Bull. 1, **1920.***

NEZ PERCE COUNTY

Nez Perce is one of the principal northern counties, bounded on the south and east by Idaho and Lewis counties, on the north and east by Clearwater and Latah counties, and on the west by the States of Washington and Oregon. It has an area of 851 square miles and was accredited with a population of 15,253 in the 1920 census. It is primarily an agricultural county, and Lewiston, the largest town and civic center of north-central Idaho, is the county seat. The county was originally organized under an act of the Legislature of Washington Territory before the Territory of Idaho was organized, and Lewiston was first settled in 1861, consequent to the discovery of, and as a supply point for, the placer mines in Clearwater and Idaho counties.

Lewiston is at the junction of the Snake and Clearwater rivers; steamboats can reach it from Portland, Oregon, although they are not used as a means of transportation from that point, and both rivers are navigable for boats of light draft. In addition to river boats, the county is served by the Union Pacific and Northern Pacific railroads, and by the North and South, and Lewis and Clark State highways.

The principal mineral resources are copper, silver, gold, marble, and limestone. The metals occur in isolated sections of the county and have never received much attention. The limestone, which is adaptable to Portland cement, occurs on the Snake River north of Lewiston, but the deposits have never been developed. The marble, which is of excellent grade and quality, occurs on the Clearwater River near Agatha. A little attempt has been made to exploit the marble deposits.

INDEPENDENT MARBLE & LIME CO.

Office: Lewiston. **Officers:** F. S. Johnson, Pres., Nez Perce; P. R. Bevis, Sec., Lewiston. **Inc.:** Jan. 25, 1926. **Capital:** 1,000,000 shares; par value $1; 250,000 shares issued. **Property:** 220 acres held under lease and option; on Mission Creek. **Mineral sought:** Limestone.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Gold Standard	Cave Gulch	G. C. Ettershank	Lewiston
Homestead Entry	Clearwater	G. H. Gibbs	R. F. D. No. 2, Juliaetta
Iron Cap	Peck	W. H. Rugg	Peck
Montana	Unorganized	Frank Cole	Lewiston

BIBLIOGRAPHY

See pages 11-12 for publisher's address, meaning of reference marks, and abbreviations.

Geology and water resources of Nez Perce County, Idaho, by I. C. Russell: U. S. Geol. Survey Water-Supply Papers 53 and 54, **1901.**‡*

A geological reconnaissance across the Bitterroot Range and Clearwater Mountains of Montana and Idaho, by Waldemar Lindgren: U. S. Geol. Survey Prof. Paper 27, **1904.***

Central Idaho gold districts, by S. P. Jellum: Northwest Min. News, vol. 3, pp. 83-91, 107-114, 134-139, **1908**; vol. 4, pp. 2-6, 31-37, 66-73, **1909.***

Portland cement materials and industry in the United States, by E. C. Eckel, with contributions by E. F. Burchard and others: U. S. Geol. Survey Bull. 522, pp. 135-140, **1913.***

Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 60, art. 3, pp. 1-33, **1921.**‡

OWYHEE COUNTY

Owyhee is one of the historic counties of Idaho. It is situated in the southwestern portion of the State, and is bounded on the north by Canyon, Ada and Elmore counties, on the east by Twin Falls County, on the south by the State of Nevada, and on the west by the State of Oregon. Its area is 7956 square miles, being larger than the State of New Jersey, and its population according to the 1920 census was only 4694, or 0.6 persons to the square mile. The principal industries are farming, stockraising, and mining. Silver City, one of the oldest towns in the State, is the county seat.

The history of this county dates back to the discovery of placer gold and the rich veins of War Eagle Mountain in 1863. The first quartz mill was constructed in 1864, and for many years thereafter Owyhee was the principal mining county. The ores which occur in this county are the richest gold-silver ores ever discovered in the State, and many tons which were either milled or sent directly to smelter had a phenomenal value. Early statistics are not very reliable, but from the best sources available, an estimated production of over $40,000,000 is conservative.

The principal mineral resources of the county are silver, gold, copper, lead, zinc, antimony, diatomaceous earth, opals, manganese, and nitrates. The diversity of mineralization, the favorable geological conditions, and the wide distribution of the deposits throughout the county make it an exceptionally favorable field for prospectors and development companies, particularly because all the high-grade ore in the old mines has not been exhausted, nor have all the veins been discovered.

Owyhee County continues to attract prospectors and investigators seeking new enterprises. The fact that this county still offers excellent opportunities was proved during 1927 by the number of engineers who visited the county, as well as by the new construction and new enterprises which were initiated.

The largest expenditure which has been made on new construction in this county for over five years was made by the American Gold Dredging Corporation on its new flume-type dredge, new mine camp, and four miles of electric transmission line, at its property on Meadow Creek near Triangle. The dredge was designed, manufactured, and erected by the Yuba Manufacturing Co. It is equipped with 2½-cubic-foot close-connected buckets, and is electrically driven and controlled.

New mills to be constructed during the year were those of the Owyhee Gold Mining Co., on War Eagle Mountain, and the Idaho Development Co., at the Evans mine on Poison Creek. Each of these companies completed its mill buildings, and purchased and partly installed the machinery, but neither was ready for operation at the close of the year. In addition to the mills, new camp buildings were erected. The Idaho Development Co. installed a gas-driven hoist and compressor, and complete mining equipment.

The Golconda group in the South Mountain district, owned by the Golconda Group Mining Co., was under option for a few months, during which time a small gas-driven compressor and complete small mining equipment were installed. The geology and mineral resources of the district in which this mine is located are fully described in a new publication issued by the Idaho Bureau of Mines and Geology: Pamphlet No. 22, "The Geology and Ore Deposits of the South Mountain Mining District, Owyhee County, Idaho," by Robert E. Sorenson.

The Great Western Mines Co., whose property is on War Eagle Mountain, maintained active development work throughout a large part of the year. This company is deserving of success for the honest and persistent effort it has been displaying in developing its mine for the past seven years.

The Never Sweat Mining Co. operated its mill for a few days on ore which was extracted under contract. The Hoosier Leasing Co., on the Alpine vein in the Trade Dollar, produced and marketed a small amount of high-grade ore. The Castle Creek Mining & Milling Co. resumed operations the latter part of the year, after perfecting a reorganization of the company.

New companies entering the county during the year were: The Afterthought Mining Co., on the Afterthought; the Big Four Development Co., on the Cumberland; and the War Eagle Mining & Milling Co., on the Red Jacket group. All these are located on War Eagle Mountain.

Drilling for "platinum" in the Bruneau section, in the artesian basin of Little Valley, was active during the early part of the year. Press reports indicated that results were discouraging, and that practically all of the enterprises were abandoned.

AFTERTHOUGHT MINING CO.

Office: 323 Sonna Bldg., Boise. **Officers:** J. W. Jones, Pres.-Mgr.; S. L. Tipton, Sec., both of Boise. **Inc.:** Feb. 15, 1927. **Capital:** 500,000 shares; par value $1; 165,030 shares issued. **Property:** Afterthought group; 1 patented, 3 unpatented claims; French dist.; Silver City; held under lease and option from E. V. Orford, Boise. **Development:** Principally by a vertical shaft 470 ft. deep, in which there are 5 intermediate levels. **Ore:** Silver-gold. **Remarks:** Small amount of repair work during the summer months.



AMERICAN GOLD DREDGING CORPORATION'S DREDGE

AMERICAN GOLD DREDGING CORPORATION

Office: 505 Railway Exchange Bldg., Detroit, Mich. **Officers:** Walter J. Long, Pres.-Mgr., 8th St. & Garden Ave., Boise; Louis B. Hyde, Sec., Detroit, Mich. **Inc.:** Filed in Idaho, Jan. 2, 1926. **Capital:** 300,000 shares common, 200,000 shares preferred; par value $1; 155,000 shares common, 74,340 shares preferred issued. **Property:** Meadow Creek group; 18 unpatented placer claims, containing 360 acres, part of which are held under lease and option; Steele dist.; Triangle. **Plant:** Electrically-driven flume-type Yuba dredge with 2½-cu.-ft. buckets close collected. **Ore:** Placer gold. **Men employed:** Average, 15. **Remarks:** During the year this company constructed its dredge, new mine camp, and 4-mile electric transmission line. All work was completed and dredge made ready to commence operations by the first of January, 1928.

BANNER MINING & MILLING CO.

Office: 1122 State St., Boise. **Officers:** Peter Steele, Pres.-Mgr., Silver City; F. S. Heer, Sec., Boise. **Inc.:** June 15, 1905. **Capital:** 1,500,000 shares; par value $1; 1,200,000 shares issued. **Property:** Banner group; 10 patented, 12 unpatented claims, Carson dist.; Silver City. **Development:** Over 11,000 ft. of underground workings. **Remarks:** Idle since 1923.

BIG FOUR DEVELOPMENT CO.
Office: Box 1061, Boise. **Officers:** C. C. Zumwalt, Pres.-Mgr., Boise; M. H. Eustace, Sec., Caldwell. **Inc.:** Apr. 2, 1924. **Capital:** 500,000 shares; par value $1; 260,000 shares issued. **Property:** Cumberland group; 3 patented claims, War Eagle Mountain, French dist.; Silver City; held under lease and option.

CASTLE CREEK MINING & MILLING CO.
Office: 319 Yates Bldg., Boise. **Officers:** A. C. Bunger, Pres.; W. P. Nelson, Sec.; Harry L. Fisher, Mgr., all of Boise. **Inc.:** An association. **Capital:** 500,000 shares; par value $1; 490,000 shares issued. **Property:** 8 patented, 2 unpatented claims in Pixley Basin, unorganized dist.; Grandview. **Development:** Principally by 3 tunnels: No. 1, 150 ft. long; No. 2, 350 ft. long; No. 3, 800 ft long; an inclined shaft 220 ft. long. **Plant:** MINE: 10x10 gas-driven compressor; complete mining equipment and camp. MILL: 30-ton gas-driven concentrator including flotation. **Ore:** Silver. **Men employed:** Average, 2. **Remarks:** Company reorganized and development work started during the latter part of the year.

COSMOPOLITAN MINING CO., LTD.
Office: Murphy. **Officers:** H. C. Simonsen, Pres., Nampa; Oscar Brunzell, Sec., Murphy. **Inc.:** Nov. 17, 1923. **Capital:** 500,000 shares; par value $1; 119,992 shares issued. **Property:** Hammond group; 5 unpatented claims, Carson dist.; Silver City. **Development:** By 2 tunnels: No. 1, 420 ft. long; No. 2, 344 ft. long. **Ore:** Antimony-silver. **Remarks:** A small amount of work during the year.

EMPIRE MINES CO.
Office: 1122 State St., Boise. **Officers:** Peter Steele, Pres.-Mgr., Silver City; F. S. Heer, Sec., Boise. **Inc.:** Sept. 15, 1923. **Capital:** 2,500,000 shares; par value $1; 2300 shares issued. **Property:** Trade Dollar group; 37 patented, 6 unpatented claims, Carson dist.; Silver City **Remarks:** Part of mine under option by the Hoosier Leasing Co.

GOLCONDA GROUP MINING CO.
Office: N. 610 Washington St., Spokane, Wash. **Officers:** G. A. Sonneman, Pres.-Mgr.; E. W. Sonneman, Sec., both of Spokane, Wash. **Inc.:** Jan. 11, 1908. **Capital:** 1,500,000 shares; par value 1c; all shares issued. **Property:** South Mountain group; 15 patented claims, South Mountain dist.; Jordan Valley, Ore. **Plant:** Small gas-driven compressor. **Ore:** Lead-zinc-silver. **Remarks:** Under option for a few months, during which time a small gas-driven compressor and complete small mining equipment were installed.

GREAT WESTERN MINES CO.
Office: Room 169, Republican House, Milwaukee, Wis. **Officers:** A. J. Kraemer, Pres., Menomonee Falls, Wis.; F. H. Mayhew, Sec., Milwaukee, Wis.; T. W. Galigher, Agent, 915 N. 21st St., Boise. **Inc.:** Nov. 29, 1920. **Capital:** 1,500,000 shares; par value 1c; 1,000,000 shares issued. **Property:** Chapman group, owned by Chapman & Emerson, Boise; 5 unpatented claims, held under lease and bond. Company owns 3 and a fraction unpatented claims, French dist.; Silver City. **Development:** By 2 tunnels: No. 1, 2600 ft. long; No. 2, 2800 ft. long. **Plant:** Electrically-driven 10x10 compressor; complete mining equipment and camp. **Ore:** Gold. **Men employed:** Average, 3. **Remarks:** Active development work throughout a large part of the year.

HOOSIER LEASING CO.
Office: Silver City. **Officers:** Charles A. Hackney, Pres.; Peter Steele, Mgr., both of Silver City; Victor Shawe, Sec., Boise. **Inc.:** Nov. 16, 1926. **Capital:** 100,000 shares; par value $1; 32,250 shares issued. **Property:** Lease on Alpine vein from Empire Mines Co.; Carson dist.; Silver City. **Development:** Operations conducted through Blaine tunnel. **Ore:** Gold-silver. **Men employed:** Average, 4. **Remarks:** A small amount of high-grade ore was produced and marketed during the early part of the year.

IDAHO DEVELOPMENT CO.

Office: 610 Eastman Bldg., Boise. **Officers:** W. R. Millard, Pres.-Mgr., Grandview; Harry D. Mills, Sec., Reno, Nev. **Inc.:** Filed in Idaho, Feb. 28, 1927. **Capital:** 400,000 shares; par value $1; 200,000 shares issued. **Property:** Evans group; 7 unpatented claims on Poison Creek; Grandview; held under lease and option from A. T. Evans. **Development:** By 2 short shafts. **Plant:** MINE: Gas-driven hoist and compressor; complete mining equipment and camp. MILL: 30-ton mill, amalgamation and concentration; gas-driven. **Ore:** Silver-gold. **Men employed:** Average, 6. **Remarks:** Mining equipment installed; mill building constructed and machinery partly installed; small amount of development work during year.

IDAHO GOLD & PLATINUM MINING CO.

Office: Mountain Home. **Officers:** J. R. Prentice, Pres.-Mgr.; Willa G. Mundell, Sec., both of Mountain Home. **Inc.:** July 6, 1925. **Capital:** 2,500,000 shares; par value 10c; shares issued, unknown. **Property:** 2 unpatented claims, 160 acres, unorganized dist., Little Valley; Bruneau. **Ore:** Platinum. **Remarks:** This company's enterprise is based on the presence of platinum in a volcanic glass sand lying at a depth of about 250 ft. in an artesian basin. During the early part of the year, an attempt toward sinking a shaft was made, and a few test holes were driven by churn drills.

IMPERIAL MINING & MILLING CO., LTD.

Office: 816-819 Foster Bldg., Denver, Colo. **Officers:** B. M. Webster, Sec., Denver, Colo. **Inc.:** Mar. 13, 1903. **Capital:** 500,000 shares; par value $1; all shares issued. **Property:** Imperial Lode; 1 patented claim, French dist.; Silver City.

NEVER SWEAT MINING CO.

Office: Nampa. **Officers:** Windsor J. Lloyd, Pres.; D. L. Rhodes, Sec., both of Nampa. **Inc.:** July 6, 1922. **Capital:** 50,000 shares; par value $10; 27,000 shares issued. **Property:** Never-Sweat group; 12 unpatented claims, French dist.; Silver City. **Development:** By 2 tunnels: No. 1, 2200 ft. long; No. 2, 1100 ft. long, in which is a vertical shaft 50 ft. deep. **Plant:** MINE: Electrically-driven compressor and complete mining equipment. MILL: 50-ton mill; fine grinding, amalgamation plates, and concentrating tables. Complete mine camp. **Ore:** Silver-gold. **Remarks:** Mill operated for a few days on ore which was extracted by 2 men under contract.



MINE CAMP AND MILL: OWYHEE GOLD MINING CO.

OWYHEE GOLD MINING CO.

Office: Nampa. **Officers:** M. D. Polk, Pres.; V. C. Belknap, Sec., both of Nampa; John B. Platts, Mgr., Wallace. **Inc.:** Sept. 3, 1925. **Capital:** 500,000 shares; par value $1; 248,900 shares issued. **Property:** Mountain Chief group; 2 unpatented claims, French dist.; Silver City. **Development:** Principally by 3 tunnels: No. 1, 200 ft.; No. 2, 175 ft.; No. 3, 850 ft. Total development, approximately 1750 ft., which opens the vein to a total depth of 400 ft. **Plant:** 50-ton amalgamation mill. **Men employed:** Average, 8. **Ore:** Gold. **Remarks:** During the year complete new mine camp was constructed, mill building erected, and milling machinery partly installed.

ROOSTER COMB MINING CO.

Office: 1704 N. 25th St., Boise. **Officers:** J. M. McBride, Pres.; W. H. Campbell, Sec., both of Boise. **Inc.:** Jan. 7, 1926. **Capital:** 100,000 shares; par value $1; 75,000 shares issued. **Property:** 8 unpatented claims on Reynolds Creek, held under lease and option, unorganized dist.; Murphy. **Development:** By 1 tunnel 700 ft. long, and 1 shaft 50 ft. deep. **Ore:** Gold. **Remarks:** Small amount of work during the year.

WAR EAGLE CONSOLIDATED MINING CO.

Office: 919 Real Estate Trust Bldg., Philadelphia, Pa. **Officers:** Frank S. Lewis, Pres.; H. L. Siddell, Ass't. Sec., both of Philadelphia. **Inc.:** Apr. 22, 1907. Charter forfeited Dec. 1, 1912. **Capital:** 60,000 shares preferred, 240,000 shares common; par value $50; all shares issued. **Property:** South Oro Fino and Mahogany groups; 8 patented, 2 unpatented claims, French dist.; Silver City. **Remarks:** Company operations suspended in 1923, since which time occasional lessees have performed a little work.

WAR EAGLE MINING & MILLING CO.

Office: Boise. **Officers:** Harry Keyser, Pres.; E. P. Barnes, Sec.; Lafayette Boone, Mgr., all of Boise. **Inc.:** January 4, 1927. **Capital:** 1,000,000 shares; par value 10c; 510,000 shares issued. **Property:** Red Jacket group; 5 unpatented claims, French dist.; Silver City. **Development:** By 3 tunnels: No. 1, 600 ft.; No. 2, 600 ft.; No. 3, 2000 ft. **Ore:** Gold. **Remarks:** Small amount of work under contract.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Addie Group	French	F. M. Orem	Salt Lake City, U.
Afterthought	French	Ernest V. Orford	Boise
American	Carson	Jas. Cox	Caldwell
Burns et al.	Carson	C. M. Caldwell	Silver City
Daly Group	Carson	J. W. Daly	Silver City
De Lamar	Carson	H. H. Bonnell	De Lamar
Deluge et al.	Carson	John Grete	Silver City
Dubuque et al.	Carson	Elisha Lewis	Silver City
Garnett et al.	Unorganized	Chas. G. Warren	Mountain Home
Gold Bug	French	Mrs. W. S. Cook	Silver City
Henrietta	Carson	C. L. Norcross	168 Dartmouth St., Boston, Mass.
High Ore	French	P. C. Conway	Silver City
Homestake	French	Mrs. George Schlack	Silver City
Homestake Pl.	Snake River	Chas. Brown	Murphy
Jessie No. 1 et al.	Unorganized	Elmer Glenn	Bruneau
Last Chance Pl.	Unorganized	T. A. Gregory	Kuna
May Queen	Carson	Chas. O. Hartley	Emmett
Meadow Lark	Carson	Willenegger Bros.	De Lamar
Moose et al.	Flint	A. E. Martin	Silver City
Nellie Ann No. 1	Carson	W. W. Jones, M. D.	Jordan Valley, Ore.
Ontario	Carson	Mrs. J. Mattenson	Boise
Pauper	Carson	R. H. Leonard	Silver City
Poorman	French	Fred Grete	Silver City
Potosi	Carson	Jack Stoddard	Silver City
Rich Gulch	Carson	Sam Williams	Tulsa, Okla.
Ruth	French	Geo. Westlake	Hailey

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
San Juan et al.	French	Mary Grete Est.	Silver City
Solitude et al.	Flint	Mary Tilman	Silver City
Star Gr.	Carson	Lewis Bros.	Silver City
Sugar Loaf	French	A. P. Nugent	Silver City
Sunnyside	Carson	G. A. Bergh	1228 State St., Boise
Teddy	Steele	B. H. Hyde	Oreana
Village Blacksmith	Carson	Duncan & Lackey	Silver City
Wannensten Gr.	Carson	Andrew Wannensten	Nampa
War Eagle Gr.	French	Wm. Healy	Boise
Wasp et al.	Flint	W. H. Townsend	Silver City

BIBLIOGRAPHY

See pages 11-12 for publisher's address, meaning of reference marks, and abbreviations.

Precious stones; opal, by G. F. Kunz: U. S. Geol. Survey Mineral Resources, **1893**, p. 698.*

A geological reconnaissance across Idaho, by G. H. Eldridge: U. S. Geol. Survey, Sixteenth Ann. Rept., pt. 2, pp. 217-276, **1895.***

An Idaho silver-gold camp (Florida Mountain district), by F. G. Corning: Eng. and Min. Jour., vol. 60, p. 244, Sept. 14, **1895.**§

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey, Twentieth Ann. Rept., pt. 3, pp. 65-256, **1900.***

Some Idaho mining districts, by Arthur Lakes: Mines and Minerals, vol. 22, pp. 203-206, December, **1901.***

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, pp. 42, 71 and 173, **1902.***

Notes on geology of southwestern Idaho and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Bull. 217, **1903.**‡

Preliminary report on artesian basins in southwestern Idaho and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Water-Supply Paper 78, **1903.**‡

Description of the Silver City quadrangle, by Waldemar Lindgren: U. S. Geol. Survey Geol. Atlas, Folio No. 104, **1904.***

Description of the Nampa quadrangle, by Waldemar Lindgren: U. S. Geol. Survey Geol. Atlas, Folio No. 103, **1904.***

South Mountain, Idaho, by R. N. Bell: Eng. and Min. Jour., vol. 83, pp. 283-284, Feb. 9, **1907.**§

The De Lamar mine of southwest Idaho, by H. S. Brown and F. G. Mudgett: California Jour. Tech., vol. 12, pp. 35-41, **1908.****

Some gold deposits of the Northwest, by F. C. Lincoln: Eng. and Min. Jour., vol. 92, p. 408, Aug. 26, **1911.**§

Nitrate deposits in southern Idaho and eastern Oregon, by G. R. Mansfield: U. S. Geol. Survey Bull. 620, pp. 19-44, **1915.***

Reopening of old De Lamar mine under way, by R. N. Bell: Eng. and Min. Jour., vol. 110, pp. 538-539, Sept. 11, **1920.**§

An occurrence of naumannite in Idaho, by E. V. Shannon: Am. Jour. Sci., 4th ser., vol. 50, pp. 390-391, November, **1920.**‡

A preliminary reconnaissance of the gas and oil possibilities of southwestern and south-central Idaho, by J. P. Buwalda: Idaho Bureau of Mines and Geology Pamphlet 5, **1923.****

Geology and water resources of the Bruneau River basin, Owyhee County, Idaho, by A. M. Piper: Idaho Bureau of Mines and Geology Pamphlet 11, **1924.****

Discovery of a Balkan fresh-water fauna in the Idaho formation of Snake River valley, Idaho, by W. H. Dall: U. S. Geol. Survey Prof. Paper 132-G, **1924.**‡

Geology and metalliferous resources of the region about Silver City, Idaho, by A. M. Piper and F. B. Laney: Idaho Bureau of Mines and Geology Bull. 11, **1926.****

The geology and ore deposits of the South Mountain mining district, Owyhee County, Idaho, by R. E. Sorenson: Idaho Bureau of Mines and Geology Pamphlet 22, **1927.****

PAYETTE COUNTY

The only known mineral resources of this county are diatomaceous earth; various clays of excellent quality; and gas, which has been developed at Payette.

Late in 1926 the Idaho Petroleum Co. at Payette acquired the property and equipment owned by the Idaho Oil & Gas Co., whose well was 1100 feet deep. Work was then started sinking the well to a further depth and was carried on intermittently throughout 1927, until a total depth of 1800 feet was gained. The encountering of gas was reported at the depths of 1485 and 1550 feet.

IDAHO-OREGON OIL & GAS CO.

Office: Payette. **Officers:** L. Haarmann, Pres.-Mgr., Payette; J. H. Forbes, Sec., Caldwell. **Inc.:** May 12, 1923. **Capital:** 10,000 shares; par value $10; 6000 shares issued. **Property:** Oil and gas leases on patented farm land, Little Willow Creek; Payette. **Plant:** Complete small well-drilling equipment. **Mineral sought:** Oil and gas.

IDAHO-OREGON PETROLEUM CORPORATION

Office: Payette. **Officers:** L. V. Patch, Pres.-Mgr.; C. A. Smith, Sec., both of Payette. **Inc.:** Dec. 1, 1927. **Capital:** 5000 shares; no par value; 18 shares issued.

IDAHO PETROLEUM CO.

Office: Payette. **Officers:** L. V. Patch, Pres.-Mgr.; A. S. Hincks, Sec., both of Payette. **Inc.:** June 9, 1926. **Capital:** 200 shares; par value $100; 120 shares issued. **Development:** 1800-ft. well. **Plant:** Complete well-drilling equipment, steam-driven. **Mineral sought:** Oil and gas. **Men employed:** Average, 4. **Remarks:** During the year the encountering of gas was reported at depths of 1485 and 1550 ft.

BIBLIOGRAPHY

See pages 11-12 for publisher's address, meaning of reference marks, and abbreviations.

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Notes on geology of southwestern Idaho and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Bull. 217, **1903.**‡

Description of the Nampa quadrangle, by Waldemar Lindgren and N. F. Drake: U. S. Geol. Survey Geol. Atlas, Folio No. 103, **1904.***

Gas and oil prospects near Vale, Oregon, and Payette, Idaho, by C. W. Washburne: U. S. Geol. Survey Bull. 431, pp. 26-55, **1909.***

Oil and gas possibilities of eastern Oregon, by J. P. Buwalda: Oregon Bureau of Mines and Geology, vol. 3, No. 2, **1921.***

A preliminary reconnaissance of the gas and oil possibilities of southwestern and south-central Idaho, by John P. Buwalda: Idaho Bureau of Mines and Geology Pamphlet 5, **1923.****

POWER COUNTY

The most active development work done in this county during the year was that of the Independent Mining Co. at its lead-silver prospect near Rockland. The mine is equipped with small machinery and nine men were employed in sinking a shaft.

The Gem State Petroleum Co. extended its well 325 feet; and the Rockland Valley Oil Co. added 450 feet to its bore.

A few placer mines along the Snake River produced and marketed a small amount of placer gold.

ARBON VALLEY OIL CO.

Office: Pocatello. **Officers:** D. C. Ray, Pres.; L. B. Evans, Sec., both of Pocatello. **Inc.:** Feb. 20, 1923. **Capital:** 250,000 shares; par value $1; 120,000 shares issued. **Property:** Oil leases on patented farm land which have been assigned to Gem State Petroleum Co.

GEM STATE PETROLEUM CO.

Office: Pocatello. **Officers:** H. C. Harris, Pres.-Mgr.; S. G. Baker, Sec., both of Pocatello. **Inc.:** Oct. 2, 1923. **Capital:** 300,000 shares; par value $1; 286,123 shares issued. **Property:** Oil and gas leases on 15,000 acres of farm land in Arbon Valley. **Development:** 10-inch well, 2550 ft. deep. **Mineral sought:** Oil and gas. **Remarks:** Well extended 325 ft. during the year.

IDAHO RESEARCH AND DEVELOPMENT CO.

Office: 810 S. 4th Ave., Pocatello. **Officers:** Geo. Williams, Pres., Pocatello; Geo. Stoll, Sr., Sec.-Mgr., 836 E. 67th N., Portland, Ore. **Inc.:** Aug. 2, 1920. **Capital:** 200,000 shares; par value $5; 123,504 shares issued. **Property:** Oil and gas leases on 8000 acres in Arbon Valley. **Plant:** 15-h. p. steam-driven well-drilling rig and equipment. **Mineral sought:** Oil and gas. **Remarks:** Idle throughout the year. Leases assigned to Gem State Petroleum Co.

INDEPENDENT MINING CO.

Office: Rockland. **Officers:** G. B. Geswaldi, Pres.-Mgr.; W. M. Hines, Sec., both of Rockland. **Inc.:** Oct. 24, 1925. **Capital:** 2,000,000 shares; par value 25c; 1,088,952 shares issued. **Property:** Independent group; 16 unpatented claims, unorganized dist.; Rockland. **Development:** By 1 shaft 170 ft. deep. **Plant:** Gas-driven 8x10 Sullivan compressor; small air-driven hoist; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 9. **Remarks:** Active throughout the year in sinking shaft.

ROCKLAND VALLEY OIL CO.

Office: Rockland. **Officers:** W. M. Hines, Pres.; Ed. N. Morris, Sec.; J. F. Hautzinger, Mgr., all of Rockland. **Inc.:** June 7, 1923. **Capital:** 150,000 shares; par value $1; 80,527 shares issued. **Property:** Oil and gas leases on 16,300 acres; Rockland. **Development:** 1 well, 1700 ft. deep. **Plant:** Steam-driven drilling rig and complete equipment. **Remarks:** A stock assessment of 2 cents per share was levied on Jan. 31. Well extended 450 ft. during the year.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Bannock Peak	Unorganized	Frazier & McClandon	American Falls
Diamond et al Pl.	Snake River	Wm. M. Main	Aberdeen
Golden Clift Pl.	Snake River	Geo. J. Wheeler	American Falls
.....Pl.	Snake River	M. Launsberry	Minidoka
.....Pl.	Snake River	L. N. Rosencrans	American Falls
.....Pl.	Snake River	J. O. Payne	American Falls
.....Pl.	Snake River	Wm. & C. Wagstaff	American Falls

BIBLIOGRAPHY

See pages 11-12 for publisher's address, meaning of reference marks, and abbreviations.

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

A preliminary report on the clays of Idaho, by F. H. Skeels: Idaho Bureau of Mines and Geology Bull. 2, **1920.****

Geography, geology, and mineral resources of the Fort Hall Indian Reservation, Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 713, **1920.**‡

Possibilities of petroleum in Power and Oneida counties, Idaho, by A. M. Piper: Idaho Bureau of Mines and Geology Pamphlet 12, **1924.****

SHOSHONE COUNTY

Shoshone County lies in the northern part of the State, and is bounded on the east by the State of Montana, on the south by Clearwater County, on the west by Latah, Benewah, and Kootenai counties, and on the north by Bonner County. In area it is one of the largest counties in the State covering 2597 square miles. Lying approximately in the geographical center of the county is the famous Coeur d'Alene mining district, which contains an area of approximately 400 square miles, and which is known throughout the world as one of the largest lead-silver producing regions of the United States.

The entire county is mountainous, containing but a very small area of agricultural land, and is entirely dependent upon the mining and timber industries, particularly mining. These industries are well established, and it is to them that credit must be given for making this county one of the wealthiest in the State, as well as the county having the smallest public debt, one of the lowest tax levies, and the greatest per capita wealth.

It is the largest and most important mining county in the State, and for many years has produced 90 per cent of the lead and 85 per cent of the silver that has been derived from Idaho mines. Its importance can be better judged from the fact that Idaho ranks third in the United States in the production of lead and third in the production of silver. In addition to its production of lead and silver, Shoshone is the principal zinc producing county in the State, and one of the most important gold producers. The other metals which occur in commercial quantities are copper, antimony, and tungsten. At one time copper was one of the principal metal products and the largest copper mines ever developed in the State were those near Mullan.

The county is served by the O.-W. R. & N. and Northern Pacific railroads, by the Coeur d'Alene-Yellowstone State highway, which is paved between Mullan, Wallace, and Kellogg, and by well-maintained county roads, which reach the principal mines. Wallace is the largest town, the county seat, and the civic and business center.

Mining conditions in the Coeur d'Alene district reflected the general sound prosperity that the country has witnessed throughout the year. Practically all the large producers maintained capacity production, and in some instances output was increased above normal. The mines are in excellent shape both as to future life and physical condition, and the district is assured that many years will elapse before the end of the principal mines can even be predicted. In addition to the fact that the present large producers have almost unlimited resources, there is also the possibility of discovering new mines throughout this vast mineralized area. In the past, famous producers have become exhausted, yet the closing of these properties has not affected the prosperity of the district, because when one mine has become exhausted a new one almost invariably has been discovered or developed to take its place.

During 1927 this county witnessed more new development, the starting of more new enterprises, more new dividend-paying and profitably operating mines, and a larger production than at any time since the peak of wartime activities. As many of the new enterprises are based on substantial mine foundations, the possibility for adding additional new producers to the present long list of profitable operations is greatly increased. All the large mines conducted active development work throughout the year which proved the extent of their ore bodies at greater depth and laterally. The increased ore reserves and the improvements added to mine, mill, and smelting plants have enhanced the physical condition and future life of the mines, as well as insuring a long period of prosperity for the Coeur d'Alene district.

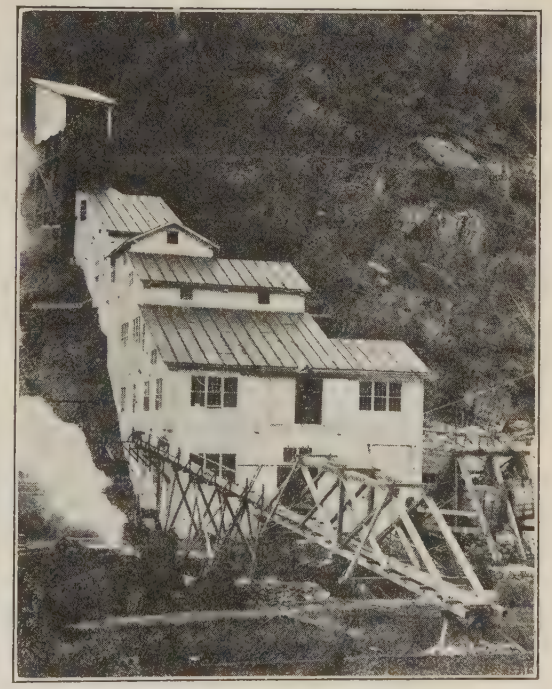
The principal producing mines in which the ore reserves were increased by new development work during the year were: The Bunker Hill mine of the Bunker Hill & Sullivan M. & C. Co.; the Hecla mine of the Hecla Mining Co.; the Morning and Page mines of the Federal M. & S. Co.; the Tamarack mine of the Tamarack & Custer Consolidated Mining Co.; the Stratton and Panhandle mines of the Strattons Mines Co.; the Sidney mine of the

Sidney Leasing Co.; the Sunshine mine of the Sunshine Mining Co.; the Gold Hunter mine of the Gold Hunter Mines, Inc.; the Galena mine of the Callahan Zinc-Lead Co.; the Jack Waite mine of the Jack Waite Mining Co.; and the Constitution mine of the Constitution Mining & Milling Co.

Companies which entered the ranks of dividend payers during the year were: The Sunshine Mining Co. at its Sunshine mine; and the Sidney Leasing Co. at the Sidney mine. Mines which were placed on a profitable operating basis were: The Galena mine of the Callahan Zinc-Lead Co.; and the Page mine of the Federal M. & S. Co.

The principal new ore disclosures and discoveries of importance were those at the Tamarack mine of the Tamarack & Custer Consolidated Mining Co.; the Dickens mine of the Dickens Consolidated Mines Co.; the Sherman mine of the Sherman Lead Co.; the Douglas mine of the Douglas Mining Co.; the Alameda mine of the Alameda Mining Co.; and the Golconda mine of the Golconda Lead Mines.

The most important new construction work maintained throughout the year was at the electrolytic zinc plant at Kellogg, which is being built by the Sullivan Mining Co. to treat the zinc-lead ores of the Coeur d'Alene district. The Sullivan Mining Co. is owned jointly by the Bunker Hill & Sullivan M. & C. Co. and the Hecla Mining Co. The Hercules mill at Wallace, owned by the Hercules Mining Co., was rebuilt, a zinc flotation unit added, and it was converted into a custom mill which now offers milling facilities for small mines without mills in the vicinity of Wallace. The mill on Big Creek which was formerly owned by the Big Creek Mining Co., Ltd., whose property was acquired under foreclosure proceedings by the Bunker Hill & Sullivan M. & C. Co., was entirely rebuilt to treat the ore from the Bunker Hill's Crescent mine. This mill is now known as the Crescent. The Cedar Creek Mining & Development Co., Ltd., constructed a new mill at its property in the Summit district. The design of this mill followed that of the Galena mill of the Callahan Zinc-Lead Co. and includes fine grinding with lead and zinc units.



CRESCENT MILL: BUNKER HILL & SULLIVAN M. & C. CO.

The largest and most important expenditures made in Shoshone County during the year in mine development and new exploration work were those of the Hercules Mining Co. and its allied companies, all of which are controlled by Jerome J. Day and Harry L. Day, at the following operating mining companies or mines: Tamarack & Custer Consolidated Mining Co.; Strattons Mines Co.; Ambergris Mines Co.; Sherman Lead Co.; the Maher-Hearn group; Honolulu Mining Co.; Humming Bird Mining Co., and Roanoke Min-

ing Co. All of these mines are in favorable locations, and, as the work is being actively and intelligently directed, there are excellent possibilities for some of them to become important producers.

Working conditions throughout the Coeur d'Alene district are exceptionally favorable. All the mines are well ventilated, and the operators devote much time and thought to making the mines safe and keeping them in such condition that the men can do a full day's work without expending the energy that is necessary in poorly ventilated mines. Both attention and money have been devoted to this phase of the operations, and it can safely be said that these are the best ventilated mines in the country. Serious attention is given not only to ventilation, but to safety, recreation, and general welfare. The value of the welfare work to company employees and to the communities has been demonstrated through the Morning Club, erected at Mullan by the Federal M. & S. Co.; the Y. M. C. A. Building at Kellogg, donated by the Bunker Hill & Sullivan M. & C. Co.; and the Hercules Hall at Burke, erected by the Hercules Mining Co. Another outstanding contribution to this work is the base-ball field—located a short distance above the town of Burke and named Hearn Field in honor of W. F. Hearn of that town—which the Hecla Mining Co. constructed and donated to the community during the year. The building of the field involved engineering and construction difficulties, as level land in this vicinity is unknown; it was done in the interests of inter-mine base-ball teams, which are sponsored by all the large mines and between which there is keen rivalry.

Favorable working conditions attract first-class workmen to the district who remain permanently, with the result that the labor turnover is always at a low point. The wage scale is the highest of any mining camp in the United States, averaging from $1.00 to $1.50 a day above any other district. The scale is based on the price of lead, so that when this metal is selling at a high price, the workmen benefit, as well as the mining companies. As all the operators have adopted the sliding scale, there is no hesitation in granting an increase in wages with the increase in the price of lead; and it follows that there are no labor controversies or agitation. This high wage scale is also reflected in the general prosperity of the county, which during 1927 was not exceeded by any other county or district in the State.

The outstanding new developments, construction and enterprises can best be reviewed through an outline by companies.

The extensive development work which was done during 1927 in the Bunker Hill mine greatly increased its resources. The completion of the shaft to the 1900-foot level and the opening of the ore bodies at that depth, where the ore and geological conditions were found to be normal, added much to the life of the mine which is estimated in decades instead of in years. The Bunker Hill & Sullivan Mining & Concentrating Co., because of the magnitude of the Bunker Hill mine, has become more of a manufacturing than a mining operation, and with its smelter, mills, experimental plants, and organization, is one of the largest of its kind in the world. Its stock was listed on the New York Curb Exchange during the latter part of 1926; in January, 1927, this stock sold at a low of $67.50 per share and in September it had risen to a high of $156.00 per share. This company maintained its usual production record throughout the year, and the many plant betterments which were added greatly increased the efficiency of the enterprise. The principal betterments were the remodeling of the Sweeny mill, and enlargements and improvements at the smelter and the surface plant of the mine. The Tainton electro-chemical experimental lead-leaching plant was modified and improved, and many details perfected which add greatly to the importance of the process. In addition to extensive development work in the Bunker Hill mine, this company was actively engaged in prospecting and developing other properties throughout the Coeur d'Alene district, in Valley County, and in Nevada, Alaska, and Canada. At one of these, the Crescent in Shoshone County, the old mill of the Big Creek Mining Co. was acquired and rebuilt for the purpose of milling the ore from this mine.

The Hecla Mining Co., which is recognized as one of the principal lead-silver producing companies of the United States, greatly increased its ore reserves and resources in the Hecla mine. The vein was further explored on the 2800-foot level and work was started in sinking the main shaft to this level. The mine and mill plants were enlarged and improved, and the mine maintained in first-class condition. At the old Tiger-Poorman mine, which was purchased in 1920, machinery and equipment were installed and work started on unwatering it to the 600-foot level. In furtherance of a policy adopted a few years ago to expand its operations, this company developed three properties in the southern part of the State throughout a large part of the year, and an active search for others worthy of development was carried on in Idaho, Nevada, Washington, and Canada.

The Morning mine of the Federal Mining & Smelting Co., which is one of the oldest in the Coeur d'Alene district in point of continuous production, as well as one of the largest lead-silver-zinc mines in the United States, was maintained at capacity production throughout the year. The number of years that this record will continue is unknown, as development work on the 2850 and 3050-foot levels has proved the ore bodies to be larger and more extensive than on any of the upper levels. During the year the 2850-foot level was opened to the full length of the ore, a contract was let for sinking the shaft from the 3050 to the 3450-foot level, and mine and mill plants were greatly enlarged and improved. The change in the milling methods from jigs and tables to fine grinding and flotation resulted in a reduction of milling costs and an increase in recoveries. In addition to the ore mined under company operations, a large tonnage was extracted from the upper levels by a number of lessees; the most important of these is the Sheridan Lease, which employs over 100 men.

The Page mine of the Federal Mining & Smelting Co., in Government Gulch near Kellogg, was reopened in 1926, equipped with mine and milling plants and placed on a producing basis. It was operated throughout 1927 on a profitable production basis. The plants were improved, mine camp was enlarged, the shaft extended 300 feet from the 600 to the 900-foot level, and the ore bodies were opened to a greater extent on the intermediate levels. The success of this operation can be accredited entirely to flotation, because with the old milling methods it was impossible to mine and mill such low-grade ore at a profit. The average metal content of the ore mined during the year was: Lead, 6.93 per cent; zinc, 2.78 per cent; silver, 2.17 ounces.

The Sullivan Mining Co. suspended production at its Star mine, pending completion of its new electrolytic zinc plant at Kellogg, and devoted all its energies to this construction and to underground development work. The 4000-foot level of the Star mine is connected with the 2000-foot level of the Hecla mine by the Star crosscut, which is 8900 feet long. This crosscut made a blind connection with the Star vein at a point 2800 feet below the Star tunnel, and a vertical operating raise is now being driven to connect crosscut and tunnel. During the year this raise was advanced 1500 feet and a connection made with the 800-foot or No. 6 tunnel level of the Morning mine. Also the Hecla mining plant was enlarged to accommodate Star ore. It was expected that the zinc plant would be completed and production resumed in April, 1928.

The Tamarack & Custer Consolidated Mining Co., which is recognized as one of the substantial producing mines of the Coeur d'Alene district, maintained a steady output and an extensive mine development campaign throughout the year. During the early part of the year, the development work resulted in opening up a large, previously unknown ore body on the No. 4 shaft level which was later opened on adjacent levels. The extent and grade of this new ore, as opened up at the close of the year, indicated that many years had been added to the life of the mine.

At the Galena mine of the Callahan Zinc-Lead Co., which was placed on a profitable operating basis late in 1926, capacity output, together with an extensive development campaign, was maintained throughout the year. The new work increased the ore reserves, and late in the year arrangements were

completed for opening the mine to an additional depth of 800 feet, from the 1400-foot level to the 2200-foot level. New sinking equipment was installed on the 1400-foot level, and at the close of the year the shaft had been extended to the 1600-foot level. As this mine is located in the so-called "dry belt," or south side of the district, the success it is attaining has been an important factor in stimulating development throughout this area.

The addition of the Sunshine Mining Co. to the list of dividend-paying mines of Shoshone County was one of the most important events of the year, particularly because this company's mine is also situated in the south side of the district. The mine plant and mill were enlarged and improved; a 250-foot inclined winze was sunk from the 500-foot level in the mine, and new hoisting machinery installed for conducting operations through it, also a large amount of lateral development on various levels was performed, which new work greatly increased the ore reserves.

The Sidney, operated by the Sidney Leasing Co., was the second addition to the list of dividend payers during 1927. The fact that this mine, located on Pine Creek, is being operated at a substantial profit with metals at a low price is significant in proving that this section of the Coeur d'Alene district is not without merit, and opinions as to its possbilties are changing. Much credit is due the Bunker Hill & Sullivan M. & C. Co. for the success of this enterprise in having financed the construction of its aerial tramway and given assistance to its operation. In addition to maintaining a constant output throughout the year, the Sidney Leasing Co. sank a 200-foot shaft from No. 6 tunnel, installed a new hoist, performed a large amount of lateral development work, and enlarged the mine camp.

One of the large and active development campaigns conducted during the year and including mine improvements and additions to mine plants was that of the Strattons Mines Co. at the Stratton and Panhandle mines, which also produced and marketed a substantial tonnage of ore. In December this company obtained from the Option Mining Co. a lease on the Ohio claim, and arrangements were completed for developing it from the 200-foot level in the Stratton shaft.

The Gold Hunter Mines, Inc., at Mullan, one of the oldest mines in Shoshone County in point of continuous production, maintained capacity output and an extensive development campaign during the year. The principal new work was in sinking the winze in the 1200-foot level from the 1400 to the 1600-foot level, and drifting on the 1500 and 1600-foot levels, which resulted in exposing new ore at these depths. By proving the continuation of its ore at depth, this company greatly increased its resources and future life.

In August the Jack Waite Mining Co., Ltd., purchased the lease and assets of the Jack Waite Leasing Co., consisting of a 150-ton mill, camp buildings, mine plant, power lines, and railroad, and assumed operation of the mine. New ore bins, a tramway and a sorting plant were installed, and the sinking of a winze on the ore in the lower tunnel was commenced. This enterprise is the largest producer in the north side, or Murray section, of the Coeur d'Alene district.

The Constitution Mining & Milling Co., whose mine is on Pine Creek, modified and enlarged its mill by adding new machinery and changing it to a straight flotation plant. The company also performed a large amount of development work, part of which consisted in sinking a new shaft 240 feet deep on the 200-foot level, and produced and marketed a large tonnage of concentrates during the year. The development work increased the known ore reserves, and the production maintained the company's record as one of the important mines of the district.

Production at the Douglas mine on Pine Creek, near the Constitution, was maintained until May, after which the Douglas Mining Co. assumed charge and conducted an intensive development campaign throughout the remainder of the year. This work resulted in greatly increasing the ore reserves, and was made possible through the purchase of the company's treasury stock by the Bunker Hill & Sullivan M. & C. Co.



AEROPLANE VIEW OF BUNKER HILL & SULLIVAN M & C. CO.'S MILLS AND MINE BUILDINGS

The Dickens Consolidated Mines Co., whose property is on Moon Creek, conducted an active development campaign throughout the year. A large hoist was purchased and installed; the shaft was sunk from the 400 to the 500-foot level, and a large amount of crosscutting and drifting was performed on each of these levels. The success with which this company is meeting was responsible for stimulating much new development work to this part of the Coeur d'Alene district.

One of the largest and most important new development enterprises to be conducted during the year was that of the Sherman Lead Co. Its mine was connected with No. 5 tunnel of the Hercules mine through the Humming Bird workings, a large electrically-driven hoist installed, a 1000-foot raise driven on the vein, and connections made with all of the old workings. Press reports at the end of the year were to the effect that the mine was being placed in condition for stoping ore, which would be taken to the Hercules Mining Co.'s mill at Wallace for reduction.

The largest development campaign conducted on Pine Creek during the year was by the Lookout Mountain Mining & Milling Co. This company extended its lower crosscut, No. 3 tunnel, from a length of 500 feet to 1800 feet, where it intersected the vein at a depth of 500 feet below No. 2 tunnel, after which drifting on the vein was started in both directions.

Operations by the Alameda Mining Co., whose property adjoins the Success mine on Nine Mile Creek, were resumed during the year, after a long period of idleness. More than 600 feet of drifts and crosscuts were driven, which resulted in the exposure of a large amount of new ore at a distance of about 2000 feet from the portal of the lower tunnel.

In 1926 N. C. Sheridan and associates, of Wallace, obtained a lease and option on the property owned by the Hector Mining Co., Ltd., and an operating right-of-way through the 4000-foot tunnel of the Mayflower Mining & Developing Co., Ltd., that had previously been driven about 1000 feet into the Hector ground. This tunnel was repaired and reopened and drifting on the vein started. In January, 1927, the undertaking was incorporated as Golconda Lead Mines. The drift was continued for about 500 feet and a large tonnage of high-grade mill ore was exposed. Stopes were then started and carried up about 40 feet, the ore being shipped to the local mills for treatment. In order to open sufficient ore to justify the erection of a mill, stoping was discontinued; a 200-foot raise and a 200-foot shaft were started. Before the beginning of this work, a 750-cubic-foot Sullivan electrically-driven compressor, a power line and transformers, electrical storage-battery haulage, two air-driven hoists, complete mining equipment, and mine buildings were installed and erected. Work on the raise and shaft was prosecuted to completion, and at the close of the year the vein was proved to a sufficient extent to warrant the construction of a mill.

One of the principal new mills constructed during the year was the 100-ton flotation concentrator of the Cedar Creek Mining & Development Co., Ltd., at its property in the north side, or Murray section. The mill building was erected and machinery and equipment were installed, but freezing weather had set in before completion, so operations were deferred until early in 1928. In addition to the mill, the company erected new boarding and bunk houses, installed additional mining machinery, and placed the mine in condition for stoping operations.

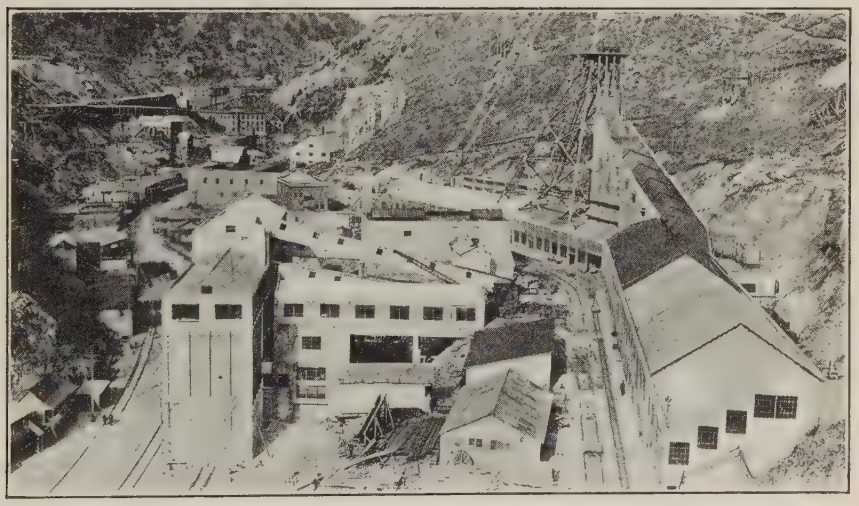
The Highland-Surprise Consolidated Mining Co. opened its mine to a greater depth, remodeled its mill, and marketed a large tonnage of concentrates during the early part of the year, after which operations were suspended pending completion of the Sullivan electrolytic zinc plant. The operations of this company added materially to the activities of the Pine Creek section.

The United Metals Co. maintained an extensive exploration campaign until October, principally on the Black Bear and Bell groups. This company is holding and developing the mines owned by the Bell Mining Co., the Black Bear Mines Co., the Goodenough Mining Co., and the Western Pacific Mining Co., all of which are located on Canyon Creek near the Frisco mine of the Federal Mining & Smelting Co.

The Lincoln Mining Co., which owns the old Silverado mine about midway between the Sunshine and Galena mines, maintained active development work for a period of six months.

The Atlas Mining Co., which is a consolidation of the Idaho-Carbonate Hill Consolidated Mining Co., the Idaho Giant Mining Co., and the Boulder Creek Mining & Milling Co., Ltd., maintained active work until April, at which time its long tunnel had been advanced to a total length of 7030 feet.

Companies which installed new equipment and conducted development work during all or part of the year were as follows: Evolution Mining Co., at the Evolution mine near Osburn, electrically-driven compressor, hoist, new buildings, and work started; Little Sunshine Mining Co., at the Palmer group on Big Creek, electrically-driven compressor and complete mining equipment installed, and contract let for driving a 2000-foot exploratory crosscut; Wolverine Mining Co., Ltd., electrically-driven compressor and air hoist installed and drifting done at bottom of 200-foot shaft; Bismarck Mining Co., small gas-driven compressor and complete mining equipment installed and work started on a 1200-foot tunnel, of which 700 feet had been driven at the close of the year; Mutual Mines Development Co., power line, transformers, electrically-driven compressor, steel sharpener and complete equipment installed and active development work performed throughout the year.



HECLA MINING CO.'S MINE BUILDINGS AND TOWN OF BURKE

Companies which employed more than six men and which conducted development work throughout the year were as follows: Hypotheek Mining & Milling Co., which unwatered its shaft from the 900 to the 1100-foot level, performed a large amount of drifting on the 1100-foot level, and started a raise on the vein to the 900-foot level, also producing and shipping a substantial tonnage of crude ore and concentrate; Ajax Mining Co., which sank a 200-foot shaft at the bottom of which over 1000 feet of drifts on the vein were run (press reports were to the effect that the drifts encountered some good milling ore); Delaware Mines Corporation, which conducted development work and reopened old entries, a small tonnage of ore being produced by lessees; Independence Lead Mines, Ltd., which developed its property on the lowest, or No. 4, level.

AETNA MINES CORPORATION

Office: Empire State Bldg., Spokane, Wash. **Officers:** Peter Reid, Pres.; Geo. H. Walters, Sec., both of Spokane, Wash. **Inc.:** Apr. 22, 1927. **Capital:** 1,000,000 shares; par value 25c; 900,000 shares issued. **Property:** Lucky Stone group; 2 patented, 22 unpatented claims, Evolution dist.; Wallace. **Development:** By numerous crosscuts and tunnels, the longest of which is No. 4 tunnel, 1000 ft. in length. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Annual labor only. This company is a reorganization of the Lucky Stone Mining Co. Stock assessments were levied during the year as follows: March 1, 3 mills; June 6, 3 mills; August 5, 3 mills; October 10, 3 mills.

AETNA MINING & MILLING CO., LTD.

Office: Wallace. **Officers:** P. J. Maggy, Pres.; W. A. Devan, Sec., both of Wallace. **Inc.:** March 9, 1915. **Capital:** 1,500,000 shares; par value 10c; all shares issued. **Property:** 4 unpatented claims, Lelande dist.; Burke. **Development:** By 2 tunnels: No. 1, 250 ft. long; No. 2, 762 ft. long. **Remarks:** Annual labor only. A stock assessment of 1 mill levied on June 8.

AJAX MINING CO.

Office: 714 W. 14th Ave., Spokane. **Officers:** F. Moriarity, Pres.; J. A. Havighorst, Sec., both of Spokane, Wash.; A. G. Anderson, Mgr., Burke. **Inc.:** Oct. 20, 1902. **Capital:** The capital stock was increased to 2,000,000 shares on July 6, 1925; par value $1; 1,613,022 shares issued. **Property:** 15 patented claims, Lelande dist.; Burke. **Development:** Principally by 3 tunnels and 3 shafts. Total development approximately 20,000 ft. Main or No. 7 tunnel is located in Gorge Gulch a short distance above the town of Burke. This tunnel intersects the Ajax vein at a distance of 6000 ft., at which point is a 200 ft. vertical shaft with 1000 ft. of drifting at the bottom. **Plant:** MINE: Type-10 I-R 550 cu. ft. electrically-driven air compressor; I-R No. 50 steel sharpener; Hoar shovel. **Ore:** Lead-silver. **Men employed:** Average, 13. **Remarks:** During the year the 200-ft. shaft in No. 7 tunnel was driven and 1000 ft. of drifting was run on the vein in both directions. Press reports were to the effect that this work encountered some good milling ore. Stock assessments were levied during 1927 as follows: March 29, 1c; July 12, 1c; November 9, 1c.

ALAMEDA MINING CO.

Office: Wallace. **Officers:** O. W. Lewis, Pres.; James A. Wayne, Sec.-Mgr., both of Wallace. **Inc.:** Feb. 14, 1910. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Alameda group; 4 patented, 4 unpatented claims, Lelande dist.; Wallace. **Development:** By 2 tunnels: No. 1, 500 ft. long; No. 2, 3200 ft. long. **Plant:** Electrically-driven I-R compressor and complete mining equipment. **Ore:** Lead-zinc-silver. **Men employed:** Average, 5. **Remarks:** This company's property adjoins the famous old Success mine on Nine Mile Creek and has been idle for a long period of years. During 1927 the mine plant was rehabilitated and work started at a distance of about 2000 ft. from the portal of No. 2 tunnel, at which point press reports stated that an excellent body of ore was disclosed. Stock assessments were levied during the year as follows: May 14, 5 mills; October 14, 5 mills.

ALHAMBRA MINING CO., LTD.

Office: 504 Empire State Bldg., Spokane, Wash. **Officers:** W. J. C. Wakefield, Pres., Peyton Bldg., Spokane, Wash.; William A. Corey, Sec., Spokane, Wash. **Inc.:** Dec. 26, 1898. **Capital:** 1,000,000 shares; par value $1; 987,399 shares issued. **Property:** Alhambra group; 23 patented claims, Yreka dist.; Kellogg. **Development:** Approximately 13,200 ft. **Ore:** Lead-silver. **Plant:** MINE: 12x12 Laidlaw-Dunn Gordon electrically-driven compressor, complete mining equipment. **Remarks:** Property operated under lease by the Bunker Hill & Sullivan M. & C. Co. The 75-ton flotation concentrator which was on this property was destroyed by fire early in the year. The lessee then rebuilt the mill formerly owned by the Big Creek Mining Co., Ltd., now known as the Crescent mill, for the treatment of ore from the Alhambra and Crescent mines.

ALICE MINING CO.
Office: Wallace. **Officers:** James F. McCarthy, Pres.; Leo J. Hoban, Sec., both of Wallace. **Inc.:** July 30, 1902. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** 21 patented, 2 unpatented claims, Hunter dist.; 3½ miles east of Wallace. **Development:** 10,000 ft. of underground workings. **Plant:** MINE: Complete mine camp and buildings. MILL: Partly dismantled 125-ton concentrator. **Ore:** Lead-silver. **Remarks:** Idle.

ALMA RAY MINING CO.
Office: Kellogg. **Officers:** Elmer E. Brown, Pres.-Mgr.; C. B. Forbes, Sec., both of Kellogg. **Inc.:** April 21, 1917. **Capital:** 1,500,000 shares; par value 25c; 350,000 shares issued. **Property:** Alma Ray group, 5 unpatented claims, Yreka dist.; Kellogg. **Development:** Principally by 2 tunnels: No. 1, 300 ft. long; No. 2, 480 ft. long. **Ore:** Lead-silver, copper. **Men employed:** Average, 2. **Remarks:** Small amount of work by contract during the year. A stock assessment of 1½ mills was levied on Apr. 25, 1927.

ALPENA COPPER MINING CO., LTD.
Office: Wallace. **Officers:** C. W. Beale, Pres.; A. H. Featherstone, Sec.; J. C. Purcell, Mgr., all of Wallace. **Inc.:** Aug. 9, 1900. **Capital:** 1,000,000 shares; par value 10c; all shares issued. **Property:** Alpena group; 6 unpatented claims, St. Joe dist.; Adair. **Ore:** Copper-gold. **Remarks:** Annual labor only.

AMAZON MANHATTAN MINING CO.
Office: Wallace. **Officers:** P. J. Maggy, Clerk, Wallace. **Inc.:** A partnership. **Property:** Amazon Manhattan group; 9 patented claims, Beaver dist.; Carbonite. **Development:** By 3 tunnels: No. 1, 510 ft.; No. 2, 1180 ft.; No. 3, 3856 ft. **Ore:** Lead-zinc-silver. **Remarks:** Idle.

AMBERGRIS MINES CO.
Office: Wallace. **Officers:** Harry L. Day, Pres.; W. B. Heitfeld, Sec., both of Wallace. **Inc.:** June 16, 1916. **Capital:** 1,000,000 shares; par value $1; 978,452 shares issued. **Property:** Ambergris group; 8 patented claims, Lelande & Placer Center dists.; Burke. **Development:** Mine opened and operated through No. 5 Hercules tunnel, in addition to which there are 3 intermediate tunnels and 3 shafts; total development, approximately 13,000 ft. **Ore:** Lead-silver. **Men employed:** Average, 12. **Remarks:** During the early part of the year a substantial tonnage of ore was mined, which was treated and milled at the Hercules mill at Wallace. Operations were suspended in March and all equipment was removed from the property.

AMERICAN-COMMANDER MINING & MILLING CO., LTD.
Office: Wallace. **Officers:** J. A. Glowe, Pres., Mullan; Herman Marquardt, Sec., Wallace. **Inc.:** Oct. 24, 1901. **Capital:** 2,000,000 shares; par value $1; 1,553,988 shares issued. **Property:** American-Commander group; 2 patented claims, Hunter dist.; Mullan. **Development:** By 4 tunnels: No. 1, 190 ft. long; No. 2, 1160 ft. long; No. 3, 1300 ft. long; No. 4, 2500 ft. long. **Plant:** Electrically-driven 9x12 Sullivan compressor; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 6. **Remarks:** Active development work in No. 2 tunnel was maintained for a period of 6 months.

AMERICAN LEAD MINES, LTD.
Office: 323 Lindelle Block, Spokane. **Officers:** R. L. Brainard, Pres., Kellogg; Matt Baumgartner, Sec.-Mgr., Spokane. **Inc.:** Feb. 2, 1925. **Capital:** 1,000,000 shares; par value 10c; 685,500 shares issued. **Property:** Crescent group; 10 unpatented claims on the West Fork of Big Creek, Yreka dist.; Kellogg. **Development:** By 1 tunnel 475 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 1. **Remarks:** Small amount of work. Stock assessments were levied during the year as follows: May 24, 4 mills; July 23, 4 mills; Sept. 19, 4 mills; Nov. 12, 4 mills.

AMERICAN MINING CO., LTD.
Office: Wallace. **Officers:** T. Sheppard, Pres.; W. E. Stache, Sec., both of Wallace. **Inc.:** Nov. 1, 1899. **Capital:** 1,000,000 shares; par value 10c; 405,625 shares issued. **Property:** American group; 2 unpatented claims, Placer Center dist.; Wallace. **Development:** 3 tunnels: No. 1, 65 ft. long; No. 2, 80 ft. long; No. 3, 300 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of 2 mills was levied on March 7, 1927.

AMY MATCHLESS MINING & MILLING CO.
Office: Mankato, Minn. **Officers:** George Weidenman, Pres.; W. A. Beach, Sec., both of Mankato, Minn.; J. G. Schrodt, Mgr., Kellogg. **Inc.:** Nov. 24, 1913. **Capital:** 1,250.000 shares; par value $1; 819,909 shares issued. **Property:** Amy group; 5 patented, 18 unpatented claims, Yreka dist.; Pine Creek, Kellogg. **Development:** Principally by an inclined shaft, 200 ft. deep. Total development, approximately 8500 ft. **Plant:** MINE: Hoist and 2 compressors, both electrically driven; sawmill and camp. MILL: 75-ton concentrator, consisting of jigs, tables, and flotation. **Ore:** Lead-silver-zinc. **Men employed:** Average, 6. **Remarks:** The shaft was unwatered, and drifting on the 200-ft. level was maintained for a period of 9 months. A stock assessment of 5 mills was levied on Nov. 29, 1927.

ANCHOR MINING CO.
Office: 863 Sherwood Bldg., Spokane, Wash. **Officers:** H. S. Stoolfire, Pres.; J. L. Prickett, Sec., both of Spokane, Wash. **Inc.:** Nov. 18, 1897. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Anchor group; 8 patented claims, Lelande dist.; Burke. **Development:** Principally by one tunnel 6000 ft. long and one vertical shaft 210 ft. deep. **Plant:** 20-h. p. hoist and 3-drill I-R compressor, both electrically driven. **Ore:** Lead-silver. **Remarks:** Property under option to Hecla Extension Mining Co.

ARCTIC MINING & MILLING CO., LTD.
Office: Kellogg. **Officers:** Henry Lalonde, Pres., Wallace; Geo. H. Heller, Sec., Kellogg. **Inc.:** July 5, 1907. **Capital:** 1,500,000 shares; par value $1; 980,280 shares issued. **Property:** Arctic group; 5 unpatented claims, Placer Center dist.; Wallace. **Development:** By 1 tunnel 865 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

ARGENTA MINING CO., LTD.
Office: Wallace. **Officers:** W. C. Richardson, Pres.-Mgr., Mullan; C. D. Brock, Sec., Wallace. **Inc.:** Dec. 10, 1906. **Capital:** 1,500,000 shares; par value $1; 1,108,000 shares issued. **Property:** Argenta group; 3 patented claims, Hunter dist.; Mullan. **Development:** 2 tunnels: No. 1, 900 ft. long; No. 2, 250 ft. long. **Ore:** Lead-silver. **Remarks:** Idle throughout the year.

ATLANTIC MINING CO.
Office: Wallace. **Officers:** Herman J. Rossi, Pres.; Otto A. Olsson, Sec.-Mgr., both of Wallace. **Inc.:** June 11, 1897. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Atlantic group; 7 unpatented claims, Beaver dist.; Prichard. **Development:** Principally by 1 tunnel 340 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

ATLAS MINING CO.
Office: Mullan. **Officers:** Thomas F. Keeley, Pres.; Patrick J. Lawler, Sec., both of 516 E. 28th St., Chicago; W. Earl Greenough, Mgr., Mullan. **Inc.:** March 4, 1924. **Capital:** 2,000,000 shares; par value $1; all shares issued. **Property:** Atlas group; 19 patented, 19 unpatented claims, Hunter dist.; Mullan. **Development:** 7 tunnels and 2 inclined shafts, the principal of which is the Horseshoe tunnel 7030 ft. long. **Plant:** Electrically-driven compressor, and complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 15. **Remarks:** The property of the Atlas Mining Co. is a consolidation of three properties, the Carbonate Hill, Idaho Giant, and Boulder Creek, on which has been done approximately 10,500 ft. of tunneling, drifting, crosscutting, and sinking. The Horseshoe tunnel was advanced to a length of 7030 ft. when operations were suspended in April.

AULBACH GROUP

Owner: Adam Aulbach, Murray. **Property:** Aulbach and Buckeye Boy groups; 10 patented claims, Coeur d'Alene dist.; Murray. **Development:** Approximately 4000 ft. of work on both groups. **Ore:** Lead-silver and gold. **Remarks:** These properties comprise two of the oldest locations in the Coeur d'Alene district and have been held almost continuously by the present owner.

BASIN MINING CO.

Office: Wallace. **Officers:** Jerome J. Day, Pres.; P. J. Maggy, Sec., both of Wallace. **Inc.:** June 22, 1915. **Capital:** 1,500,000 shares; par value 5c; 1,000,000 shares issued. **Property:** Basin group; 5 patented claims, Lelande dist.; Burke.

BEAR PLACER MINING CO.

Office: 608 Empire State Bldg., Spokane, Wash. **Officers:** F. R. Clark, Pres.; G. M. Johnson, Sec., both of Spokane. **Inc.:** Aug. 5, 1924. **Capital:** 10,000 shares; par value $10; 5085 shares issued. **Property:** Bear Placer group: 2 unpatented placer claims, unorganized dist.; on St. Joe River; Superior, Mont. **Ore:** Placer gold. **Men employed:** Average, 3. **Remarks:** Small amount of hydraulic equipment was installed and development work performed during a period of 3 months.

BELL MINING CO.

Office: 504 Empire State Bldg., Spokane, Wash. **Officers:** Robert C. Moffitt, Pres., Seattle; Charles Hussey, Sec., Spokane, Wash. **Inc.:** Oct. 17, 1898. **Capital:** 500,000 shares; par value 25c; 495,500 shares issued. **Property:** 9 patented claims, Lelande dist.; Wallace. **Remarks:** Under development by the United Metals Co.

BELL OF THE WEST MINING CO.

Office: Wallace. **Officers:** George R. Trask, Pres.-Mgr.; M. E. Trask, Sec., both of Wallace. **Inc.:** Oct. 23, 1899. **Capital:** 1,500,000 shares; par value 5c; all shares issued. **Property:** Bell of the West group; 2 patented, 2 unpatented claims, Placer Center dist.; Wallace. **Development:** 2 tunnels: No. 1, 250 ft. long; No. 2, 1000 ft. long with 300 ft. of crosscuts. **Ore:** Lead-silver. **Remarks:** Annual labor only.

BELMONT MINING CO., LTD.

Office: Wallace. **Officers:** M. E. Hess, Vice-Pres.; Frank P. Hess, Sec., both of Wallace. **Inc.:** March 26, 1900. **Capital:** 1,000,000 shares; par value $1; 275,700 shares issued. **Property:** Belmont group; 10 unpatented claims, Evolution dist.; Osburn. **Development:** Principally by 1 tunnel 900 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor performed under contract. A stock assessment of 4 mills was levied on June 4, 1927.

BENTON MINING CO., LTD.

Office: Wallace. **Officers:** Mary Callahan, Pres., Spokane, Wash.; E. G. Gnaedinger, Sec.-Mgr., Wallace. **Inc.:** Feb. 14, 1903. **Capital:** 1,500,000 shares; par value $1; 1,230,000 shares issued. **Property:** Benton group; 5 patented claims, Lelande dist.; Burke. **Development:** By 6 tunnels, the principal one of which is 2500 ft. long, and one vertical shaft 200 ft. deep.

BIG DIVIDE MINING CO., LTD.

Office: Fresno, Calif. **Officers:** Frank P. Markwell, Pres., Tujunga, Calif.; J. F. Markwell, Sec., Fresno, Calif. **Inc.:** Aug. 23, 1904. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Big Divide group; 10 patented, 5 unpatented claims, Lelande dist.; Wallace. **Plant:** Large air compressor driven by 150-h. p. electric motor. **Ore:** Lead-silver. **Remarks:** Small amount of work by lessees.

BIG ELK MINING CO., LTD.

Office: Wallace. **Officers:** Peter Peterson, Pres.-Mgr., Saltese, Mont.; A. H. Featherstone, Sec., Wallace. **Inc.:** April 26, 1909. **Capital:** 2,000,000 shares; par value $1; all shares issued. **Property:** Big Elk group; 17 unpatented claims, St. Joe dist.; Delage. **Ore:** Copper-gold. **Remarks:** Annual labor only.

BIG IT MINING & MILLING CO.

Office: Kellogg. **Officers:** H. S. Davenport, Pres.; L. G. Stuntebeck, Sec., both of Enaville; M. L. Pratt, Mgr., Kellogg. **Inc.:** Dec. 5, 1916. Charter forfeited Dec. 1, 1920. **Capital:** 1,500,000 shares; par value 10c; 1,015,000 shares issued. **Property:** Big It group; 13 unpatented claims, Yreka dist.; Masonia. **Development:** By 2 tunnels: No. 1, 270 ft.; No. 2, 850 ft. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

BISMARCK MINING CO.

Office: Wallace. **Officers:** E. V. Lange, Pres., Amsterdam, Holland; W. H. Herrick, Mgr., Wallace. **Inc.:** Jan. 18, 1924. **Capital:** 1,250,000 shares; par value 10c; 600,000 shares issued. **Property:** Bismarck group; 3 unpatented claims, Big Creek, Yreka dist.; Kellogg. **Development:** By 1 tunnel 300 ft. long. **Plant:** Gas-driven compressor; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 6. **Remarks:** Bunk house constructed, equipment installed, and work started on a 1200-ft. tunnel, of which 700 ft. was driven during the year.

BITTER ROOT MOUNTAIN MINING CO.

Office: 939 S. Cowley St., Spokane, Wash. **Officers:** W. P. Flood, Pres.; Mrs. F. A. Noteware, Sec., both of Spokane, Wash. **Inc.:** May 6, 1901. **Capital:** 1,500,000 shares; par value 5c; all shares issued. **Property:** Lookout group; 3 patented claims, Hunter dist.; Mullan. **Development:** Principally by 1 tunnel 1000 ft. long. **Ore:** Lead-silver. **Remarks:** Inactive since 1900.

BLACK BEAR MINES CO.

Office: Wallace. **Officers:** C. A. Hagan, Pres., Moscow; H. J. Arnett, Sec., Wallace. **Inc.:** Feb. 24, 1917. **Capital:** 2,000,000 shares; par value 20c; 1,379,583 shares issued. **Property:** Black Bear group; 5 patented, 2 unpatented claims, Lelande dist.; Wallace. **Development:** Principally by 1 tunnel 4100 ft. long. **Plant:** 750 cu. ft. electrically-driven compressor; complete mining equipment. **Ore:** Lead-zinc-silver. **Remarks:** Under option to the United Metals Co.

BLACK HAWK MINING & DEVELOPMENT CO., LTD.

Office: Wallace. **Officers:** Alfred Page, Pres., Spokane, Wash.; A. W. Hoover, Sec.; Frederick Burbidge, Mgr., both of Wallace. **Inc.:** Aug. 19, 1901. **Capital:** 1,500,000 shares; par value 10c; 1,332,352 shares issued. **Property:** Black Hawk group; 13 patented claims, Yreka dist.; Kellogg. **Development:** By 2 tunnels: Black Hawk, 2920 ft. long; Page, 2600 ft. long. **Ore:** Silver-lead-zinc. **Remarks:** Property under lease to the Federal M. & S. Co., which operated it throughout the year in conjunction with the Page mine, which see.

BLAINE & EMMETT MINING CO., LTD.

Office: Kellogg. **Officers:** Merrill Heblethwaite, Pres.-Mgr., Prichard; R. W. Skeman, Sec., Murray. **Inc.:** Dec. 20, 1909. **Capital:** 1,000,000 shares; par value $1; 480,812 shares issued. **Property:** Blaine & Emmett group; 5 unpatented claims, Eagle dist.; Prichard. **Development:** 2 tunnels: No. 1, 300 ft. long; No. 2, 650 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

BLUE EAGLE MINING CO.

Office: Kellogg. **Officers:** Ed McCarty, Pres.; C. B. Forbes, Sec., both of Kellogg. **Inc.:** April 18, 1925. **Capital:** 1,500,000 shares; par value 1c; 1,250,000 shares issued. **Property:** Blue Eagle group; 15 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 2 tunnels: No. 1, 185 ft. long; No. 2, 400 ft. long. **Plant:** Electrically-driven 8x9 I-R compressor; complete mining equipment. **Ore:** Lead-zinc-silver. **Men employed:** Average, 2. **Remarks:** Active work in lower tunnel throughout the year.

BLUE RIBBON MINING CO.

Office: 601 N. Monroe St., Spokane, Wash. **Officers:** A. Held, Pres.; Al Harris, Sec., both of Spokane, Wash. **Inc.:** Oct. 22, 1914. **Capital:** 1,500,000 shares; par value 10c; 300,000 shares issued. **Property:** Blue Ribbon group; 7 unpatented claims, Hunter and Lelande dists.; Burke. **Development:** Principally by 1 tunnel 2400 ft. long. **Men employed:** Average, 3. **Remarks:** Work in the tunnel maintained throughout the year. Funds were derived from stock assessments at the rate of 2 mills per share bimonthly.

BLUE STAR MINING & MILLING CO., LTD.

Office: Kingston. **Officers:** Peter Wuda, Pres., Kellogg; A. C. Morbeck, Sec., Kingston. **Inc.:** June 8, 1909. **Capital:** 1,000,000 shares; par value $1; 300,000 shares issued. **Property:** Blue Star group; 8 patented claims, Pine Creek, Yreka dist.; Kingston. **Ore:** Lead-silver. **Remarks:** Idle.

BLUE WING MINING CO., LTD.

Office: Wallace. **Officers:** Herman J. Rossi, Sec., Wallace. **Inc.:** July 8, 1901. **Capital:** 1,000,000 shares; par value 10c; 774,775 shares issued. **Property:** Blue Wing group; 5 unpatented claims, Placer Center dist.; Wallace. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of 5 mills was levied on May 5, 1927.

BOBBY ANDERSON GROUP MINING CO.

Office: Kellogg. **Officers:** Theo. Brown, Pres.-Mgr.; Harvey A. Miller, Sec., both of Kellogg. **Inc.:** June 16, 1906. **Capital:** 1,500,000 shares; par value $1; 775,833 shares issued. **Property:** Bobby Anderson group; 6 unpatented claims, Yreka dist.; Kellogg. **Development:** 3 tunnels and 1 shaft. **Ore:** Lead-zinc-silver. **Men employed:** Average, 2. **Remarks:** Property rehabilitated and a small amount of work during the year.

BONANZA MINES CORPORATION

Office: Wallace. **Officers:** W. Howard Moore, Pres., Burke; Therrett Towles, Sec., Wallace; Nicholas Fillpott, Mgr., Burke. **Inc.:** July 12, 1927. **Capital:** 1,500,000 shares; par value 25c; 500,000 shares issued. **Property:** Bonanza group; 10 unpatented claims, Eagle dist.; Prichard; held under lease and option. **Development:** By 3 tunnels: No. 1, 350 ft.; No. 2, 572 ft.; No. 3, 50 ft. **Plant:** Complete mining equipment, operated by compressed air from Jack Waite Mining Co., Ltd. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Active development work throughout the year.

BUCKEYE MINING CO.

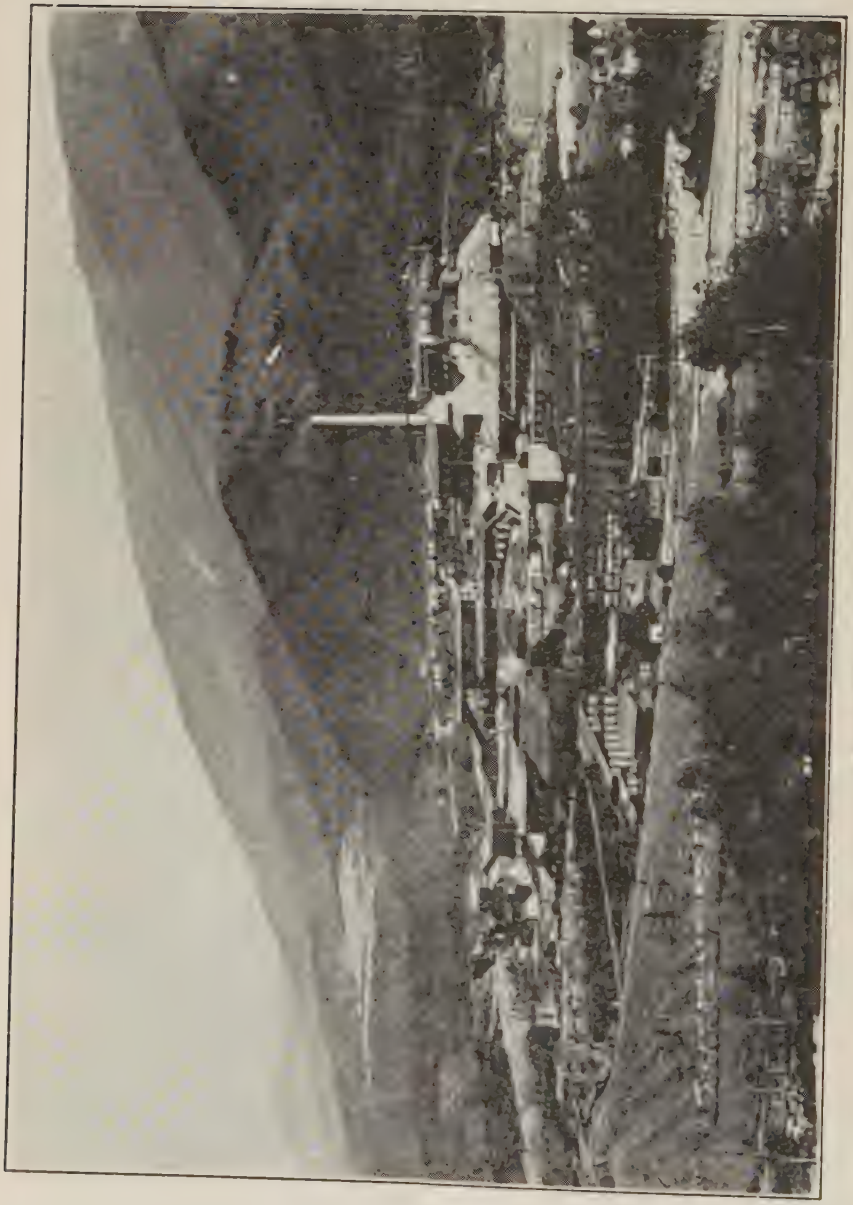
Office: 519 W. 5th Ave., Spokane. **Officers:** F. W. Julian, Pres.; John Ellwanger, Sec., both of Spokane. **Inc.:** October 14, 1924. Charter forfeited Nov. 30, 1927. **Capital:** 1,500,000 shares; par value 10c; 1,238,000 shares issued.

BULLION MINING CO., LTD.

Office: Wallace. **Officers:** William Squance, Pres.; James H. Taylor, Sec.-Mgr., both of Wallace. **Inc.:** Dec. 5, 1902. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Bullion group; 16 patented, 1 unpatented claim, St. Joe dist.; Mullan. **Development:** 3 tunnels: No. 1, 500 ft. long; No. 2, 2000 ft. long; No. 3, 4800 ft. long; 1 vertical shaft 100 ft. deep. **Plant:** Pelton water wheel driving an I-R compressor. **Ore:** Copper-gold. **Men employed:** Average, 3. **Remarks:** Small amount of work during early part of the year.

BUNKER CHANCE MINING CO.

Office: Wardner. **Officers:** Nick Petrinovich, Pres.-Mgr.; R. L. Brainard, Sec., both of Wardner. **Inc.:** May 8, 1922. **Capital:** 1,500,000 shares; par value 25c; 1,325,000 shares issued. **Property:** Bunker Chance group; 1 patented, 6 unpatented claims, Yreka dist.; Wardner. **Development:** By 4 tunnels, the principal one of which is 2200 ft. long. **Plant:** Complete mining equipment; compressed air received from North Bunker Hill Mining Co., Ltd. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** Active throughout the year in extending a crosscut from Butler tunnel.



BUNKER HILL SMELTER

BUNKER HILL & SULLIVAN MINING & CONCENTRATING CO.

Office: Kellogg. **Officers:** F. W. Bradley, Pres.; J. W. Crosby, Sec., both of 1022 Crocker Bldg., San Francisco, Calif.; Stanly A. Easton, Mgr., Kellogg. **Inc.:** Originally incorporated in Oregon and filed in Idaho, Aug. 20, 1903; changed to a Delaware corporation and filed in Idaho, April 16, 1924. **Capital:** 327,000 shares common; par value $10; 20,000 shares preferred; par value $100; all common shares issued. **Property:** Bunker Hill; 336 patented, 24 unpatented claims, Yreka dist.; Kellogg. **Development:** The principal adit is the Kellogg tunnel, which is 24,000 ft. long, in which are the two principal inclined shafts, one of which is known as the White Raise, and the other the main shaft, which is approximately 2785 ft. long, giving a vertical depth of 1900 ft. below the Kellogg tunnel level. In the main shaft are 13 intermediate levels. Total development, approximately 57 miles. **Plant:** MINE: Two electrically-driven hoists, two electrically-driven I-R compressors, one steam-driven Nordberg compressor. Trolley locomotive haulage in Kellogg tunnel; storage battery locomotive haulage in intermediate levels. Complete and modern machine shop, blacksmith shop and change house. MILL: Three complete and modern concentrators, including flotation. Daily capacity, approximately 2100 tons. **Ore:** Lead-silver. **Men employed:** In mine, mill and smelter, average, 1100.

BUNKER HILL SMELTER

Officers: Frank M. Smith, Director, 1117 Paulsen Bldg., Spokane, Wash.; M. H. Sullivan, Supt., Kellogg. **Remarks:** This smelter was erected during 1917, since which time it has been continually enlarged and improved and is now one of the most modern, complete and up-to-date plants in the United States. The smelting plant covers an area of about 30 acres and consists of complete buildings and equipment for sampling, roasting, sintering, smelting and refining lead, silver, and gold ores. In addition to refined lead, silver, and gold, antimonial lead and copper sulphate are also produced. The principal supply of ore is from the company's own mine and the mines of the Coeur d'Alene district. The company is doing a general custom business and is drawing ore from all of the northwestern states as well as from British Columbia and Alaska, and is becoming a strong competitor in the smelting business. This smelter and its operations are fully described and illustrated in many of the articles listed under the bibliography of Shoshone County.

REMARKS

This company is the largest dividend payer and maintains the largest pay roll of any mine in Idaho; it is also the largest producer of lead-silver ore in the State, if not in the world; and is one of the few companies in the United States that mine, mill, smelt, refine, manufacture, and sell lead ore and lead products. The enterprise, particularly the mine and mill, has been established for such a long period and all operations have become so well founded that it has practically expanded into a manufacturing operation. The mine is opened by over 57 miles of underground workings and has a sufficient tonnage of ore reserves to assure many years of continued operations.

During the past few years this organization has been actively engaged in prospecting and developing mining properties throughout the State, and during 1924 acquired the mines owned by the Hall-Interstate Mining Co. and the Lost Pilgrim Mining Co., situated near the head of the Deadwood River in Valley County. The interest shown in developing lead mines outside of the Coeur d'Alene district is having a tremendous influence in attracting attention to the State's undeveloped resources.

The management is progressive and intelligent and an unusual amount of initiative is shown in the conduct of the affairs of the company and civic activities. An excellent spirit of cooperation has been created and maintained in the employees, and everything possible is done to promote their welfare. An example of this attitude was the announcement by the company that it had arranged to give the employees an op-

portunity to purchase a part of the new issue of preferred stock. Three thousand shares of this stock were set aside for the employees, to be purchased for cash or upon the installment plan. This stock has a par value of $100 per share, and bears 6 per cent interest. It is also subject to a bonus of 50 cents per share per quarter, making an assured interest rate of 8 per cent, while the holder is an employee of the company, and an additional bonus of as much more per quarter as the common stock received in dividends in excess of $1.50 per share during the previous quarter. This preferred stock is redeemable at $110 a share. The common stock was listed on the New York Curb Exchange during the latter part of 1926; in January, 1927, it sold at a low of $67.50 per share and by September it had risen to a high of $156 per share.

This company owns a 50 per cent interest with the Hecla Mining Co. in the Sullivan Mining Co., the owner of the Star mine in the Coeur d'Alene district; and a 50 per cent interest in the Alaska-Treadwell Gold Mining Co. and the Treadwell Yukon Co., Ltd., both of Alaska. Ore from the latter property was shipped to the smelter at Kellogg. In addition to the foregoing, the company is actively interested in developing properties in Nevada and at Sudbury, Ontario, Canada.

The extensive development work done in the Bunker Hill mine during the year greatly increased the known ore reserves. This work consisted principally of completing the shaft to the 1900-ft. level and opening the east and west ore bodies at this additional depth, where ore and geological conditions were found to be normal. The mine, mill, and smelting plants were enlarged and improved. The Sweeny mill was altered to accommodate custom ores, particularly those from Pine Creek; and the mill formerly owned by the Big Creek Mining Co., Ltd., on Big Creek was rebuilt to treat the ore from the Alhambra and Crescent mines.

The Tainton electrochemical experimental lead-leaching plant was modified and improved. Many details were perfected which add greatly to the improvement of the process.

See page 44 for an extended remark on this company's accident rate.

BURKE MINING CO., LTD.

Office: Wallace. **Officers:** Henry Garber, Pres., Spokane, Wash.; John C. Glahe, Sec., Wallace. **Inc.:** May 31, 1902. **Capital:** 1,000,000 shares; par value $1; 760,737 shares issued. **Property:** 12 patented claims, Lelande dist.; Burke. **Development:** 2 tunnels: No. 1, 125 ft. long; No. 2, 1000 ft. long. **Ore:** Lead-silver.

BUTTE & COEUR D'ALENE DEVELOPMENT CO.

Office: Wallace. **Officers:** T. B. Cosgrove, Pres.-Mgr., Mullan; Elmer E. Johnston, Sec., Kellogg. **Inc.:** Sept. 17, 1927. **Capital:** 2,500,000 shares; par value $1; 225,000 shares issued. **Property:** Butte & Coeur d'Alene group; 8 patented claims; Hunter dist.; Mullan; held under lease and option from Butte & Coeur d'Alene Mining Co. **Development:** By 1 tunnel 1500 ft. long, in which is a vertical shaft 400 ft. deep. **Plant:** Electrically-driven compressor; air-driven hoist; complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 5. **Remarks:** Principal activity during the year consisted of unwatering the shaft to the 200-ft. level and starting development work on that level.

CALEDONIA MINING CO.

Office: Kellogg. **Officers:** Stanly A. Easton, Pres.-Mgr.; Lee Prather, Sec., both of Kellogg. **Inc.:** July 1, 1907. **Capital:** 2,605,000 shares; par value $1; all shares issued. **Property:** Caledonia; 2 patented claims, Yreka dist.; Kellogg. **Development:** Approximately 19,250 ft. of underground workings. **Plant:** Equipment rented from Bunker Hill & Sullivan M. & C. Co. **Ore:** Silver-lead. **Men employed:** Average, 5. **Remarks:** At one time this company was a large dividend payer. Final distribution of remaining assets was held up on account of unsettled Government income taxes. These were adjusted during the year; two final dividends were declared; company operations were suspended in August, and the mine was turned over to a few lessees.

CALEDONIA SILVER-LEAD MINING CO.

Office: Kellogg. **Officers:** A. C. Beal, Pres.-Mgr.; Lester S. Harrison, Sec., both of Kellogg. **Inc.:** Oct. 24, 1927. **Capital:** 800,000 shares common, par value 25c; 10,000 shares preferred, par value $5; shares issued, unknown. **Property:** New Caledonia group; 4 patented, 4 unpatented claims, Yreka dist.; Kellogg. **Development:** By 1 tunnel 1400 ft. long. **Plant:** Electrically-driven compressor; complete mining equipment. **Ore:** Lead-silver. **Remarks:** Idle. Incomplete reports indicate that this company may be a reorganization of the New Caledonia Consolidated Mining Co.

CALIFORNIA GULCH PLACER MINING CO.

Office: Wallace. **Officers:** A. O. Rickert, Pres.; Flora Rickert, Sec.; Julia B. Hammond, Mgr., all of Sharon, Wash. **Inc.:** April 26, 1920. **Capital:** 200,000 shares; par value 25c; shares issued, unknown. **Property:** 8 unpatented placer claims, unorganized dist., on St. Joe River; nearest P. O., Superior, Mont.

CALLAHAN ZINC-LEAD CO.

Office: Wallace. **Officers:** D. A. Callahan, Pres.; C. W. Newton, Sec.-Mgr., both of Wallace. **Inc.:** July 18, 1912, as Consolidated Interstate Mining Co.; name changed March 25, 1921. **Capital:** 1,000,000 shares; par value $10; 716,592 shares issued.

CALLAHAN MINE

Property: Interstate-Callahan group; 81 patented, 2 unpatented claims, Beaver dist.; Interstate. **Development:** Principal development is main transportation tunnel which is 5500 ft. long and a three-compartment vertical shaft 2000 ft. deep. Total development, approximately 10 miles. **Plant:** MINE: Two single drum air-driven hoists and one 250-h. p. electrically-driven double drum hoist; three large I-R electrically-driven compressors; trolley locomotive haulage in main tunnel. Complete and modern blacksmith shop, machine shop, sawmill, mine equipment, camp and company buildings. MILL: 600-ton concentrator, including flotation. **Ore:** Zinc-lead-silver. **Men employed:** Average, 2. **Remarks:** At one time this property was one of the largest zinc mines in the United States. No ore has been mined since October, 1923.

GALENA MINE

Property: Chicago-Boston, Killbuck, Vulcan, Argentine, Wallace, and Silver Range groups; 16 patented, 74 unpatented claims, Lake Gulch, Placer Center dist.; Wallace. **Development:** By 33 tunnels and two vertical shafts. Total development, approximately 32,000 ft. **Plant:** MINE: One 150-h. p. Lidgerwood, one 200-h. p. Coeur d'Alene Hdw. electrically-driven hoist; 3 I-R electrically-driven compressors, total capacity 1500 cu. ft.; complete equipment and mine camp. MILL: 150-ton flotation. **Ore:** Lead-silver. **Men employed:** Average, 100. **Remarks:** In addition to maintaining capacity output, the company performed a large amount of development work; auxiliary machinery was placed on the 1400-ft. level and work started on sinking to the 2200-ft. level. At the close of the year the shaft had been extended to the 1600-ft. level.

This company is well financed and intelligently directed. Its Galena mine was operated at a profit throughout the year, and as the development work greatly increased the known ore reserves, there is a strong probability that the company will again enter the list of dividend payers, a position it held when the Callahan mine was under operation.

CANYON CREEK MILLING CO.

Office: Wallace. **Officers:** C. R. Nordquist, Pres.-Mgr.; A. D. Gamble, Sec., both of Wallace. **Inc.:** May 28, 1926. **Capital:** 25,000 shares; par value $1; 19,406 shares issued. **Property:** Lease on tailings in Canyon Creek. **Plant:** 35-ton electrically-driven concentrator, including tables and flotation. **Ore:** Lead-silver. **Men employed:** Average, 5. **Remarks:** Mill was operated for 3 months during the early part of the year. A stock assessment of 10c per share was levied on May 14, 1927.

CARBONATE MINING & MILLING CO.

Office: Wardner. **Officers:** C. Wiese, Pres.-Mgr., Wardner. **Inc.:** Oct. 7, 1899. **Capital:** 1,000,000 shares; par value 25c; 445,465 shares issued. **Property:** Carbonate group; 4 unpatented claims, Pine Creek, Yreka dist.; Beeler. **Development:** By 2 tunnels: No. 1, 600 ft.; No. 2, 300 ft. **Ore:** Lead-zinc-silver. **Remarks:** Lower tunnel was advanced 100 ft. under contract during the year. A stock assessment of 2 mills was levied on April 16, 1927.

CARNEY COPPER CO., LTD.

Office: Mullan. **Officers:** J. L. Martin, Pres.-Mgr.; C. D. Miller, Sec., both of Mullan. **Inc.:** Nov. 24, 1906. **Capital:** 1,500,000 shares; par value $1; 665,122 shares issued. **Property:** Carney group; 8 unpatented claims, Hunter dist.; Mullan. **Development:** Approximately 5000 ft. of underground workings. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of 1 mill was levied on Apr. 27, 1927.



GALENA MILL: CALLAHAN ZINC-LEAD CO.

CEDAR CREEK MINING & DEVELOPMENT CO., LTD.

Office: Wallace. **Officers:** J. W. Weyer, Pres.; William Becker, Sec., both of Wallace. **Inc.:** June 28, 1905. **Capital:** 1,000,000 shares; par value $1; 823,746.44 shares issued. **Property:** Cedar Creek group; 5 patented, 24 unpatented claims, Summit dist.; Murray. **Development:** 3 tunnels: No. 1, 587 ft. long; No. 2, 1050 ft. long; No. 3, 2550 ft. long; 1 inclined shaft 320 ft. long. Total development, approximately 8760 ft. **Plant:** MINE: 12x12 electrically-driven compressor and air-driven hoist; complete mining equipment and camp. MILL: 100-ton flotation concentrator. **Ore:** Lead-zinc-silver. **Men employed:** Average, 20. **Remarks:** Mill was completely constructed during the year, but operations deferred until early in 1928; new boarding and bunk houses were erected, additional mining machinery was installed, and the mine placed in condition for stoping operations. Stock assessments were levied during the year as follows: June 6, 3 mills; August 20, 2c.

CENTRAL MINING CO.

Office: Burke. **Officers:** M. V. McNamee, Pres.; F. H. Richardson, Sec.; F. C. Richardson, Mgr., all of Burke. **Inc.:** Oct. 28, 1911. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Central group; 5 patented claims, lying between Hercules and Oom Paul; Lelande dist.;

Burke. **Development:** Approximately 1200 ft., principally tunnels. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Machinery and equipment of Oom Paul mine used, as well as the Oom Paul tunnel, through which the company is developing its property.

CHESTER CONSOLIDATED MINING CO.

Office: Wallace. **Officers:** Arthur Schanck, Pres., Metamora, Mich.; Morgan E. Siple, Sec., Pontiac, Mich. **Inc.:** Dec. 6, 1924. **Capital:** 50,000 shares common, no par value; 50,000 shares preferred, par value $5; all shares issued. **Property:** Terrible Edith group; 21 unpatented claims, Eagle dist.; Murray. **Development:** By 4 tunnels: No. 2, 410 ft.; No. 3, 1030 ft.; No. 4, 2380 ft. **Plant:** Electrically-driven I-R compressor; complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Men employed:** Average, 10. **Remarks:** Small amount of development work performed during a period of about 60 days.

CHESTER MINING CO., LTD.

Office: Kellogg. **Officers:** P. P. Weber, Pres.; C. W. Simmons, Sec., both of Kellogg. **Inc.:** July 31, 1900. **Capital:** 1,000,000 shares; par value $1; 923,945 shares issued. **Property:** Chester group; 6 patented claims, Yreka dist.; Kellogg.

CINCINNATI MINING CO .

Office: Wallace. **Officers:** R. E. Seysler, Pres.; W. H. Herrick, Sec.-Mgr., both of Wallace. **Inc.:** Jan. 18, 1924. **Capital:** 1,000,000 shares; par value 25c; 21,500 shares issued. **Property:** Cincinnati group; 5 unpatented claims, Hunter dist.; Mullan. **Development:** By 2 tunnels: No. 1, 800 ft. long; No. 2, 900 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 1. **Remarks:** Annual labor only.

CLARK-MONTANA REALTY CO.

Office: P. O. Box 1368, Butte, Mont. **Officers:** W. A. Clark, Pres.; J. L. Templeman, Sec.; William C. Siderfin, Mgr., all of Butte, Mont. **Inc.:** May 7, 1921. **Capital:** 35,000 shares; par value $100; 15,000 shares issued. **Property:** Sunset group; 3 patented claims, Beaver dist.; Wallace. **Development:** By 1 tunnel 3600 ft. long and a vertical shaft 800 ft. deep with 4 intermediate levels. Total development, approximately 10,000 ft. **Ore:** Lead-silver-zinc. **Remarks:** Under option to Long Wait Mining Co.

CLEAR GRIT MINING CO., LTD.

Office: Wallace. **Officers:** F. C. Rood, Pres.-Mgr., Longview, Wash.; O. W. Lewis, Sec., Wallace. **Inc.:** May 9, 1906. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** 5 unpatented claims, Beaver dist.; Prichard. **Development:** By 1 tunnel approximately 2000 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

CLIMAX SILVER-LEAD MINING CO.

Officers: James A. Wayne, Pres.; H. V. Edwards, Sec.-Mgr., both of Wallace. **Inc.:** April 22, 1914. **Capital:** 1,500,000 shares; par value 25c; 1,300,000 shares issued. **Property:** Climax group; 2 patented, 1 unpatented claim, Evolution dist.; Wallace. **Development:** By 3 tunnels, the principal one of which is 2800 ft. long. **Plant:** 10x10 electrically-driven compressor and complete mining equipment. **Ore:** Lead-silver. **Remarks:** Idle.

COEUR D'ALENE BIG CREEK MINING CO.

Office: 916 Alaska Bldg., Seattle, Wash. **Officers:** E. J. Brown, Pres.; C. F. Uhden, Sec., both of Seattle. **Inc.:** Jan. 31, 1925. **Capital:** 1,500,000 shares; par value 10c; all shares issued. **Property:** 4 unpatented claims, Yreka dist.; Big Creek; Kellogg. **Development:** Principally by 1 tunnel 1407 ft. long. **Plant:** 12x10 C-P compressor, electrically driven; drill sharpener; complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 4. **Remarks:** Tunnel extended about 500 ft. during the year.

COEUR D'ALENE CHAMPION MINING CO.

Office: E. 1827 Sprague Ave., Spokane, Wash. **Officers:** J. Reeves, Pres.; James Keith, Sec.-Mgr., both of Spokane, Wash. **Inc.:** Jan. 22, 1907. **Capital:** 1,500,000 shares; par value $1; 740,455 shares issued. **Property:** Champion group; 13 unpatented claims, near the head of Military Gulch;

Hunter and Lelande dists.; Burke. **Development:** Principally by 4 tunnels: No. 1, 160 ft. long; No. 2, 700 ft. long; No. 3, 3300 ft. long; No. 4, 180 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** Annual labor only.

COEUR D'ALENE CRESCENT MINING CO.

Office: 404 Jamieson Bldg., Spokane, Wash. **Officers:** J. B. Millspaugh, Pres.; F. W. Mauser, Sec., both of Spokane, Wash. **Inc.:** Dec. 12, 1913. **Capital:** 1,250,000 shares; par value $1; 650,000 shares issued. **Property:** Evolution group; 7 unpatented claims, Evolution dist.; Osburn. **Development:** By 1 tunnel, approximately 500 ft. long, and a vertical shaft 300 ft. deep. **Plant:** An old steam-driven hoist. **Ore:** Lead-silver. **Remarks:** Under option to Evolution Mining Co.

COEUR D'ALENE METALS CO.

Office: Eagle Blk., Wallace. **Officers:** C. A. Keating, Pres.; A. G. Kennedy, Sec., both of Wallace. **Inc.:** Jan. 18, 1926. **Capital:** 10,000 shares; par value $100; 3 shares issued. **Remarks:** Owns no property.

COEUR D'ALENE MINING CO.

Office: Ames Bldg., Boston, Mass. **Officers:** Burton E. James, Pres.; John P. Wright, Sec., both of Boston, Mass. **Inc.:** July 20, 1900. **Capital:** 125,000 shares; par value $10; 118,586 shares issued. **Property:** Placer claims, which were exhausted by Yukon Gold Co.

COEUR D'ALENE MINING & SMELTING CO.

Office: Wallace. **Officers:** A. D. Wallace, Pres.-Mgr.; F. F. Brewer, Sec., both of Wallace. **Inc.:** July 18, 1904. **Capital:** 1,000,000 shares; par value $1; 923,800 shares issued. **Property:** 9 unpatented claims, Placer Center dist.; Wallace. **Development:** By 2 tunnels: No. 1, 300 ft.; No. 2, 1400 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Active development work throughout the year. Stock assessments were levied during 1927 as follows: Apr. 7, 2 mills; Aug. 13, 2 mills.

COEUR D'ALENE PREMIER MINES CORPORATION

Office: Kellogg. **Officers:** John C. Dwyer, Pres., Coeur d'Alene; J. W. Bishop, Sec., Kellogg. **Inc.:** June 1, 1927. **Capital:** 3,000,000 shares; par value 5c; 45,000 shares issued. **Property:** 9 unpatented claims on west fork of Pine Creek; Yreka dist.; Kellogg. **Development:** By 2 tunnels: No. 1, 450 ft.; No. 2, 150 ft. **Ore:** Lead-silver.

COEUR D'ALENE SILVER-LEAD MINING CO.

Office: 1004 E. 8th Ave., Spokane, Wash. **Officers:** Charles J. Heidenreich, Pres., Spokane, Wash. **Inc.:** June 16, 1916; charter forfeited Dec. 1, 1922. **Capital:** 1,200,000 shares; par value $1; 752,800 shares issued. **Property:** 6 patented claims, Hunter dist.; Mullan. **Development:** By 2 tunnels: No. 1, 1200 ft. long; No. 2, 300 ft. long. **Ore:** Lead-silver. **Remarks:** Idle for 9 years.

COEUR D'ALENE SYNDICATE MINING CO.

Office: Wallace. **Officers:** Philip Wiseman, Vice-Pres.; P. Kenneth Wiseman, Sec., both of 1206 Pacific Mutual Bldg., Los Angeles, Calif. **Inc.:** Sept. 16, 1922. **Capital:** 900,000 shares; 200,000 preferred, par value $5; 700,000 common, par value $1; 85,933 common shares issued. **Property:** Flynn and Senator groups held under lease and bond; 42 patented, 4 unpatented claims, Lelande and Hunter dists.; Gem. **Development:** 11,000 ft. of underground workings. **Plant:** Electrically-driven 900-cu. ft. I-R compressor; drill sharpener and complete mining equipment; Hoar shovel. **Ore:** Lead-silver. **Remarks:** 1900 ft. of diamond drilling performed during the year.

COLUMBIA COPPER CO., LTD.

Office: Wallace. **Officers:** Joseph Huber, Pres.-Mgr., Mullan; C. W. Betts, Sec., Wallace. **Inc.:** April 24, 1914. **Capital:** 2,500,000 shares; par value $1; 1,305,385 shares issued. **Property:** Columbia group; 22 unpatented claims, Hunter dist.; Mullan. **Development:** By 11 tunnels, totaling approximately 2500 ft. **Ore:** Lead-silver, copper. **Remarks:** Annual labor only.

COMMERCIAL TRAVELER MINING CO.

Office: W. 426 Sprague Ave., Spokane, Wash. **Officers:** H. N. Deas, Pres.; E. E. Jordan, Sec., both of Spokane; Fred McHugh, Mgr., Masonia. **Inc.:** May 6, 1926. **Capital:** 2,000,000 shares; par value 5c; 750,000 shares issued. **Property:** 7 unpatented claims, Pine Creek, Yreka dist.; Kellogg; held under lease and option from Shrine Mining Co. **Remarks:** Property acquired and a small amount of work started in March.

COMSTOCK COPPER MINING CO.

Office: Wallace. **Officers:** Therrett Towles, Pres.; Otto A. Olsson, Sec., both of Wallace. **Inc.:** Nov. 23, 1906. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Fannie group; 5 unpatented claims, Beaver dist.; Prichard. **Development:** By 3 tunnels: No. 1, 350 ft.; No. 2, 500 ft.; No. 3, 75 ft. **Ore:** Copper-gold. **Remarks:** Small amount of work by lessees.

CONSTITUTION MINING & MILLING CO.

Office: Masonia. **Officers:** Frank T. Post, Pres.; B. H. Kizer, Sec., both of Spokane, Wash.; Wm. P. White, Mgr., Masonia. **Inc.:** Sept. 17, 1902. **Capital:** 1,750,000 shares; par value $1; 1,741,250 shares issued. **Property:** Constitution group; 12 patented, 27 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 3 tunnels: No. 1, 205 ft.; No. 2, 2508 ft.; No. 3, 2359 ft.; and an inclined shaft from the surface 240 ft. deep, extending to the 200-ft. level, in which is a 200-ft. vertical shaft. Total development, approximately 7800 ft. **Plant:** MINE: A 600-cu.-ft. I-R and a 500-cu.-ft. C-P compressor, both electrically driven; drill sharpeners; complete mining equipment; storage-battery locomotive haulage. MILL: 200-ton concentrator, fine grinding and flotation. **Ore:** Lead-zinc-silver. **Men employed:** Average, 72. **Remarks:** This company is the largest operator on Pine Creek. During the year the mill was enlarged and changed to straight flotation; production was constantly maintained; and a large amount of mine development work was done, part of which was the sinking of a 200-ft. vertical shaft on the 200-ft. level. This work increased the known ore reserves, and the enlargements and improvements added to mine and mill plants greatly increased their operating efficiency.



CONSTITUTION M. & M. CO.'S MILL

COPPER CHIEF MINING CO.

Office: Wallace. **Officers:** D. E. Wickward, Pres.; James H. Taylor, Sec.-Mgr., both of Wallace. **Inc.:** Sept. 25, 1907. **Capital:** 1,000,000 shares; par value $1; shares issued, unknown. **Property:** Copper Chief group; 7 patented, 4 unpatented claims, St. Joe dist.; Adair. **Ore:** Copper-gold.

COPPER KING MINING & SMELTING CO.

Office: Mullan. **Officers:** Dave Holzman, Pres., Spokane, Wash.; H. W. Ingalls, Sec.-Mgr., Mullan. **Inc.:** Aug. 13, 1901. **Capital:** 1,500,000 shares; par value $1; 1,470,000 shares issued. **Property:** Copper King group; 18 unpatented claims, Lelande and Hunter dists.; Mullan. **Development:** Principally by 3 tunnels: No. 1, 200 ft. long; No. 2, 1800 ft. long; No. 3, 4800 ft. long. Total development, approximately 10,000 ft. **Plant:** Electrically-driven compressor and complete mining equipment and camp. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of 5 mills was levied on Nov. 23, 1927.

CRESENT MINING & MILLING CO.

Office: Kellogg. **Officers:** David B. Inghram, Pres., Kellogg; Dennis P. Woods, Sec.-Mgr., 707 Hutton Bldg., Spokane, Wash. **Inc.:** June 22, 1912. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Crescent group; 5 unpatented claims, Moon Creek, Yreka dist.; Kellogg. **Development:** By 5 tunnels and a vertical shaft 215 ft. deep. **Plant:** Electrically-driven I-R compressor and hoist; complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Remarks:** Property under option to Washington-Idaho Mining Co.

C. & R. MINING CO.

Office: 312 Old Nat'l Bank Bldg., Spokane, Wash. **Officers:** E. R. Week, Pres.; Ben L. Collins, Sec.; Russell F. Collins, Mgr., all of Spokane, Wash. **Inc.:** June 16, 1904. **Capital:** 1,250,000 shares; par value $1; all shares issued. **Property:** C. & R. group; 9 patented, 1 unpatented claim, on Sunset Peak, Lelande dist.; Burke. **Development:** By 3 tunnels: No. 1, 400 ft.; No. 2, 1200 ft.; No. 3, 6000 ft. **Plant:** Electrically-driven I-R compressor; complete mining equipment. **Ore:** Lead-silver.

CUBA MINING CO.

Office: Wallace. **Officers:** W. H. Hanson, Pres.; Herman Marquardt, Sec., both of Wallace. **Inc.:** Nov. 18, 1899. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Cuba group; 2 patented claims, Placer Center dist.; Wallace. **Development:** 2 tunnels: No. 1, 500 ft. long; No. 2, 1100 ft. long. **Plant:** Electrically-driven I-R compressor; complete mining equipment. **Ore:** Lead-silver. **Remarks:** This company is controlled by the Plymouth Lead Mines Co.

DECKER DEVELOPMENT CO.

Office: Kellogg. **Officers:** George Decker, Pres.; Mrs. M. E. Morgan, Sec.; Al Coneybeare, Mgr., all of Kellogg. **Inc.:** Oct. 1, 1927. **Capital:** 500,000 shares; par value 10c; 30 shares issued. **Property:** Stewart group; 4 patented, 2 unpatented claims, held under lease; Yreka dist.; Kellogg. **Development:** By 1 tunnel 2200 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 6. **Remarks:** A recent organization, which acquired a lease on the famous old Stewart mine. After the company's organization was completed, work was started on reopening the lower or Fir tunnel; at the close of the year approximately 2500 ft. of this tunnel had been reopened.

DEEP WONDER MINING CO.

Office: 408 Ziegler Bldg., Spokane, Wash. **Officers:** James H. Taylor, Pres., Wallace; Charles J. Kapps, Sec.-Mgr., Spokane, Wash. **Inc.:** Dec. 13, 1912; charter forfeited Dec. 2, 1916. **Capital:** 2,000,000 shares; par value $1; 1,738,678 shares issued. **Property:** Deep Wonder group; 12 patented claims, Hunter dist.; Mullan. **Development:** By 4 tunnels, the principal one of which is No. 2, 2400 ft. long. **Ore:** Lead-silver. **Remarks:** Property under lease to Mutual Mines Development Co.

DEER CREEK MINING CO.

Office: Wallace. **Officers:** C. E. Biggs, Pres.-Mgr., Lewiston; Jas. A. MacGowan, Sec., Great Falls, Mont. **Inc.:** May 23, 1925. **Capital:** 2,000,000 shares; par value 1c; 1,199,500 shares issued. **Property:** Deer Creek group; 23 unpatented claims, Beaver dist.; Wallace. **Development:** By 3 tunnels: No. 1, 200 ft. long; No. 2, 800 ft. long; No. 3, 200 ft. long; and an inclined shaft 100 ft. deep. **Plant:** Gas-driven Sullivan compressor, complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 4. **Remarks:** Small amount of work during the early part of the year.

DELAWARE MINES CORPORATION

Office: 323 Lindelle Bldg., Spokane, Wash. **Officers:** Matt Baumgartner, Pres.; A. L. Hooper, Sec., both of Spokane; F. C. Bailey, Mgr., Wallace. **Inc.:** March 10, 1926. **Capital:** 5,000,000 shares; par value 10c; 3,056,727 shares issued. **Property:** Rex and Red Monarch groups; 6 patented, 51 unpatented claims, Placer Center and Beaver dists.; Wallace. **Development:** By 4 tunnels, the principal of which are No. 4 or Rex tunnel, approximately 4000 ft. long, in which is a vertical shaft 700 ft. deep; and No. 1 or Red Monarch tunnel, 4400 ft. long. **Plant:** Electrically-driven compressor; complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Men employed:** Average, 4. **Remarks:** This company acquired the property owned by the Rex Consolidated Mines Co. in May, 1926. A large amount of development work, including reopening of old entries, was performed during 1927. A small tonnage of ore was produced and marketed by lessees.

DICKENS CONSOLIDATED MINES CO.

Office: 212 Gyde-Taylor Bldg., Wallace. **Officers:** C. H. Whittum, Pres., Rawlings, Wyo.; C. F. Kratzer, Sec., Spokane, Wash.; Alfred Brile, Mgr., Wallace. **Inc.:** March 18, 1925. **Capital:** 2,500,000 shares; par value 10c; all shares issued. **Property:** Dickens group; 22 unpatented claims, Moon Creek, Evolution and Yreka dists.; Kellogg. **Development:** Principally by a vertical shaft 500 ft. deep. **Plant:** 900-cu.-ft. Sullivan compressor and hoist, both electrically driven; complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Men employed:** Average, 11. **Remarks:** During the year, a large electrically-driven hoist was purchased and installed; shaft was sunk from the 400-ft. to the 500-ft. level, and a large amount of crosscutting and drifting was performed on each of these levels. The development work exposed a substantial amount of new ore. Stock assessments were levied during 1927 as follows: March 9, 10 mills; May 14, 10 mills; July 15, 10 mills; Dec. 6, 10 mills.

DOBSON PASS MINING CO.

Office: Wallace. **Officers:** J. P. Rogers, Pres.-Mgr.; S. M. Rogers, Sec., both of Wallace. **Inc.:** July 14, 1900. Charter forfeited Nov. 30, 1927. **Capital:** 1,000,000 shares; par value 10c; all shares issued. **Property:** Dobson Pass group; 5 unpatented claims, Placer Center dist.; Wallace. **Remarks:** Annual labor only.

DOUGLAS MINING CO., LTD.

Office: Wallace. **Officers:** Frank F. Johnson, Pres., Boise; H. C. Adami, Sec.; H. J. Rossi, Mgr., both of Wallace. **Inc.:** Oct. 24, 1903. **Capital:** 1,200,000 shares; par value $1; 853,500 shares issued. **Property:** Douglas group; 10 patented, 2 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 3 tunnels: No. 1, 930 ft.; No. 2, 675 ft.; No. 3, 327 ft. **Plant:** Electrically-driven compressor; air hoist; complete mining equipment and camp. **Ore:** Zinc-lead-silver. **Men employed:** Average, 12. **Remarks:** During the early part of the year property was operated by lessees, who produced and marketed a large tonnage of ore. The lease was cancelled in May; company then assumed operation of the mine and commenced an active development campaign, the funds for which were derived from the sale of treasury stock to the Bunker Hill & Sullivan M. & C. Co.

DU BOIS MINING CO.
Office: Kellogg. **Officers:** H. E. Ginter, Pres., Du Bois, Pa.; J. B. Eberhart, Sec.-Treas., Punxsutawney, Pa. **Inc.:** Aug. 9, 1914. **Capital:** 1,000,000 shares; par value $1; 300.000 shares issued. **Property:** 7 patented, 1 unpatented claim, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel 1250 ft. long. **Ore:** Lead-silver. **Remarks:** Idle for many years.

DULUTH MINING CO.
Office: Wallace. **Officers:** W. B. Heitfeld, Pres.; John E. Ryan, Sec., both of Wallace. **Inc.:** June 10, 1909. **Capital:** 1,500,000 shares; par value 25c; 522,710 shares issued. **Property:** Duluth group; 7 unpatented claims, Lelande dist.; Burke. **Development:** By 5 tunnels, with a total development of approximately 1000 ft. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of 6 mills was levied on July 18, 1927.

EAST ALAMEDA MINING CO., LTD.
Office: Avalon, Calif. **Officers:** Frank P. Markwell, Pres., Tajunga, Calif.; Everett H. Pattison, Sec., Avalon, Calif. **Inc.:** July 25, 1907. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** East Alameda group; 1 patented, 1 unpatented claim, Lelande dist.; Black Bear. **Ore:** Lead-silver.

EAST CALEDONIA MINES CO.
Office: Wallace. **Officers:** H. J. Rossi, Pres.; Franklin Pfirman, Sec., both of Wallace. **Inc.:** Mar. 6, 1915. **Capital:** 1,000,000 shares; par value 25c; 156,730 shares issued. **Property:** East Caledonia group; 2 patented, 5 unpatented claims, Yreka dist.; Kellogg. **Plant:** Electrically-driven I-R compressor, electrically-driven hoist, complete mining equipment. **Ore:** Lead-silver. **Remarks:** Annual labor only.

EAST HECLA MINING CO., LTD.
Office: Wallace. **Officers:** John P. Gray, Pres., Coeur d'Alene; A. H. Featherstone, Sec., Wallace. **Inc.:** Nov. 24, 1906. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** East Hecla group; 4 patented claims, Hunter dist.; Mullan. **Remarks:** Idle for a number of years.

EASTERN STAR MINING CO., LTD.
Office: Wallace. **Officers:** Jack Johnstone, Pres.-Mgr., Burke; John C. Glahe, Sec., Wallace. **Inc.:** Aug. 29, 1906. **Capital:** 1,000,000 shares; par value $1; 600,000 shares issued. **Property:** Eastern Star group; 18 unpatented claims, Lelande dist.; Burke. **Development:** 2 tunnels: No. 1, 150 ft. long; No. 2, 800 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

ELDORADO MINING & SMELTING CO., LTD.
Office: Wallace. **Officers:** J. C. Waddell, Pres., Rose Lake; G. W. Dougherty, Sec., Wallace. **Inc.:** July 5, 1907. **Capital:** 1,250,000 shares; par value 10c; 1,204,820 shares issued. **Property:** 4 unpatented claims, Yreka dist.; Kellogg. **Development:** By 1 tunnel, approximately 750 ft. long. **Plant:** Gas-driven compressor. **Ore:** Lead-silver. **Remarks:** Annual labor only.

ENTERPRISE MINING CO.
Office: Kellogg. **Officers:** Fred F. Donaldson, Pres.-Mgr.; W. A. Tuson, Sec., both of Kellogg. **Inc.:** June 4, 1910. **Capital:** 1,000,000 shares; par value $1; 664,500 shares issued. **Property:** Enterprise group; 6 unpatented claims; Kellogg. **Development:** By 3 tunnels: No. 1, 150 ft. long; No. 2, 180 ft. long; No. 3, 1300 ft. long. **Ore:** Lead-silver. **Remarks:** Lower tunnel advanced 100 ft. during the year. Stock assessments were levied during 1927 as follows: Feb. 15, 3 mills; Apr. 15, 3 mills; June 20, 3 mills; Nov. 23, 3 mills.

EQUITABLE MINING & MILLING CO.
Office: 317 Sherman Ave., Coeur d'Alene. **Officers:** C. L. Dittimore, Pres.; H. W. Fintzel, Sec., both of Coeur d'Alene. **Inc.:** April 3, 1916. **Capital:** 1,250,000 shares; par value 1c; 599,926 shares issued. **Property:** 7 unpatented claims; Pine Creek, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel 850 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** Tunnel advanced 100 ft. during the year. A stock assessment of 1½ mills was levied on May 15, 1927.

EUREKA MINING & MILLING CO., LTD.

Office: Wallace. **Officers:** W. R. Prowell, Pres., Wenatchee, Wash.; A. D. Marshall, Sec., Wallace. **Inc.:** May 3, 1906. **Capital:** 1,000,000 shares; par value $1; 713,100 shares issued. **Property:** Eureka group; 7 patented claims, Placer Center dist.; Wallace. **Plant:** Electrically-driven compressor and complete mining equipment. **Ore:** Lead-silver. **Remarks:** Idle since 1921.

EVOLUTION MINING CO.

Office: 405 Mohawk Bldg., Spokane, Wash. **Officers:** Montgomery Waddell, Pres., New York City; C. A. Fay, Sec., Wallace; Conrad Wolfle, Mgr., Spokane. **Inc.:** July 25, 1927. **Capital:** 1,000,000 shares; par value $1; 600,000 shares issued. **Property:** Evolution group; 8 unpatented claims, Evolution dist.; Osburn; held under lease and option from the Coeur d'Alene Crescent Mining Co. **Development:** By 1 tunnel 500 ft. long and a vertical shaft 250 ft. deep. **Plant:** Electrically-driven compressor; air hoist; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 5. **Remarks:** A new enterprise. Property was acquired, buildings erected, equipment installed, shaft unwatered, and development work started during the latter part of the year.

FAIRVIEW MINING CO., LTD.

Office: Mullan. **Officers:** J. E. Quinlan, Pres.; Katherine Dowling, Sec., both of Mullan. **Inc.:** Mar. 13, 1905. Charter forfeited Nov. 30, 1927. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Fairview group; 3 unpatented claims, Hunter dist.; Mullan. **Development:** By 1 tunnel 1100 ft. long. **Remarks:** Annual labor only.

FANNIE GREMM MINING CO.

Office: Wallace. **Officers:** P. P. Weber, Pres., Kellogg; Alfred J. Dunn, Sec., Wallace. **Inc.:** Dec. 6, 1900. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** 2 patented claims adjoining the Morning mine on the east, Hunter dist.; Mullan. **Development:** Approximately 16,000 ft. of underground workings. **Ore:** Lead-silver. **Remarks:** Idle. A stock assessment of ½ mill was levied on Dec. 23, 1927. Property under option to Little Sunshine Mining Co.

FEDERAL MINING & SMELTING CO.

Office: 120 Broadway, New York City. **Officers:** F. H. Brownell, Pres.; J. L. Martin, Sec., both of New York City; Frederick Burbidge, Mgr., Wallace. **Inc.:** Sept. 24, 1903. **Capital:** 200,000 shares preferred, 100,000 shares common; par value of each, $100; 120,000 shares preferred, 60,000 shares common issued.

MORNING GROUP

Property: 40 patented, 1 unpatented claim, Hunter dist.; Mullan. **Development:** The two principal tunnels are No. 5, 1600 ft. long, and No. 6, the main transportation tunnel, 9500 ft. long. The principal shaft, which is located in No. 6 tunnel, is a vertical, 4-compartment shaft, 2250 ft. deep, with 11 intermediate levels below No. 6 tunnel, which opens the vein to a total depth of approximately 4600 ft. Total development, approximately **36 miles.** **Plant:** MINE: Fraser-Chalmers double-reel duplex Corliss hoist, size 20x60-inch stroke; one Nordberg single-reel geared hoist, driven by 300-h. p. electric motor; 1 water-driven 5200-cu.-ft. Ricks compressor; one Laidlaw-Dunn-Gordon 3200-cu.-ft. compressor, and two Ingersoll-Rand 2500-cu.-ft. compressors; one Prescott pump, 400 gal. capacity, on 2450 level; all electrically driven; complete mining equipment, machine shops, sawmill, company buildings and hotel. HAULAGE: 500-volt electric in main, or No. 6, tunnel; 250-volt electric and 7 storage-battery locomotives in intermediate levels. MILL: 1200-ton concentrator, including flotation. Two ore-sorting plants and complete modern change house. **Ore:** Lead-silver-zinc. **Men employed:** Average, 766, exclusive of lessees. **Remarks:** Replacement value of surface plant approximately $1,200,000. The principal new improvements, new equipment, and alterations made at this mine during the year were: The replacing of Callow flotation cells, jigs, and tables, by O & D flotation machines; the addition

of 2 drag classifiers, 1 thickener, and 1 Hardinge mill, in the mill; and 3 storage-battery locomotives in the intermediate levels.

PAGE GROUP

Property: 86 patented claims, Yreka dist.; Kellogg. **Development:** By 9 tunnels, the principal one of which is the Curlew, 650 ft. long; and an inclined shaft 900 ft. long, giving a vertical depth of 700 ft. Total development, approximately 12,000 ft. **Plant:** MINE: Electrically-driven 100-h. p. hoist; a 400-cu-ft. and an 800-cu.-ft. electrically-driven compressor; 1 trolley locomotive and 2 storage-battery locomotives; complete and modern mine camp, equipment, and buildings. MILL: 300-ton flotation concentrator. **Ore:** Lead-zinc-silver. **Men employed:** Average, 135. **Remarks:** In 1925 power lines were extended to the mine, the mine plant was installed, the shaft unwatered, and active development work started. In 1926 the mine was further developed, additional equipment added, the mill constructed, and the enterprise placed on a profitable operating basis. During 1927 the mine and mill plants were enlarged and improved, the mine camp was enlarged, the shaft extended 300 ft. from the 600 to the 900-ft. level, and the ore bodies were opened to a greater extent on the intermediate levels. The success of the operation can be accredited entirely to flotation, because with the old milling methods it was impossible to mine and mill at a profit the type of ore occurring in this mine.



PAGE MINE: FEDERAL M. & S. CO.

MACE GROUP

Property: 35 patented claims, Lelande dist.; Mace. **Development:** Principal development consists of No. 6 tunnel, 3600 ft. long; No. 2, Campbell, 3000 ft. long; and a 3-compartment vertical shaft 2400 ft. deep, with 22 intermediate levels. Total development: Approximately 4 miles. **Plant:** MILL: Two 500-ton concentrators, including flotation. **Ore:** Lead-silver.

Remarks: Except for the operation of a few lessees, who produced a small tonnage of ore, this property was idle. No. 6 tunnel is now known as No. 7 of the Tamarack & Custer Consolidated Mining Co.

BURKE GROUP

Property: One millsite, Lelande dist.; Burke. **Plant:** A small hydroelectric power plant.

FRISCO GROUP

Property: 15 patented claims, Lelande dist.; Gem. **Development:** Principally by 4 tunnels: No. 1, 1000 ft. long; No. 2, 1500 ft. long; No. 3, 550 ft. long; No. 4, 1000 ft. long; and a vertical 4-compartment shaft 1650 ft. deep. Total development, approximately 6 miles. **Ore:** Lead-zinc-silver. **Remarks:** A substantial tonnage of ore was produced by lessees during the year.

BIG CREEK GROUP

Property: 3 patented claims, Evolution dist.; Kellogg. **Development:** By 1 tunnel, 75 ft. long. **Ore:** Lead-zinc-silver.

GOVERNMENT GULCH GROUP

Property: Five-sixteenths interest in 1 patented claim, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel, which is 500 ft. long. Total development, approximately 1700 ft. **Ore:** Lead-silver.

CON. BIEDERMAN GROUP

Property: One-half interest in 2 patented claims and one-third interest in 2 patented claims, Yreka dist.; Kellogg. **Development:** By 2 tunnels: No. 1, 320 ft. long; No. 2, 125 ft. long. **Ore:** Lead-zinc-silver.

REMARKS

This company is one of the largest operators in Shoshone County both in property owned and in production, although for the past few years practically all of its production came from the Morning mine. This mine is one of the largest producers of lead-silver and zinc ores in the Coeur d'Alene district and capacity production was maintained throughout the year. During the year many alterations and additions were made to the mine and mill plants as well as many extensive improvements in the mine, the most important being the completion of the shaft to the 3050-ft. level, including concrete lining; the opening of the ore bodies on the 2850 and 3050 levels; and the improved methods installed in the mill. Leasing operations in the upper part of the Morning mine greatly added to the company's production, which for the year 1927 was one of the largest ever made. The largest lease in the Morning Mine is the Sheridan Leasing Co., which employs about 100 men.

FIDELITY COMPANY, LTD.

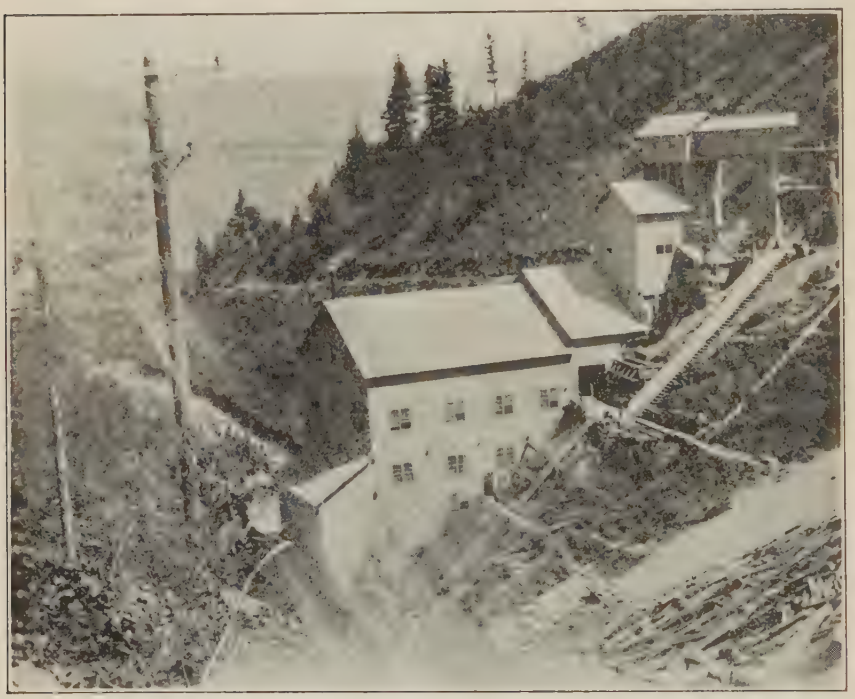
Office: Wallace. **Officers:** Oscar B. Bergstrom, Pres., 149 Broadway, New York City; Allan G. Kennedy, Sec.-Mgr., Wallace. **Inc.:** Nov. 5, 1915. **Capital:** 2,500,000 shares; par value 20c; 1,675,309 shares issued. **Property:** Monarch group; 7 patented, 29 unpatented claims, Summit dist.; Murray. **Development:** By 3 tunnels, the principal of which is No. 3, or main crosscut tunnel, which is 3120 ft. long; and an inclined shaft 300 ft. deep; total development, approximately 13,500 ft. **Plant:** MINE: Ottumwa air-driven hoist, 10-drill water-driven compressor, complete mining equipment and camp. MILL: 150-ton concentrator, jigs and tables. **Ore:** Lead-zinc-silver. **Men employed:** 1 watchman. **Remarks:** Annual labor only on unpatented claims.

FIRST NATIONAL SILVER MINES, LTD.

Office: 323 Lindelle Blk., Spokane, Wash. **Officers:** Dan Krehbiel, Pres., Lind, Wash.; Matt Baumgartner, Sec.-Mgr., Spokane, Wash. **Inc.:** April 7, 1920. **Capital:** 3,000,000 shares; par value 5c; 2,276,534 shares issued. **Property:** Liston group; 7 patented, 26 unpatented claims, Big Creek, Evolution dist.; Kellogg. **Development:** By 3 tunnels: No. 1, 1000 ft. long; No. 2, 2500 ft. long; No. 3, 3300 ft. long. **Plant:** Steam-driven compressor, and complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 5. **Remarks:** No. 3 tunnel was extended about 700 ft. during the year. Funds for this work were derived from stock assessments.

FLAGSTAFF MINING CO.

Office: Wallace. **Officers:** Emery Guay, Pres.; Evelyn Vaures, Sec., both of Spokane, Wash.; E. L. Vaures, Mgr., Prichard. **Inc.:** Oct. 29, 1927. **Capital:** 1,000,000 shares; par value 10c; 375,000 shares issued. **Property:** Jippo group; 5 unpatented claims, Eagle dist.; Prichard. **Remarks:** A small amount of preliminary work during the summer months.



PAGE MILL: FEDERAL M. & S. CO.

FLORENCE MINING & MILLING CO., LTD.

Office: Kellogg. **Officers:** Charles Dallaire, Pres.; John B. Steffes, Sec., both of Kellogg. **Inc.:** Aug. 15, 1908. **Capital:** 1,000,000 shares; par value $1; 285,000 shares issued. **Property:** Dallaire group; 10 unpatented claims; Big Creek, Yreka dist.; Kellogg. **Development:** 5 tunnels: No. 1, 100 ft. long; No. 2, 150 ft. long; No. 3, 80 ft. long; No. 4, 180 ft. long; No. 5, 150 ft. long. **Ore:** Lead-silver. **Remarks:** In October a contract was let to extend the lower tunnel 200 ft.

FLYNN GROUP MINING CO.

Office: Wallace. **Officers:** J. J. Cronin, Pres.; J. F. Whelan, Sec., both of Wallace. **Inc.:** Aug. 21, 1905. **Capital:** 2,500,000 shares; par value 25c; 1,605,000 shares issued. **Property:** Flynn group; 21 patented claims, Lelande dist.; Black Bear. **Development:** Total development, 6600 ft. **Remarks:** Under option to Coeur d'Alene Syndicate Mining Co.

FORMOSA LEAD MINING CO., LTD.

Office: 504 Empire State Bldg., Spokane, Wash. **Officers:** Charles Hussey, Sec., Spokane, Wash. **Inc.:** Jan. 19, 1907. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** 3 patented claims, Lelande dist.; Wallace. **Remarks:** Under development by Mutual Mines Development Co., which see.

FORT WAYNE MINING CO.

Office: 213 Shannon, Spokane, Wash. **Officers:** E. W. Conrad, Pres.-Mgr.; J. M. Henneck, Sec., both of Spokane. **Inc.:** Sept. 22, 1924. **Capital:** 1,500,000 shares; par value 33 1-3c; 1,089,153 shares issued. **Property:** Eclipse group; 19 unpatented claims, Evolution dist.; Osburn. **Development:** Principally by 1 tunnel, which is 1900 ft. long. **Plant:** Gas-driven compressor. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of 2 mills was levied on Feb. 1, 1927.

GEM STATE MINING CO.

Office: 720 Peyton Bldg., Spokane, Wash. **Officers:** J. M. Porter, Pres.-Mgr.; W. E. Horstkotte, Sec., both of Spokane, Wash. **Inc.:** Aug. 25, 1924. **Capital:** 2,200,000 shares; no par value; 1,100,000 shares issued. **Property:** 8 patented, 12 unpatented claims, Hunter dist.; Wallace. **Development:** By 6 tunnels, the longest of which is No. 4, 1878 ft. in length. **Ore:** Lead-silver-zinc. **Remarks:** An organization which is a consolidation of the properties owned by the Coeur d'Alene Silver-Lead Mining Co., and the Silver Mountain Mining Co. Annual labor only. A stock assessment of 1½ mills was levied on June 7, 1927.

GENERAL MINES CORPORATION

Office: 402 Empire State Bldg., Spokane, Wash. **Officers:** C. Roholt, Pres., Worley; H. G. Loop, Sec., Spokane, Wash. **Inc.:** Nov. 23, 1925. **Capital:** 2,000,000 shares; par value 5c; 250,000 shares issued. **Property:** Big Eight group; 10 unpatented claims, Yreka dist.; Kellogg. **Development:** Total development, approximately 2600 ft. **Ore:** Lead-silver. **Remarks:** Property acquired in December.

GERTIE MINING CO.

Office: Wallace. **Officers:** E. E. Flood, Pres.; F. M. Rothrock, Sec., both of Spokane, Wash. **Inc.:** July 23, 1914. **Capital:** 2,500,000 shares; par value 10c; all shares issued. **Property:** Gertie group; 3 patented claims, Lelande dist.; Burke. **Development:** Principally by 1 tunnel, which is over 1 mile in length. **Remarks:** This company was absorbed by the Hercules Mining Co. in 1924; new equipment was installed, the tunnel rehabilitated and active work commenced in extending the tunnel into the Maher-Hearn group, since which time this work has continued without interruption.

GIANT MINING & DEVELOPMENT CO.

Office: Wallace. **Officers:** Paul Liver, Pres.-Mgr.; E. R. Turk, Sec., both of Wallace. **Inc.:** Sept. 22, 1899. **Capital:** 1,000,000 shares; par value 10c; 650,500 shares issued. **Property:** 8 unpatented claims, Beaver dist.; Wallace. **Development:** Principally by 1 tunnel, which is 4500 ft. long. **Ore:** Lead-silver. **Men empoyed:** Average, 2. **Remarks:** The company was active throughout the year. Stock assessments were levied during 1927 as follows: Jan. 3, 2 mills; Apr. 15, 2 mills; Aug. 11, 3 mills.

GOLCONDA LEAD MINES

Office: Barnard Block, Wallace. **Officers:** A. H. Featherstone, Pres.; O. W. Lewis, Sec., both of Wallace. **Inc.:** Jan. 18, 1927. **Capital:** 1,500,000 shares; par value $1; 800,000 shares issued. **Property:** Hector group; 14 patented, 3 unpatented claims, Hunter dist.; Wallace. **Development:** Mine opened by the Mayflower tunnel, 5000 ft. in length, an inclined raise 200 ft. long, and a vertical shaft 200 ft. deep. **Plant:** Electrically-driven 750-cu.-ft. Sullivan compressor; 2 air-driven hoists; storage-battery locomotive haulage; complete mining equipment. **Ore:** Lead-zinc-silver. **Men employed:** Average, 15. **Remarks:** Equipment installed, 200-ft. raise driven, and 200-ft. shaft sunk during the year.

GOLD HUNTER MINES, INC.

Office: 516 E. 28th St., Chicago, Ill. **Officers:** Edwin C. Hennessy, Pres.; Thomas F. Keeley, Sec., both of Chicago, Ill.; C. K. Cartwright, Mgr., Mullan. **Inc.:** April 24, 1925; formerly Gold Hunter Mining & Smelting Co. **Capital:** 20,000 shares; par value $10; all shares issued. **Property:** Gold Hunter; 12 patented claims, Hunter dist.; Mullan. **Development:**

Principal main haulage tunnel 7600 ft. long, from which level is a shaft 1500 ft. deep to the 1200-ft. level, in which there is another shaft 400 ft. deep. **Plant:** MINE: Complete and modern; electric hoist; two 3000-cu-ft. electrically-driven compressors; pumps; machine and blacksmith shop; electric haulage. MILL: 500-ton concentrator, including flotation. **Ore:** Lead-silver. **Men employed:** Average, 140. **Remarks:** This company is one of the old and substantial producers of the Coeur d'Alene district. Capacity production was maintained; a large amount of development work was done in the mine; and the new shaft, on the vein in the 1200-ft. level, was extended from the 1400 to the 1600-ft. level. This development work encountered one of the principal showings of new ore disclosed in the Coeur d'Alene district during the year. Capacity production was maintained without interruption. By proving the continuation of its ore at depth, this company greatly increased its resources and future life.

GOODENOUGH MINING CO.

Office: Fresno, Calif. **Officers:** F. P. Markwell, Pres., Tujunga, Calif.; J. Fred Markwell, Sec., Fresno, Calif. **Inc.:** April 6, 1922. **Capital:** 2,500,000 shares; par value 1c; all shares issued. **Property:** Goodenough group; 13 patented, 5 unpatented claims, Lelande and Hunter dists.; Gem. **Remarks:** Property under option to United Metals Co.

GOVERNMENT GULCH MINING CO.

Office: Wallace. **Officers:** Frederick Burbidge, Pres.-Mgr.; A. W. Hoover, Sec., both of Wallace. **Inc.:** July 15, 1918. **Capital:** 1,500,000 shares; par value 10c; 1,350,567 shares issued. **Property:** Government Gulch group; 6 patented claims, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel 500 ft. long and a vertical shaft 100 ft. deep. Total development, approximately 1800 ft. **Ore:** Lead-zinc-silver. **Remarks:** Idle.

GREAT DUNKER MINING & MILLING CO.

Office: 316 Lindelle Bldg., Spokane, Wash. **Officers:** J. G. Johnson, Pres., Spokane, Wash.; Carl A. Pearson, Sec.-Mgr., Star Route, Kellogg. **Inc.:** Jan. 11, 1924. **Capital:** 1,000,000 shares; par value 10c; 311,080 shares issued. **Property:** Great Dunker group; 3 patented, 2 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 7 short tunnels. **Ore:** Lead-zinc-silver, antimony. **Men employed:** Average, 2. **Remarks:** A small amount of work during the year.

GREAT EASTERN MINING CO., LTD.

Office: Wallace. **Officers:** John Carlson, Pres., Gem; John C. Furst, Sec., Wallace. **Inc.:** Oct. 22, 1900. **Capital:** 1,000,000 shares; par value $1; 750,000 shares issued. **Property:** Great Eastern group; 13 patented claims, Lelande dist.; Gem. **Development:** Total development, approximately 4000 ft.; the principal tunnel is 600 ft. long. **Ore:** Lead-silver-zinc.

GREAT HELENA MINING & MILLING CO.

Office: Kellogg. **Officers:** Philip J. Lynch, Pres.; Thomas C. Lynch, Sec.-Mgr., both of Kellogg. **Inc.:** Aug. 24, 1922; charter forfeited Dec. 1, 1925. **Capital:** 1,500,000 shares; par value 20c; no shares issued. **Property:** 7 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 6 tunnels, the principal one of which is 550 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** Small amount of work during the year.

GREEN HILL CLEVELAND MINING CO.

Office: Wallace. **Officers:** F. H. Brownell, Pres., 120 Broadway, New York City; John H. Wourms, Sec.; Frederick Burbidge, Mgr., both of Wallace. **Inc.:** Oct. 7, 1912. **Capital:** 320,000 shares; par value $1; all shares issued. **Property:** Green Hill group; 3 patented claims, Lelande dist.; Mace. **Ore:** Silver-lead-zinc. **Remarks:** Idle since 1917.

GUELPH MINING & MILLING CO., LTD.

Office: Kellogg. **Officers:** B. Coyle, Pres., 716 E. Everett St., Portland, Ore.; F. Wm. Voigtlander, Sec., Kellogg. **Inc.:** March 27, 1906. **Capital:** 1,500,000 shares; par value $1; 1,380,967 shares issued. **Property:** Guelph group; 5 patented, 4 unpatented claims, Beaver dist.; Wallace. **Develop-**

ment: Principally by 3 tunnels: No. 1, 150 ft. long; No. 2, 850 ft. long; No. 3, 1600 ft. long; and a vertical shaft 250 ft. deep. **Plant:** 5-drill, 2-stage Sullivan compressor driven by a 75-h. p. electric motor; air-driven hoist; complete mining equipment and camp. **Ore:** Lead-silver. **Remarks:** Annual labor only.

HAPPY DAY MINING CO., LTD.

Office: Day Bldg., Wallace. **Officers:** Daniel Morgan, Pres., Spokane, Wash.; John E. Ryan, Sec., Wallace. **Inc.:** Sept. 30, 1899. **Capital:** 1,000,000 shares; par value 10c; 791,737 shares issued. **Property:** Happy Day group; 6 patented claims, Lelande dist.; Burke. **Development:** Principally by 1 tunnel 1500 ft. long. **Ore:** Lead-silver.

HAPPY JACK MINING CO.

Office: Wallace. **Officers:** Len Lussier, Pres., Spokane, Wash.; H. V. Edwards, Sec.-Mgr., Wallace. **Inc.:** June 9, 1924. **Capital:** 1,500,000 shares; par value 10c; 350,000 shares issued. **Property:** 4 unpatented claims, held under lease and option from the Climax Silver-Lead Mining Co., Placer Center dist.; Wallace. **Development:** By 2 tunnels: No. 1, 50 ft. long; No. 2, 360 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

HAYES CO.

Office: Kellogg. **Officers:** Arthur Hayes, Pres.; Martin Nicholson, Sec.; Stanly A. Easton, Mgr., all of Kellogg. **Inc.:** May 11, 1916. **Capital:** 25,000 shares; par value $1; 12,500 shares issued. **Property:** 1200 acres river bottom land held under lease; Yreka dist.; Kellogg. **Plant:** MILL: 100-ton flotation concentrator; Orange-peel dredge and sand pumps. **Ore:** Lead-silver from river tailings. **Men employed:** Average, 12. **Remarks:** Profitably operated throughout the year.

HECLA EXTENSION MINING CO.

Office: Wallace. **Officers:** Chas. Oster, Pres., 1 Wall St., New York; Geo. C. Hollister, Sec., 60 Broadway, New York; Patrick Brady, Mgr., Burke. **Inc.:** Oct. 21, 1926. **Capital:** 1,500,000 shares; par value 25c; all shares issued. **Property:** Anchor group; 8 patented claims, held under lease and option from the Anchor Mining Co., and 7 unpatented claims; Lelande dist.; Burke. **Development:** By 2 tunnels: No. 1, 700 ft. long; No. 2, 2800 ft. long; and a 200-ft. vertical shaft. **Plant:** Electrically-driven I-R compressor and complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 6. **Remarks:** The shaft was unwatered, and a small amount of development work performed.

HECLA MINING CO.

Office: Wallace. **Officers:** James F. McCarthy, Pres.-Mgr.; L. E. Hanley, Sec., both of Wallace. **Inc.:** Sept. 26, 1898. **Capital:** 1,000,000 shares; par value 25c; all shares issued. **Property:** 47 patented, 1 unpatented claim, Lelande dist.; Burke. **Development:** Principally by a 4-compartment vertical shaft, which is 2000 ft. deep, and a 3-compartment vertical shaft from the 2000-ft. level, which is 800 ft. deep. Total development, approximately 8 miles. **Plant:** MINE: One of the most complete and modern in the State. MILL: 700-ton concentrator, including flotation. **Ore:** Lead-silver. **Men employed:** Average, 525.

REMARKS

During the year the Hecla ore body was further proven on the 2400 and the 2800-ft. levels, 400 and 800 ft. below the present working level. The long raise and the lateral development work in the Star mine greatly enlarged the known ore reserves. These increased ore reserves have assured the Hecla Co. many years of uninterrupted operations and dividend payments, as well as being instrumental in causing a big increase in the value of Hecla stock.

The par value of this stock is 25 cents per share and during the early days of the mine sold as low as 3 cents per share. After ore was first struck, the stock had a marked increase in value, although fluctuating until 1919. Since then it has been continually on the increase. On Nov. 25, 1919, the stock was selling at $3.15 per share; during 1924 it was rap-

idly rising; by March, 1926, it had reached a high of $19.25; and during 1927 it averaged $18, a remarkable record for the mine and for a stock of low value.

On July 13, 1923, the entire surface plant was destroyed by the disastrous fire which wiped out the town of Burke. Before the ruins had quit smouldering, plans for reconstruction were under way, and were completed before the wreckage was cleared up. Rebuilding rapidly progressed, and on Jan. 27, 1924, full time operations and production were resumed. During the time from the date of the fire to the resumption of operations, the usual dividends were paid without interruption. This was made possible by the $1,000,000 "Use and Occupancy" insurance with which the company had protected its operations, and which reflected greatly to the credit and foresight of the management.

The destroyed buildings were replaced with modern fireproof buildings constructed entirely of steel and concrete; a new all-steel headframe was installed; and the yards were rearranged. All construction was completed during 1925. The new plant was designed to handle the ore from the Star mine, as well as that from the Hecla, and as completed is one of the most modern in the State.



HECLA MINING CO.'S MILL

During the year work was started in sinking the main shaft to the 2800-ft. level; the mine and mill plants were enlarged and improved; and the mine was maintained in first-class condition.

The Hecla management are progressive and intelligent; they have engendered an excellent spirit of cooperation among the employees and are giving the utmost consideration to safety and welfare provisions. Under such conditions, and with the life of the mine assured for many years, the outlook for the company is exceedingly favorable.

At the old Tiger-Poorman mine, which was purchased in 1920, machinery and equipment were installed and work started on unwatering it to the 600-ft. level.

In furtherance of a policy adopted a few years ago to expand its operations, this company developed three properties in the southern part of the State throughout a large part of the year, and an active search for others worthy of development was carried on in Idaho, Nevada, Washington, and Canada.

HELVETIA MINING CO.

Office: Wallace. **Officers:** L. R. Terry, Pres., Orient, Wash.; Thos. W. Lane, Sec.-Mgr., Wallace. **Inc.:** Mar. 8, 1907. **Capital:** 1,000,000 shares; par value $1; 400,000 shares issued. **Property:** Helvetia group; 5 unpatented claims, Placer Center dist.; Wallace. **Development:** By 1 tunnel 360 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

HERCULES MINING CO.

Office: Wallace. **Officers:** Harry L. Day, Pres.-Mgr.; A. P. Ramstedt, Sec., both of Wallace. **Inc.:** Dec. 31, 1923. **Capital:** 500,000 shares; par value $10; 430,180 shares issued.

HERCULES GROUP

Property: Hercules group, 38 patented claims; Columbia lode, 1 patented claim; Lelande and Placer Center dists.; Burke. **Development:** Principally by 5 tunnels: No. 1, 280 ft.; No. 2, 3350 ft.; No. 3, 3900 ft.; No. 4, 5900 ft.; No. 5, 8550 ft.; and a 4-compartment vertical shaft 1300 ft. deep, with 8 intermediate levels. Total development, approximately 18 miles. **Plant:** MINE: Special first motion, double-reel, Nordberg electric hoist, direct connected to 700-h. p. motor. One 22x16 I-R and 1 29x21 I-R compressor, both electrically driven. Electric trolley locomotive in main transportation tunnel and storage-battery locomotives in intermediate levels. Complete and modern mine equipment and shops. MILL: 600-ton concentrator, including flotation. **Ore:** Lead-silver. **Men employed:** Average, 60.

MAHER-HEARN GROUP

Property: 29 patented claims; Lelande dist.; Burke. **Development:** Through 4500-ft. tunnel of Gertie Mining Co., at the end of which is over 4000 ft. of tunnel and a 400-ft. vertical shaft. **Plant:** Electrically-driven 1000-cu.-ft. I-R compressor; air-driven hoist; trolley electric locomotive haulage; complete and modern equipment. **Ore:** Lead-silver. **Men employed:** Average, 60.

REMARKS

Because of the exhaustion of the great ore bodies in the Hercules mine, the company suspended operations at this mine in April, 1925, thus adding one more famous producer to the fate that awaits all mines.

After years of effort and self-denial by the owners in developing the mine, the ore was encountered in 1900. The magnitude of the ore body and grade of the ore electrified the mining world, and shortly thereafter the mine was on a self-sustaining basis. The first dividend was paid in 1901, and excepting periods of idleness caused by external conditions, dividends were paid without interruption up to the date of closing.

Until Dec. 31, 1923, the mine had always been operated as a partnership, which comprised practically all of the original owners. On this date the company was incorporated as a Delaware corporation.

Because the ownership was closely held, with the majority interest in the Day family, no reports were ever published; consequently the exact production and amount of dividends paid will probably never be known. However, estimates place the production record at more than $75,000,000 and dividends paid at over $18,000,000—a most remarkable record, and one that fully justified the name given to the mine in its early days, "The Bonanza Mine of the Coeur d'Alenes."

The passing of the Hercules mine does not mean the end of the Hercules Mining Co. Before the mine was closed, the company had commenced to expand, and by the time operations ceased, work had advanced sufficiently at other mines that were owned or controlled by this company to absorb the larger part of the payroll that had been maintained at the Hercules.

During 1927 this company, and those allied with it, performed a larger amount of new development and exploration work than any other company in Shoshone County. Practically all of the properties are in favorable locations, and, as the work is being intelligently directed, there

are excellent possibilities that this company will again take its place among the important dividend payers.

The principal mines and companies which this company owns or controls are: Hercules and Maher-Hearn mines; Strattons Mines Co.; Ambergris Mines Co.; Sherman Lead Co.; Honolulu Mining Co.; Humming Bird Mining Co.; Roanoke Mining Co.; Stanley Mining Co.; Happy Day Mining Co.; Western Union Mining Co.; Success Mining Co., Ltd. The following of these produced a substantial tonnage during the year: Humming Bird Mining Co.; Strattons Mines Co. at the Stratton and Panhandle mines; Sherman Lead Co.; Ambergris Mines Co. Lessees at the Success and Western Union mines produced a small amount of ore.

HIDDEN TREASURE MINING CO.

Office: Wallace. **Officers:** Frederick Burbidge, Pres.-Mgr.; A. W. Hoover, Sec., both of Wallace. **Inc.:** May 18, 1908. **Capital:** 500,000 shares; par value $10; all shares issued. **Property:** Hidden Treasure group; 4 patented claims, Lelande dist.; Burke. **Development:** Principally by 1 tunnel 2540 ft. long. **Ore:** Silver-lead-zinc.

HIGH CROPPING SILVER-LEAD MINING CO.

Office: Burke. **Officers:** Hugh Gibson, Pres.-Mgr.; J. F. Hurtubise, Sec., both of Burke. **Inc.:** Sept. 18, 1924. **Capital:** 1,500,000 shares; par value 25c; 773,000 shares issued. **Property:** High Cropping group; 7 unpatented claims, Lelande dist.; Burke. **Development:** 1 tunnel, 265 ft. long. **Ore:** Lead-silver. **Remarks:** A small amount of development work. A stock assessment of 1 mill was levied on May 16, 1927.

HIGH GRADE MINING CO.

Office: First State Bank Bldg., Kellogg. **Officers:** James McConnell, Pres.; L. L. Ruthruff, Sec., both of Kellogg. **Inc.:** Mar. 5, 1923. **Capital:** 1,500,000 shares; par value 10c; shares issued, unknown. **Property:** High Grade group; 5 unpatented claims, Big Creek, Yreka dist.; Kellogg. **Development:** By 1 tunnel 1200 ft. long. **Ore:** Lead-silver. **Remarks:** Small amount of work during the year.

HIGHLAND-SURPRISE CONSOLIDATED MINING CO.

Office: Kellogg. **Officers:** Dr. Charles R. Mowery, Pres., Wallace; George D. Lamielle, Sec., Kellogg; A. L. Dempster, Mgr., Masonia. **Inc.:** Aug. 27, 1912. **Capital:** 1,200,000 shares; par value $1; 1,191,493 shares issued. **Property:** 3 patented, 30 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** Approximately 2 miles of underground workings. **Plant:** MINE: A 7-drill I-R compressor, electrically driven; complete mining equipment and camp. MILL: 150-ton concentrator. **Ore:** Lead-zinc-silver. **Men employed:** Average, 58. **Remarks:** During 1926 this company was one of the largest producing mines on Pine Creek, its zinc concentrate being shipped to Belgium for treatment. On May 1, 1927, this contract expired; after which operations were suspended, pending completion of the Sullivan electrolytic zinc plant at Kellogg.

HILARITY LEAD-SILVER MINING CO.

Office: Mullan. **Officers:** J. A. Glowe, Pres.; H. W. Ingalls, Sec.-Mgr., both of Mullan. **Inc.:** Apr. 24, 1916, as Pine Creek Mining & Milling Co.; name changed May 7, 1923. **Capital:** 2,000,000 shares; par value 10c; 1,700,000 shares issued. **Property:** 12 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel 500 ft. long, and a 200-ft. vertical shaft. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only. Stock assessments were levied during the year as follows: Feb. 5, 1c; May 14, 5 mills; Oct. 8, 5 mills.

HILL MINING & MILLING CO.

Office: First State Bank Bldg., Kellogg. **Officers:** Elmer Brown, Pres.-Mgr.; L. L. Ruthruff, Sec., both of Kellogg. **Inc.:** May 10, 1916. **Capital:** 1,000,000 shares; par value 2c; 431,193 shares issued. **Property:** Hill group; 2 unpatented claims, Yreka dist.; Kellogg. **Development:** By 1 tunnel 800 ft. long. **Ore:** Lead-silver. **Remarks:** Small amount of work during the summer months. A stock assessment of 2 mills was levied on June 12.

HONOLULU MINING CO., LTD.

Office: Wallace. **Officers:** J. W. Tabor, Pres., Wallace; John P. Mahoney, Sec., Spokane; Geo. W. Tabor, Asst. Sec., Wallace. **Inc.:** Apr. 4, 1906. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** 4 unpatented claims adjoining Hercules mine, Lelande dist.; Burke. **Development:** Principally by a 2400-ft. crosscut from the No. 4 Hercules tunnel. **Ore:** Lead-silver. **Remarks:** Actively prospected during the early part of the year by the Hercules Mining Co.

HORNSILVER MINING & MILLING CO.

Office: Wallace. **Officers:** Ben L. Collins, Pres., 312 Old National Bank Bldg., Spokane, Wash.; Russell F. Collins, Sec.-Mgr., Wallace. **Inc.:** May 31, 1901. **Capital:** 1,000,000 shares; par value 10c; 887,100 shares issued. **Property:** 5 unpatented claims. Placer Center dist.; Wallace. **Development:** 1 tunnel, 800 ft. long. **Ore:** Lead-silver-gold. **Remarks:** Annual labor only. A stock assessment of 2 mills was levied on Feb. 17, 1927.

HORSESHOE MINING CO.

Office: Mullan. **Officers:** Jas. B. Scoles, Pres.-Mgr., Mullan; N. S. Jacobs, Sec., Lewiston. **Inc.:** July 16, 1908. **Capital:** 1,500,000 shares; par value $1; 898,000 shares issued. **Property:** Horseshoe group; 9 unpatented claims, Hunter dist.; Mullan. **Development:** 2 tunnels: No. 1, 400 ft. long; No. 2, 3000 ft. long. **Ore:** Lead-silver. **Remarks:** Tunnel controlled by Atlas Mining Co.

HUMBOLT MINING CO.

Office: Wallace. **Officers:** James Mooney, Sec., Wallace. **Inc.:** An association. **Capital:** Sale of units. **Property:** 8 unpatented claims, Lelande dist.; Burke. **Development:** By 2 tunnels: No. 1, 80 ft. long; No. 2, 50 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** A small amount of work during the year.

HUMMING BIRD MINING CO.

Office: Burke. **Officers:** Harry L. Day, Pres.-Mgr., Wallace; W. H. Hoover, Sec., Burke. **Inc.:** June 27, 1898. **Capital:** 1,500,000 shares; par value $1; 1,411,075 shares issued. **Property:** Humming Bird group; 18 patented claims, Lelande dist.; Burke. **Development:** Total development, approximately 12,400 ft. of tunnels, the principal of which are No. 4, 1253 ft. long, and No. 5, Hercules, 12,086 ft. long. **Plant:** All equipment used in operation furnished by Hercules Mining Co. **Ore:** Lead-silver. **Men employed:** Average, 21. **Remarks:** In addition to performing a large amount of development work, the company produced a substantial tonnage of ore, which was milled at the Hercules mill. All operations were suspended in June.

HYPOTHEEK MINING & MILLING CO.

Office: Wallace. **Officers:** C. D. Brock, Pres.; Otto A. Olsson, Sec.-Mgr., both of Wallace. **Inc.:** Feb. 13, 1901. **Capital:** 2,000,000 shares; par value 10c; all shares issued. **Property:** 760 acres of patented land, Yreka dist.; Kellogg. **Development:** By 2 tunnels: No. 1, 700 ft. long; No. 2, 1500 ft. long; and a vertical shaft 1100 ft. deep. Total development, approximately 10,000 ft. **Plant:** MINE: Double-drum electric hoist; No. 10 I-R compressor, electrically driven; machine shop; sawmill; and complete mining equipment; 12 buildings. MILL: 200-ton concentrator. **Ore:** Lead-silver. **Men employed:** Average, 19. **Remarks:** In addition to producing and marketing a large tonnage of crude ore and concentrate, this company unwatered its shaft from the 900 to the 1100-ft. level, performed a large amount of drifting on the 1100-ft. level, and started a raise on the vein to the 900-ft. level.

IDAHO AMERICAN MINING & MILLING CO.

Office: Kellogg. **Officers:** Lloyd McDougall, Pres.; A. E. Cowles, Sec., both of Kellogg. **Inc.:** Feb. 7, 1923. **Capital:** 100,000 shares; increased Mar. 30, 1926, to 2,000,000 shares; par value 25c; 732,700 shares issued. **Property:** O. K. group; 12 patented, 1 unpatented claim, Yreka dist.; Kellogg. **Ore:** Lead-zinc-silver. **Remarks:** Small amount of maintenance work. A stock assessment of 1c was levied on Apr. 5, 1927.

IDAHO COPPER MINING CO., LTD.
Office: Wallace. **Officers:** W. H. Herrick, Pres.; A. H. Featherstone, Sec., both of Wallace. **Inc.:** Aug. 24, 1906. **Capital:** 1,250,000 shares; par value $1; all shares issued. **Property:** 3 patented claims, Hunter dist.; Mullan. **Ore:** Copper. **Remarks:** Idle for a number of years.

IDAHO & EASTERN MINING & MILLING CO.
Office: Wallace. **Officers:** John H. Wourms, Pres.; W. A. Devan, Sec., both of Wallace. **Inc.:** Aug. 20, 1903. **Capital:** 1,000,000 shares; par value $1; 910,215 shares issued. **Property:** Idaho & Eastern group; 3 patented, 2 unpatented claims, Lelande dist.; Burke. **Development:** By 1 tunnel 86 ft. long. **Ore:** Lead-silver. **Remarks:** Tunnel advanced about 30 ft. during the year. A stock assessment of 7 mills was levied on Aug. 15, 1927.

IDAHO GALENA MINING CO.
Office: Wallace. **Officers:** A. H. Featherstone, Pres.; Herman Marquardt, Sec.; C. A. Fay, Mgr., all of Wallace. **Inc.:** July 28, 1927. **Capital:** 5,000,000 shares; par value 25c; 2,500,000 shares issued. **Property:** 9 unpatented claims, Placer Center dist.; Wallace. **Development:** By 1 tunnel 200 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 4. **Remarks:** Small amount of work during the year.

IDAHO-LEADVILLE MINES CO.
Office: 823 First Ave., Spokane, Wash. **Officers:** Thomas Fahey, Pres.; E. P. Ryan, Sec., both of Spokane, Wash. **Inc.:** Apr. 1, 1914. **Capital:** 1,000,000 shares; par value 10c; 548,020 shares issued. **Property:** 12 unpatented claims, Evolution dist.; Osburn. **Development:** By 2 tunnels: No. 1, 900 ft. long; No. 2, 145 ft. long. **Ore:** Lead-silver. **Remarks:** Idle.

IDAHO & LOS ANGELES MINING & MILLING CO.
Office: Wallace. **Officers:** Thomas McCabe, Pres.; Alfred J. Dunn, Sec.-Mgr., both of Wallace. **Inc.:** June 6, 1904; charter forfeited Dec. 2, 1916. **Capital:** 1,000,000 shares; par value $1; 820,000 shares issued. **Property:** 16 patented claims, Beaver dist.; Wallace. **Development:** By 3 tunnels: No. 1, 150 ft. long; No. 2, 1700 ft. long; No. 3, 800 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** Idle.

IDAHO-MONTANA AND ORLANDO CONSOLIDATED MINING CO.
Office: Wallace. **Officers:** John A. Swan, Pres.-Mgr., Burke; Hazel Swan, Sec., Detroit, Mich. **Inc.:** July 14, 1925. **Capital:** 1,500,000 shares; par value 10c; 1,037,002 shares issued. **Property:** 7 unpatented claims, Lelande dist.; Burke. **Development:** By 3 tunnels: No. 1, 80 ft. long; No. 2, 500 ft. long; No. 3, 600 ft. long. **Ore:** Lead-silver. **Remarks:** Idle.

IDAHO STAR MINING CO.
Office: 212 Eagle Bldg., Spokane, Wash. **Officers:** Hans Peterson, Pres.; R. T. Lawrence, Sec.-Mgr., both of Spokane, Wash. **Inc.:** Oct. 8, 1924. **Capital:** 1,500,000 shares; par value 10c; all shares issued. **Property:** 24 unpatented claims, St. Joe dist.; Adair. **Development:** By 1 tunnel 460 ft. long. **Plant:** Water-driven compressor. **Ore:** Lead-silver. **Remarks:** Small amount of work during the summer months.

IDORA MINING CO., LTD.
Office: Jamieson Blk., Spokane, Wash. **Officers:** James C. Broad, Pres.; C. E. Mallette, Sec.-Mgr., both of Spokane, Wash. **Inc.:** Apr. 23, 1915. **Capital:** 1,500,000 shares; par value 10c; 600,000 shares issued. **Property:** Idora group; 1 patented, 8 unpatented claims, Beaver dist.; Carbonite. **Plant:** MINE: 1 electrically-driven compressor. MILL: 100-ton concentrator. **Ore:** Lead-zinc-silver. **Remarks:** Property operated by lessees.

IMPERIAL MINING CO.
Office: Wallace. **Officers:** William Becker, Pres.; Homer G. Brown, Sec.-Mgr., both of Wallace. **Inc.:** Nov. 21, 1906. **Capital:** 1,500,000 shares; par value $1; 1,174,931 shares issued. **Property:** Imperial group; 8 patented claims, Lelande dist.; Burke. **Development:** Principally by 2 tunnels: No. 2, 1000 ft. long; No. 3, 4000 ft. long. Total development, approximately 10,000 ft. **Plant:** Electrically-driven 4-drill I-R compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Remarks:** Idle throughout the year.

INDEPENDENCE LEAD MINES, LTD.
Office: Wallace. **Officers:** H. B. Kingsbury, Pres.-Mgr., Mullan; Herman Marquardt, Sec., Wallace. **Inc.:** Nov. 30, 1914, as New Independent Mining Co.; name changed Aug. 23, 1915. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Gettysburg group; 10 patented claims, Hunter dist.; Mullan. **Development:** Principally by 5 tunnels: No. 1, 100 ft. long; No. 2, 300 ft. long; No. 3, 1200 ft. long; No. 4, 5800 ft. long; Independence, 300 ft. long; and a vertical raise 313 ft. long connecting No. 3 and No. 4 tunnels. **Plant:** Complete mining equipment. Power furnished by American Commander M. & M. Co. **Ore:** Lead-silver. **Men employed:** Average, 6. **Remarks:** Development work progressed without interruption throughout the year. This work consisted principally of extending No. 4 tunnel, which is the lowest level in the mine. Stock assessments were levied during 1927 as follows: Jan. 4, 2c; Sept. 6, 2c.

INLAND EMPIRE MINING & MILLING CO.
Office: 310 Ziegler Bldg., Spokane, Wash. **Officers:** A. C. Schirmer, Pres.-Mgr., Hibbing, Minn.; John H. Roche, Sec., Spokane, Wash. **Inc.:** June 18, 1910. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Never Sweat; 1 patented claim, Lelande dist.; Burke. **Development:** By 2 tunnels: No. 1, 350 ft. long; No. 2, 400 ft. long; and an inclined shaft 300 ft. deep. **Plant:** Electrically-driven compressor and complete mining equipment. **Ore:** Lead-silver.

INTERNATIONAL MINES, LTD.
Office: Wallace. **Officers:** James White, Pres.; A. H. Featherstone, Sec., both of Wallace. **Inc.:** July 2, 1903. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** 13 patented claims, Lelande dist.; Burke. **Ore:** Lead-silver. **Remarks:** Idle for 9 years.

INTERNATIONAL MINING CO.
Office: Kellogg. **Officers:** Charles May, Pres., Minneapolis, Minn.; Fred May, Mgr., Kellogg. **Inc.:** July 8, 1912. **Capital:** 1,000,000 shares; par value $1; 600,000 shares issued. **Property:** International group; 10 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** Principally by 2 tunnels: No. 1, 150 ft. long; No. 2, 1500 ft. long. **Plant:** Gas-driven 6x6 compressor; complete mining equipment and small camp. **Ore:** Lead-silver. **Remarks:** Annual labor only.

IONE MINING CO.
Office: Wallace. **Officers:** H. O. Solum, Pres.; Le Roy Massey, Sec.; O. M. Nordquist, Mgr., all of Wallace. **Inc.:** Dec. 19, 1922. **Capital:** 1,500,000 shares; par value 10c; 300,000 shares issued. **Property:** Ione group; 4 unpatented claims, held under lease and option; Summit dist.; Murray. **Development:** By 2 tunnels: No. 1, 470 ft. long; No. 2, 1386 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

IRON KING MINING CO., LTD.
Office: Wallace. **Officers:** Herman J. Rossi, Pres.; Otto A. Olsson, Sec., both of Wallace. **Inc.:** Jan. 8, 1904. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Iron King group; 4 unpatented claims, Evolution dist.; Wallace. **Development:** Principally by 2 tunnels: No. 1, 2000 ft. long; No. 2, 150 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

IRON SPAR COPPER MINING CO.
Office: Wallace. **Officers:** Wesley Everett, Pres.; G. W. Dougherty, Sec.; A. L. Honeker, Mgr., all of Wallace. **Inc.:** May 18, 1904. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** 4 unpatented claims, Hunter dist.; Mullan. **Development:** By 1 tunnel 800 ft. long. **Ore:** Copper-gold-lead-silver. **Remarks:** Annual labor only.

IVANHOE MINING CO., LTD.
Office: Mullan. **Officers:** J. A. Bean, Pres., Sumdor, Ariz.; C. D. Miller, Sec., Mullan. **Inc.:** Oct. 18, 1906. **Capital:** 1,500,000 shares; par value $1; 1,494,950 shares issued. **Property:** 2 patented claims, Hunter dist.; Mullan. **Ore:** Lead-silver. **Remarks:** Idle for 8 years.

JACK WAITE MINING CO., LTD.

Office: Wallace. **Officers:** Herman J. Rossi, Pres.; R. C. Russell, Sec., both of Wallace; M. L. Savage, Mgr., Kellogg. **Inc.:** Nov. 22, 1909. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Jack Waite; 4 patented, 9 unpatented claims, Eagle dist.; Prichard. **Development:** Principally by 2 tunnels: No. 1, 1400 ft. long; No. 2, 2400 ft. long. Total development, approximately 5500 ft. **Plant:** MINE: 3 compressors: 1 I-R 1000-cu.-ft., 1 Worthington 350-cu.-ft., 1 Sullivan 210-cu.-ft., all electrically driven. MILL: 150-ton flotation concentrator. **Ore:** Lead-zinc-silver. **Remarks:** In August this company purchased the lease and assets of the Jack Waite Leasing Co., consisting of a 150-ton mill, camp buildings, mine plant, power lines, and railroad, and assumed operation of the mine. New ore bins, a tramway and a sorting plant were installed, and the sinking of a winze on the ore in the lower tunnel was commenced. This enterprise is the largest producer in the north side, or Murray section, of the Coeur d'Alene district.

JIM BLAINE SILVER SYNDICATE, LTD.

Office: 323 Lindelle Blk., Spokane, Wash. **Officers:** Dan Krehbiel, Pres., Lind, Wash.; Matt Baumgartner, Sec.-Mgr., Spokane, Wash. **Inc.:** Apr. 12, 1920. **Capital:** 2,000,000 shares; par value 5c; 1,640,500 shares issued. **Property:** Jim Blaine group; 25 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 3 tunnels: No. 1, 500 ft. long; No. 2, 1000 ft. long; No. 3, 1175 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** Idle.

JONAS & JACKSON MINING CO.

Office: Kellogg. **Officers:** L. W. Jackson, Pres., Spokane; R. A. Jonas, Mgr., Kellogg. **Inc.:** Oct. 6, 1926. **Capital:** 2,000,000 shares; par value 25c; 304,000 shares issued. **Property:** 22 unpatented claims, Yreka dist.; Kellogg. **Development:** By 2 tunnels: No. 1, 240 ft. long; No. 2, 100 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

JUPITER MINING CO.

Office: Wallace. **Officers:** Theo. Wellman, Sec.; Robert Madzgalla, Mgr., both of Wallace. **Inc.:** An association. **Property:** Jupiter group; 8 unpatented claims, Hunter dist.; Wallace. **Development:** By 1 tunnel 650 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Small amount of work during the year.

KELLOGG GALENA MINING CO.

Office: 832 Old National Bank Bldg., Spokane, Wash. **Officers:** Samuel A. McCoy, Pres.-Mgr.; Geo. W. Sommer, Sec., both of Spokane, Wash. **Inc.:** Sept. 30, 1915. **Capital:** 1,500,000 shares; par value 10c; 1,425,000 shares issued. **Property:** 7 unpatented claims, Yreka dist.; Kellogg. **Development:** About 1400 ft. of workings. **Ore:** Lead-silver. **Remarks:** Idle.

KELLOGG SILVER-LEAD MINING CORPORATION

Office: 832 Old Nat'l Bank Bldg., Spokane, Wash. **Officers:** Sam A. McCoy, Pres.-Mgr.; Edward J. Johnson, Sec., both of Spokane, Wash. **Inc.:** Nov. 25, 1927. **Capital:** 400,000 shares; par value $1; 100,000 shares issued. **Property:** 80 acres patented land, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel 300 ft. long. **Ore:** Lead-silver.

KENNAN MINING CO.

Office: N. 1111 Hamilton St., Spokane, Wash. **Officers:** E. J. Roberts, Jr., Pres., Spokane, Wash. **Inc.:** Sept. 4, 1917. **Capital:** 250,000 shares; par value $1; 200,000 shares issued. **Property:** 20 unpatented claims, Beaver dist.; Murray. **Development:** By 3 tunnels: No. 1, 267 ft.; No. 2, 200 ft.; No. 3, 112 ft. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Small amount of work throughout the year.

KING OF PINE CREEK MINING CO.

Office: Wallace. **Officers:** Walter H. Hanson, Pres.; C. A. Magnuson, Sec., both of Wallace. **Inc.:** Aug. 10, 1904. **Capital:** 1,500,000 shares; par value $1; 935,572 shares issued. **Property:** King of Pine Creek group; 4 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 2 tunnels: No. 1, 380 ft.; No. 2, 350 ft. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only. A stock assessment of 1 mill was levied on Apr. 20, 1927.

LACLEDE MINING CO., LTD.
Office: Wallace. **Officers:** O. W. Lewis, Pres.; W. B. Heitfeld, Sec., both of Wallace. **Inc.:** Dec. 10, 1903. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Laclede group; 9 patented claims, Lelande dist.; Burke. **Development:** Principally by 1 tunnel, 2600 ft. long, and an inclined shaft 340 ft. long. **Ore:** Lead-silver. **Remarks:** Idle.

LANSING SILVER-LEAD MINING CO.
Office: Wallace. **Officers:** W. V. Stansfield, Pres.; C. I. Grimsmoe, Sec.-Mgr., both of Wallace. **Inc.:** June 14, 1916. Charter forfeited Nov. 30, 1927. **Capital:** 1,000,000 shares; par value 25c; shares issued, none. **Property:** 10 patented, 4 unpatented claims, Placer Center dist.; Wallace. **Development:** By 3 tunnels: No. 1, 300 ft. long; No. 2, 450 ft. long; No. 3, 600 ft. long. **Ore:** Lead-silver.

LEAD BLOSSOM MINING & MILLING CO.
Office: Wallace. **Officers:** Walter H. Hanson, Pres.; Herman Marquardt, Sec., both of Wallace. **Inc.:** June 5, 1922, as Iron Blossom Mining & Milling Co.; name changed Nov. 2, 1922. **Capital:** 1,500,000 shares; par value 25c; 925,200 shares issued. **Property:** Iron Blossom group; 13 unpatented claims, Yreka dist.; Wardner. **Development:** By 2 tunnels: No. 1, 300 ft. long; No. 2, 600 ft. long; and an inclined shaft 360 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 4. **Remarks:** A small amount of work during the year. Stock assessments were levied during 1927 as follows: Mar. 24, 5 mills; Nov. 10, 5 mills.

LEAD CRYSTALS MINING CO., LTD.
Office: Wallace. **Officers:** Walter Keister, Pres., Murray; J. E. Steen, Sec., Prichard. **Inc.:** Dec. 11, 1911. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** 10 unpatented claims, Eagle dist.; Prichard. **Development:** By 3 tunnels: No. 1, 250 ft. long; No. 2, 1100 ft. long; No. 3, 750 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

LEAD MOUNTAIN MINES CORPORATION
Office: Wallace. **Officers:** Elmer Bellinger, Pres.-Mgr.; G. A. Halvorson, Sec., both of Wallace. **Inc.:** July 18, 1927. **Capital:** 2,000,000 shares; par value 5c; 3300 shares issued. **Property:** Dudley group; 11 unpatented claims, Beaver dist.; Wallace. **Development:** Principally by 2 tunnels: No. 1, 125 ft.; No. 2, 350 ft. **Ore:** Lead-silver. **Men employed:** Average, 1. **Remarks:** During the year the lower tunnel was advanced 70 ft. under contract.

LEROY GOLD & COPPER CO., LTD.
Office: Wallace. **Officers:** G. F. Damm, Pres.; C. E. Clarke, Sec., both of Wallace. **Inc.:** Aug. 2, 1897. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Leroy group; 5 patented claims, unorganized dist.; Adair.

LEWIS & CLARK MINING CO.
Office: Wallace. **Officers:** William Grismer, Pres.; J. R. Bean, Sec., both of Wallace. **Inc.:** Apr. 18, 1907. **Capital:** 1,250,000 shares; par value $1; 430,610 shares issued. **Property:** 2 patented, 4 unpatented claims, Hunter dist.; Mullan. **Remarks:** Annual labor only, on unpatented claims.

LINCOLN MINING CO.
Office: Wallace. **Officers:** Herman J. Rossi, Pres.; Franklin Pfirman, Sec., both of Wallace. **Inc.:** July 9, 1923. **Capital:** 1,500,000 shares; par value 10c; 1,280,111 shares issued. **Property:** Silverado group; 25 unpatented claims, Evolution dist.; Osburn. **Development:** Principally by 1 tunnel, 5300 ft. long, and an inclined shaft 570 ft. long, giving a vertical depth of 550 ft. with 4 intermediate levels. **Plant:** MINE: 500-cu.-ft. electrically-driven compressor; complete mining equipment. MILL: 50-ton concentrator, including flotation. **Ore:** Lead-silver. **Men employed:** Average, 19. **Remarks:** Maintenance and a small amount of development work for a period of 6 months. Stock assessments were levied during 1927 as follows: Feb. 15, 1c; June 13, 1c.

LINFOR COPPER CO.
Office: 745 Peyton Bldg., Spokane, Wash. **Officers:** W. A. Beaudry, Pres.; R. P. Woodworth, Sec., both of Spokane. **Inc.:** July 28, 1919. **Capital:** 1,500,000 shares; par value 10c; all shares issued. **Property:** 2 patented, 3 unpatented claims, unorganized dist.; Enaville. **Ore:** Copper-silver.

LITTLE BUTTE MINING CO.
Office: Wallace. **Officers:** Mark Cyr, Pres., Burke; Herman J. Rossi, Sec., Wallace. **Inc.:** Sept. 14, 1906. **Capital:** 1,500,000 shares; par value $1; 736,000 shares issued. **Property:** Little Butte group; 28 unpatented claims,, Lelande dist.; Burke. **Ore:** Lead-silver. **Remarks:** Annual labor only.

LITTLE SUNSHINE MINING CO.
Office: 902 Second Ave., Seattle, Wash. **Officers:** John R. Moore, Pres., Seattle, Wash.; Joseph A. Carson, Sec., Mullan; H. M. Lancaster, Mgr., Wallace. **Inc.:** Nov. 3, 1906, as Elk Mining Co. Name changed Oct. 5, 1927, and capitalization increased from $1,000,000 to $1,750,000. **Capital:** 1,750,000 shares; par value $1; 892,793 shares issued. **Property:** Owns Elk group; 3 patented claims, Hunter dist.; Mullan. Lease and option on property of Fannie Gremm Mining Co.; lease and option on Palmer group; 7 unpatented claims, Big Creek, Yreka dist.; Kellogg. **Plant:** On Palmer group: Electrically-driven compressor and complete mining equipment. **Ore:** Lead-silver. **Remarks:** Equipment installed on Palmer group, and contract let for driving a 2000-ft. exploratory crosscut.

LOG CABIN MINING AND MILLING CO., LTD.
Office: Wallace. **Officers:** O. H. Linn, Pres.; Otto A. Olsson, Sec., both of Wallace. **Inc.:** Nov. 21, 1906. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Log Cabin group; 9 unpatented claims, Placer Center dist.; Wallace. **Development:** By 2 tunnels: No. 1, 200 ft. long; No. 2, 80 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

LOMBARDY MINING & MILLING CO.
Office: Kellogg. **Officers:** Peter Albinola, Pres., Kellogg; Herman J. Rossi, Sec., Wallace. **Inc.:** Mar. 17, 1899. **Capital:** 1,500,000 shares; par value 10c; 1,400,000 shares issued. **Property:** Lombardy group; 15 patented claims, Yreka dist.; Kellogg. **Development:** By 3 tunnels and 1 shaft. **Plant:** Hoist, compressor, and mining equipment. **Ore:** Lead-silver.

LONG WAIT MINING CO.
Office: Wallace. **Officers:** W. G. Hartwell, Pres., Colville, Wash.; Joseph F. Morton, Sec., Wallace. **Inc.:** May 15, 1924. **Capital:** 1,000,000 shares; par value $1; 598,000 shares issued. **Property:** Sunset group; 4 patented, 3 unpatented claims, held under lease and option from Clark-Montana Realty Co.; Beaver dist.; Wallace. **Development:** 1 tunnel 3000 ft. long and 1 vertical shaft 800 ft. deep. **Ore:** Lead-zinc-silver.

LOOKOUT MOUNTAIN MINING & MILLING CO.
Office: Kellogg. **Officers:** R. L. Brainard, Pres.; W. L. Penney. Sec.-Mgr., both of Kellogg. **Inc.:** June 2, 1916. **Capital:** 2,000,000 shares; par value 25c; 1,546,022 shares issued. **Property:** Lookout Mountain group; 17 unpatented claims, Yreka dist.; Kellogg. **Development:** Principally by 3 tunnels: No. 1, 100 ft. long; No. 2, 2000 ft. long; No. 3, 1800 ft. long; and a vertical shaft in No. 2 tunnel 85 ft. deep. **Plant:** Electrically-driven Gardner compressor and complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 10. **Remarks:** This company conducted one of the largest development campaigns on Pine Creek throughout the year. The lower, or No. 3, tunnel was extended from a length of 500 ft. to 1800 ft., where it intersected the vein at a depth of 500 ft. below No. 2 tunnel, after which drifting on the vein was started in both directions. Stock assessments were levied during 1927 as follows: Jan. 12, 5 mills; Mar. 14, 5 mills; June 6, 2½ mills; Aug. 24, 3 mills; Dec. 19, 4 mills.

LUCKY BOY MINING & CONCENTRATING CO., LTD.
Office: Mullan. **Officers:** M. D. Needham, Pres.-Mgr., Mullan; Agnes Needham, Sec., Monticello, N. Y. **Inc.:** Jan. 12, 1907. **Capital:** 1,000,000

shares; par value $1; 652,405 shares issued. **Property:** Lucky Boy group; 31 unpatented claims, Hunter dist.; Mullan. **Development:** By 8 tunnels, the principal one of which is 2400 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of 5 mills was levied on May 21, 1927.

LUCKY CALUMET COPPER MINING CO., LTD.

Office: Wallace. **Officers:** John H. Nordquist, Pres.-Mgr.; Otto A. Olsson, Sec., both of Wallace. **Inc.:** Oct. 9, 1906. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Lucky Calumet group; 9 patented claims, Hunter dist.; Mullan. **Development:** Principally by 2 tunnels: No. 1, 600 ft. long; No. 2, 1100 ft. long. Total development, approximately 5000 ft. **Plant:** Electrically-driven 5-drill I-R two-stage compressor; complete mining equipment and camp. **Ore:** Copper-silver. **Remarks:** Annual labor only. A stock assessment of 5 mills was levied on Nov. 4, 1927.

McGREGOR MINING CO.

Office: First State Bank Bldg., Kellogg. **Officers:** I. W. Feighuer, Pres., Spokane: L. L. Ruthruff, Sec., Kellogg; R. M. Wark, Mgr., Coeur d'Alene. **Inc.:** Aug. 31, 1925. **Capital:** 700,000 shares; par value 50c; 500,000 shares issued. **Property:** McGregor group; 2 patented claims, Yreka dist.; Kingston.

MAC D'PALM MINING CO.

Office: Kellogg. **Officers:** W. G. Palmer, Pres.; E. B. Palmer, Sec., both of Kellogg. **Inc.:** June 3, 1922. **Capital:** 1,000,000 shares; par value 10c; no shares issued. **Property:** Silver State group; 5 unpatented claims, Evolution dist.; Kellogg. **Development:** 1 tunnel 350 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

MACEDONIA MINING CO.

Office: Wallace. **Officers:** A. M. Mundell, Pres.-Mgr., Wallace; W. S. Leland, Sec., Burke. **Inc.:** Oct. 8, 1921. **Capital:** 1,500,000 shares; par value 10c; 11,000 shares issued. **Property:** Macedonia group; 23 unpatented claims, at the head of West Fork of Slate Creek; St. Joe dist.; Wallace. **Remarks:** Active development work throughout the summer months by the president.

MAINE-STANDARD MINING CO., LTD.

Office: Wallace. **Officers:** Jess Tabor, Vice-Pres.; Otto A. Olsson, Sec.-Mgr., both of Wallace. **Inc.:** March 4, 1907. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Maine-Standard group; 5 unpatented claims, Moon Creek, Yreka dist.; Kellogg. **Development:** By 1 tunnel, 1200 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of 2 mills was levied on July 12, 1927.

MAJESTIC MINING CO., LTD.

Office: Wallace. **Officers:** James Dunne, Pres.-Mgr., Burke; Therrett Towles, Sec., Wallace. **Inc.:** Aug. 23, 1904. **Capital:** 1,500,000 shares; par value 25c; 958,500 shares issued. **Property:** Majestic group; 13 patented claims, Lelande and Summit dists.; Burke. **Development:** Principally by 1 tunnel 2000 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** During the year 200 ft. of tunnel was driven under contract.

MARSH MINES CONSOLIDATED

Office: Spokane, Wash., Box 1620. **Officers:** Edward Pohlman, Pres.; Jos. McCarthy, Sec.; F. Cushing Moore, Mgr., all of Spokane, Wash. **Inc.:** Aug. 17, 1916. **Capital:** 2,000,000 shares; par value 25c; all shares issued. **Property:** Marsh group; 12 patented, 1 unpatented claim, Lelande dist.; Burke. **Development:** By 2 tunnels: No. 1, 300 ft. long; No. 2, 2000 ft. long; a vertical shaft 900 ft. deep with 5 intermediate levels; and an inclined shaft 400 ft. long. Total development, approximately 9900 ft. **Plant:** MINE: One I-R 1150-cu.-ft. compressor and one 690-cu.-ft. Franklin compressor, both electrically driven; complete mining equipment. MILL: 200-ton concentrator, including flotation. **Ore:** Lead-silver. **Remarks:** Idle.

MERRY WIDOW MINING CO.
Office: Wallace. **Officers:** Howard Haseltine, Pres.-Mgr.; Alva L. Strope, Sec., both of Wallace. **Inc.:** Nov. 5, 1924. **Capital:** 1,500,000 shares; par value 10c; 1,167,500 shares issued. **Property:** 2 unpatented claims, Evolution dist.; Osburn. **Development:** By 2 tunnels: No. 1, 60 ft. long; No. 2, 350 ft. long. **Ore:** Lead-silver. **Remarks:** A small amount of work during the year.

MILITARY MINING & MILLING CO., LTD.
Office: R. F. D. 4, Spokane, Wash. **Officers:** August Renkert, Pres.; George K. Renkert, Sec.-Mgr., both of Spokane, Wash. **Inc.:** April 30, 1907. **Capital:** 1,000,000 shares; par value $1; 569,000 shares issued. **Property:** 2 patented claims, Lelande dist.; Burke. **Development:** 2 tunnels: No. 1, 150 ft. long; No. 2, 100 ft. long. **Ore:** Copper.

MINERAL FARM MINING CO., LTD.
Office: Mullan. **Officers:** C. J. Carlson, Pres.-Mgr., 1215 Gem Ave., Spokane, Wash.; C. D. Miller, Sec., Mullan. **Inc.:** Aug. 28, 1903. **Capital:** 1,500,000 shares; par value $1; 798,676 shares issued. **Property:** Mineral Farm group; 8 patented claims, Hunter dist.; Mullan. **Development:** Principally by 1 tunnel 1200 ft. long. **Ore:** Lead-silver.

MISSOULA COPPER MINING CO.
Office: Mullan. **Officers:** R. J. McLeod, Pres., Mullan; J. R. Bean, Sec., Wallace. **Inc.:** Nov. 4, 1901. **Capital:** 1,500,000 shares; par value $1; 1,146,872 shares issued. **Property:** Missoula group; 11 patented claims, Hunter dist.; Mullan. **Ore:** Copper.

MOE MINING CO., LTD.
Office: Wallace. **Officers:** W. K. Moe, Pres.-Mgr.; G. W. Dougherty, Sec., both of Wallace. **Inc.:** Apr. 8, 1922. **Capital:** 1,000,000 shares; par value 10c; all shares issued. **Property:** Gold Creek group; 12 unpatented claims, Hunter dist.; Mullan. **Development:** 4 tunnels: No. 1, 1700 ft. long; No. 2, 1100 ft. long; No. 3, 100 ft. long; No. 4, 850 ft. long. **Ore:** Lead-silver-copper. **Men employed:** Average, 2. **Remarks:** This company is controlled by the president, who was actively engaged in advancing No. 4 tunnel as a drift on the vein. A stock assessment of 4 mills was levied on Mar. 31, 1927.

MOON CREEK MINING CO.
Office: Wallace. **Officers:** A. H. Featherstone, Pres.; Otto A. Olsson, Sec., both of Wallace. **Inc.:** June 25, 1906. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Remarks:** Owns no property.

MOONLIGHT MINING CO.
Office: Wallace. **Officers:** John F. Murphy, Pres.; John E. Ryan, Sec., both of Wallace. **Inc.:** Apr. 27, 1903. **Capital:** 1,500,000 shares; par value $1; 1,185,297 shares issued. **Property:** Moonlight group; 9 patented claims, Lelande dist.; Burke. **Development:** By 3 tunnels: No. 1, 640 ft.; No. 2, 2270 ft.; No. 3, or Trade Dollar, 3900 ft. **Ore:** Lead-silver. **Remarks:** Idle. A stock assessment of 2 mills was levied on Dec. 9, 1927.

MULLAN MINING CO.
Office: Wallace. **Officers:** Charles M. Baillie, Pres.-Mgr., Mullan; L. L. Leighty, Sec., Wallace. **Inc.:** Nov. 10, 1899. **Capital:** 1,000,000 shares; par value 5c; 385,871 shares issued. **Property:** Mullan group; 2 patented, 1 unpatented claim, Hunter dist.; Mullan. **Development:** Approximately 2000 ft. of underground workings. **Ore:** Lead-silver. **Remarks:** A small amount of work during the year.

MURRAY HILL MINING CO.
Office: Jamieson Blk., Spokane, Wash. **Officers:** C. E. Mallette, Pres.; A. Brownlow, Sec., both of Spokane, Wash. **Inc.:** Nov. 20, 1914. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Black Horse group; 9 unpatented claims, Summit dist.; Murray. **Remarks:** Property under option to Paragon Mining Co.

MUTUAL MINES DEVELOPMENT CO.

Office: 312 Old Nat'l Bank Bldg., Spokane, Wash. **Officers:** Harley Little, Pres., Dishman, Wash.; Ben L. Collins, Sec., Spokane, Wash.; Russell F. Collins, Mgr., Wallace. **Inc.:** May 20, 1925. **Capital:** 2,000,000 shares; par value 10c; 720,300 shares issued. **Property:** 15 patented, 23 unpatented claims, of which 13 are owned; the remainder are held under lease and option from the Formosa Lead Mining Co., Ltd., the Deep Wonder Mining Co., and Messrs. Gus Kallman and Ed. Jansen; Hunter and Lelande dists.; Wallace. **Development:** By 1 tunnel 1400 ft. long. **Plant:** Electrically-driven compressor and complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 15. **Remarks:** Equipment installed and a large amount of development work performed during the year.

NABOB SILVER LEAD CO.

Office: 406 Fernwell Bldg., Spokane, Wash. **Officers:** P. C. Shine, Pres.-Mgr.; J. A. Pinkerton, Sec., both of Spokane. **Inc.:** June 29, 1923. **Capital:** 3,500,000 shares; par value 25c; 2,281,500 shares issued. **Property:** Nabob group; 3 patented, 22 unpatented claims, Yreka dist.; Kellogg. **Development:** By 4 tunnels: No. 1, 400 ft. long; No. 2, 700 ft. long; No. 3, 1500 ft. long; No. 4, 4700 ft. long; and a vertical shaft 300 ft. deep. **Plant:** 2 electrically-driven compressors; electrically-driven hoist; complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Remarks:** Idle throughout the year, on account of litigation which involved control of the directorate and validity of stock assessments. As a result of this litigation, all of the old officers and directors were removed late in the year. Stock assessments were levied as follows during 1927: Jan. 10, 1c; July 26, 1c.

NATIONAL COPPER MINING CO., LTD.

Office: Wallace. **Officers:** W. J. Stratton, Sec.-Mgr., Wallace. **Inc.:** Sept. 22, 1906; charter forfeited Nov. 30, 1925. **Capital:** 2,500,000 shares; par value $1; all shares issued.

NATIONAL LEAD MINING CO.

Office: Wallace. **Officers:** Stanly A. Easton, Pres., Kellogg; Leo J. Hoban, Sec., Wallace. **Inc.:** Sept. 21, 1910. **Capital:** 1,000,000 shares; par value $1; 520,000 shares issued. **Property:** 7 patented, 1 unpatented claim, Hunter dist.; Mullan.

NEVADA STEWART MINING CO.

Office: Kellogg. **Officers:** C. R. Mowery, Pres., Spokane, Wash.; M. J. Sinclair, Sec.-Mgr., Kellogg. **Inc.:** Nov. 22, 1915. **Capital:** 1,500,000 shares; par value 10c; 1,254,438 shares issued. **Property:** Nevada Stewart group; 8 unpatented claims, Pine Creek, Yreka dist.; Masonia. **Development:** Principally by 1 tunnel 1100 ft. long. **Plant:** Electrically-driven 2-drill Sullivan compressor; complete mining equipment. **Ore:** Zinc-lead-silver. **Remarks:** A small amount of work during the year. Stock assessments during 1927 were levied as follows: May 9, 1 mill; Oct. 21, 2 mills.

NEW HOPE MINING CO., LTD.

Office: Wallace. **Officers:** Eugene Thomas, Pres.-Mgr.; Otto A. Olsson, Sec., both of Wallace. **Inc.:** July 6, 1900. **Capital:** 1,000,000 shares; par value 5c; all shares issued. **Property:** New Hope group; 12 unpatented claims, Evolution dist.; Osburn. **Development:** By 3 tunnels: No. 1, 500 ft. long; No. 2, 1100 ft. long; No. 3, 300 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 1. **Remarks:** Active throughout the year. Stock assessments were levied as follows: Mar. 19, 2 mills; Oct. 21, 2 mills.

NEW ROAD MINING CO.

Office: Mullan. **Officers:** Gust Lindroos, Pres.-Mgr.; D. R. Scott, Sec., both of Mullan. **Inc.:** May 1, 1922; charter forfeited Dec. 1, 1922. **Capital:** 1,000,000 shares; par value 10c; 561,000 shares issued. **Property:** New Road group; 2 unpatented claims, Hunter dist.; Mullan. **Ore:** Lead-silver. **Remarks:** Annual labor only.

NINE MILE MINING CO.
Office: Wallace. **Officers:** S. H. Linn, Pres.; Otto A. Olsson, Sec., both of Wallace. **Inc.:** Oct. 6, 1899. **Capital:** 2,000,000 shares; par value 10c; all shares issued. **Property:** Nine Mile group; 6 patented, 16 unpatented claims, Placer Center dist.; Wallace. **Development:** Approximately 5500 ft. of underground workings, the principal of which is No. 3 tunnel, 2000 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** 200 ft. of tunnel driven under contract during the year.

NONPAREIL COPPER MINING CO.
Office: Wallace. **Officers:** Harry C. McAllister, Pres.-Mgr.; Herman J. Rossi, Sec., both of Wallace. **Inc.:** Nov. 1, 1906. **Capital:** 1,500,000 shares; par value $1; 1,100,000 shares issued. **Property:** Nonpareil; 3 patented claims, Hunter dist.; Mullan. **Development:** 2 tunnels: No. 1, 380 ft. long; No. 2, 100 ft. long. **Ore:** Lead-silver. **Remarks:** Idle since 1916.

NORTH AMERICAN MINING & MILLING CO., LTD.
Office: Wallace. **Officers:** Winnifred Presley, Pres.; J. Clarence Presley, Sec.-Mgr., both of Wallace. **Inc.:** June 8, 1903. **Capital:** 1,500,000 shares; par value $1; 998,000 shares issued. **Property:** North American group; 23 patented, 3 unpatented claims, Big Creek, Yreka dist.; Kellogg. **Development:** 1 tunnel 2100 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor.

NORTH BUNKER HILL MINING CO., LTD.
Office: Kellogg, Box 317. **Officers:** Elmer Brown, Pres.; N. T. Hardy, Sec.-Mgr., both of Kellogg. **Inc.:** Feb. 16, 1907. **Capital:** 1,250,000 shares; par value $1; all shares issued. **Property:** 4 patented claims, Yreka dist.; Wardner. **Development:** Over 10,000 ft. of underground workings. **Plant:** Electrically-driven I-R compressor; air-driven hoist and complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** This company has been actively engaged in an extensive development campaign for a number of years, and is to be congratulated upon its persistency. Stock assessments were levied during 1927 as follows: May 21, 4 mills; Dec. 7, 2 mills.

NORTH FORK DEVELOPMENT CO.
Office: Wallace. **Officers:** Thure Olson, Pres.-Mgr.; John F. Ferguson, Sec., both of Wallace. **Inc.:** May 8, 1922. **Capital:** 1,000,000 shares; par value 10c; all shares issued. **Property:** 13 unpatented claims, Yreka dist.; Enaville. **Development:** Principally by 1 tunnel 3000 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Active throughout the year. Stock assessments were levied during 1927 as follows: Mar. 26, 5 mills; Oct. 3, 5 mills.

NORTH IDAHO MINING CO.
Office: Wallace. **Officers:** Geo. Champagne, Pres.-Mgr., Saltese, Mont.; G. W. Dougherty, Sec., Wallace. **Inc.:** March 14, 1900. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** 3 patented claims, Beaver dist.; Wallace. **Development:** By 2 tunnels: No. 1, 700 ft. long; No. 2, 50 ft. long. **Ore:** Lead-silver.

NORTH STAR MINING CO.
Office: Wallace. **Officers:** John H. Hansen, Pres.; Chester A. Hansen, Sec., both of Wallace. **Inc.:** March 16, 1899. **Capital:** 1,000,000 shares; par value $1; 322,825 shares issued. **Property:** North Star; 2 unpatented claims; St. Joe dist.; Falcon. **Development:** 2 tunnels: No. 1, 1500 ft. long; No. 2, 200 ft. long. **Ore:** Copper-gold-silver. **Remarks:** Annual labor only.

NORTH STAR MINING & DEVELOPMENT CO.
Office: Wallace. **Officers:** D. E. Wherry, Pres., Yakima, Wash.; G. W. Dougherty, Sec.-Mgr., Wallace. **Inc.:** April 20, 1920. **Capital:** 1,250,000 shares; par value $1; all shares issued. **Property:** 5 unpatented claims, Placer Center dist.; Wallace. **Development:** Principally by 1 tunnel, 1300 ft. long. **Ore:** Lead-silver. **Remarks:** Tunnel extended 60 ft. during the year. Stock assessments were levied during 1927 as follows: July 1, 1 mill; Nov. 28, 1 mill.



MORNING MILL AND SURFACE PLANT, FEDERAL M. & S. CO.

NORTHERN LIGHT MINING & MILLING CO.

Office: 401 Court House, St. Paul, Minn. **Officers:** B. E. Harmon, Sec., St. Paul, Minn. **Inc.:** Feb. 26, 1915. **Capital:** 1,500,000 shares; par value 5c; 1,321,393 shares issued. **Property:** Northern Light; 1 patented claim, Pine Creek, Yreka dist.; Kellogg. **Remarks:** Idle since 1917.

NORTHWEST MINING & MILLING CO.

Office: Wallace. **Officers:** Patrick F. McGovern, Pres.; H. J. Rossi, Sec., both of Wallace. **Inc.:** April 6, 1917. **Capital:** 1,000,000 shares; par value 5c; 791,000 shares issued. **Property:** 3 patented claims, Placer Center dist.; Wallace. **Development:** Principally by 1 tunnel 500 ft. long, and an inclined shaft 150 ft. deep. **Ore:** Lead-silver.

OASIS MINING CO.

Office: Kellogg. **Officers:** A. C. Beal, Pres.-Mgr.; S. S. Ruthruff, Sec., both of Kellogg. **Inc.:** Aug. 15, 1925. **Capital:** 100,000 shares; par value $1; all shares issued. **Property:** Oasis group; 2 unpatented claims, Yreka dist.; Kellogg.

OLD VETERAN MINING CO.

Office: Wallace. **Officers:** M. J. Farrell, Pres., Burke; L. L. Brainard, Sec., Wallace. **Inc.:** March 11, 1915. **Capital:** 1,500,000 shares; par value 10c; 268,500 shares issued. **Property:** Old Veteran group; 8 unpatented claims, Lelande dist.; Burke. **Development:** Principally by 1 tunnel 2000 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

OLYMPIC MINES

Office: Kellogg. **Officers:** Louis Paule, Pres., Spokane, Wash.; Theodore Brown, Sec., Kellogg. **Inc.:** Jan. 21, 1924, as Gold Eagle Mining Co., name changed Mar. 15, 1926. **Capital:** 2,000,000 shares; par value 10c; 799,363 shares issued. **Property:** Olympic group; 13 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 1 tunnel 265 ft. long. **Plant:** Electrically-driven compressor. **Ore:** Lead-zinc-silver. **Men employed:** Average, 4. **Remarks:** In April work was started on a 2000-ft. crosscut.

OOM PAUL CONSOLIDATED MINING CO.

Office: Wallace. **Officers:** James F. McCarthy, Pres.-Mgr.; L. E. Hanley, Sec., both of Wallace. **Inc.:** April 29, 1907. **Capital:** 1,600,000 shares; par value $1; all shares issued. **Property:** Oom Paul group; 10 patented claims, Lelande dist.; Burke. **Development:** Over 5000 ft. of workings. **Plant:** Compressor and complete mining equipment. **Ore:** Lead-silver. **Remarks:** Idle throughout the year.

OPTION MINING CO.

Office: Wallace. **Officers:** L. K. Stratton, Pres.; Wm. J. Stratton, Sec.-Mgr., both of Wallace. **Inc.:** Jan. 17, 1925. **Capital:** 2,500,000 shares; par value 10c; 2,000,000 shares issued. **Property:** California group; 6 claims, Placer Center dist.; Wallace. **Development:** By 2 tunnels: No. 1, 1800 ft.; No. 2, 300 ft. **Plant:** MINE: Electrically-driven 3-drill I-R compressor; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 4. **Remarks:** During the latter part of the year, No. 2 tunnel was started on the Ohio claim. After it was advanced about 200 ft. it encountered a good grade of mill ore. The Ohio claim was then leased to the Strattons Mines Co., and a crosscut for this ore was started from the 200-ft. level in the Stratton mine. Stock assessments were levied during 1927 as follows: Feb. 8, 5 mills; Apr. 5, 5 mills.

OREANO MINING CO., LTD.

Office: Wallace. **Officers:** Jerome J. Day, Pres.; P. J. Maggy, Sec., both of Wallace. **Inc.:** Nov. 10, 1902. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Oreano group; 5 patented claims, Lelande dist.; Burke. **Development:** By 3 tunnels: No. 1, 345 ft.; No. 2, 4182 ft.; No. 3, 600 ft. **Ore:** Lead-silver.

PACIFIC MINING AND MILLING CO.

Office: Wallace. **Officers:** A. H. Featherstone, Sec., Wallace. **Inc.:** April 13, 1898. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** 3 patented claims, Lelande dist.; Gem. **Ore:** Lead-silver.

PARADISE MINES ASSOCIATION

Office: Wallace. **Officers:** Thomas Sheppard, Pres., Wallace; John A. Walker, Sec., Spokane, Wash. **Inc.:** A common-law trust. **Capital:** 10,000 shares; par value $10; 8500 shares issued. **Property:** Paradise group; 5 unpatented claims, Placer Center dist.; Wallace. **Development:** By 2 tunnels: No. 1, 840 ft. long; No. 2, 780 ft. long. **Plant:** Gas-driven compressor and complete mining equipment. **Ore:** Lead-silver.

PARADISE MINING CO., INC.

Office: 545 Peyton Blk., Spokane, Wash. **Officers:** Len Lussier, Pres.; S. W. Lazier, Sec.; John A. Walker, Mgr., all of Spokane. **Inc.:** Jan. 29, 1926. **Capital:** 1,000,000 shares; par value 10c; 500,000 shares issued. **Property:** Paradise group; 5 unpatented claims, Placer Center dist.; Wallace. Held under lease and option from the Paradise Mines Association. **Development:** By 2 tunnels: No. 1, 840 ft. long; No. 2, 780 ft. long. **Plant:** Laidlaw-Dunn-Gordon gas-driven compressor. **Men employed:** Average, 2. **Ore:** Lead-silver. **Remarks:** Small amount of work during the year.

PARAGON MINING CO.

Office: Commerce Bldg., St. Paul, Minn. **Officers:** George S. Monson, Pres.; F. O. Hammer, Sec., both of St. Paul, Minn.; Mrs. Theo. Furst, Mgr., Murray. **Inc.:** Sept. 20, 1901. **Capital:** 150,000 shares; par value $10; 130,125 shares issued. **Property:** Paragon group; 19 patented, 34 unpatented claims, Summit dist.; Murray. **Development:** Total development, approximately 19,000 ft. **Plant:** MINE: Electrically-driven compressor; air-driven hoist; complete mining equipment and camp. MILL: 100-ton concentrator. **Ore:** Lead-zinc-silver. **Remarks:** Idle throughout the year.

PARK COPPER & GOLD MINING CO., LTD.

Office: Wallace. **Officers:** O. W. Lewis, Pres.-Mgr.; N. J. Stockbridge, Sec., both of Wallace. **Inc.:** Aug. 25, 1899. **Capital:** 1,500,000 shares; par value 10c; 1,373,316 shares issued. **Property:** 6 patented claims; Stevens Peak, Hunter dist.; Mullan. **Ore:** Copper.

PEARSON MINING CO.

Office: Wallace. **Officers:** A. D. Hovde, Pres., St. Paul, Minn.; John F. Ferguson, Sec.; Harry P. Pearson, Mgr., both of Wallace. **Inc.:** April 26, 1920. **Capital:** 500,000 shares; par value $1; 320,561 shares issued. **Property:** 8 patented, 62 unpatented claims, St. Joe dist.; Falcon. **Development:** Principally by 1 tunnel 3800 ft. long. **Plant:** Water-driven Sullivan compressor; complete mining equipment and camp. **Ore:** Copper-gold. **Men employed:** Average, 4. **Remarks:** Mining operations were conducted without interruption throughout the year.

PIONEER MINING CO., LTD.

Office: Wallace. **Officers:** Herman Marquardt, Sec., Wallace; S. H. Linn, Mgr., Kingston. **Inc.:** Nov. 22, 1916. **Capital:** 1,500,000 shares; par value 25c; all shares issued. **Property:** Pioneer group; 12 unpatented claims, Beaver dist.; Wallace. **Ore:** Lead-silver. **Remarks:** Annual labor only.

PLAINVIEW MINING CO., INC.

Office: Wardner. **Officers:** Wm. Swinerton, Pres., Wardner; S. S. Gundlach, Sec., Wallace; L. E. Shaver, Mgr., Spokane, Wash. **Inc.:** Jan. 29, 1927. **Capital:** 1,500,000 shares; par value 10c; 929,500 shares issued. **Property:** Plainview group; 6 unpatented claims held under lease and option, Evolution dist.; Osburn. **Development:** By 1 tunnel 800 ft. long.

PLYMOUTH LEAD MINES CO.

Office: Wallace. **Officers:** Walter H. Hanson, Pres.; Herman Marquardt, Sec., both of Wallace. **Inc.:** May 16, 1923, as Caledonia Lead Mines Co.; name changed Oct. 13, 1923. **Capital:** 1,500,000 shares; par value $1; 1,212,000 shares issued. **Property:** 10 patented, 21 unpatented claims, consisting of 5 groups located in different sections of the Coeur d'Alene dist.; part of which are held under lease and option. **Plant:** Electrically-driven compressor and complete mining equipment on Cuba group. **Ore:** Lead-silver. **Remarks:** A small amount of work was performed on two of the properties controlled by this company during the year.

POLARIS DEVELOPMENT & MINING CO.
Officers: John F. Gearon, Sec.; Chester J. Howarth, Mgr., both of Wallace. **Inc.:** Dec. 10, 1915. **Capital:** 1,500,000 shares; par value $1; 520,000 shares issued. **Property:** 3 patented claims, Yreka dist.; Wallace. **Development:** Principally by 1 tunnel 2500 ft. long. **Plant:** Electrically-driven compressor and complete mining equipment. **Ore:** Lead-silver.

PURITAN MINING CO., LTD.
Office: Wallace. **Officers:** Theodore Anderson, Pres., Lindsay, Calif.; C. A. Salberg, Sec.-Treas., Wallace. **Inc.:** Sept. 30, 1905. **Capital:** 1,500,000 shares; par value $1; 1,335,000 shares issued. **Property:** Puritan group; 7 patented claims, Placer Center dist.; Wallace. **Development:** Approximately 5000 ft. of crosscuts and drifts. **Plant:** Complete mining equipment and camp. **Remarks:** Idle throughout the year.

RAINBOW MINING & MILLING CO., LTD.
Office: 303 Mohawk Bldg., Spokane, Wash. **Officers:** Geo. Austin, Pres.-Mgr., Spokane; John F. Gearon, Sec., Wallace. **Inc.:** June 20, 1907. **Capital:** 2,000,000 shares; par value 25c; 1,418,426 shares issued. **Property:** 7 patented, 18 unpatented claims, Little North Fork dist., Kootenai County; and Evolution dist.; Osburn. **Development:** 1350-ft. crosscut on property in Shoshone County. **Plant:** Gas-driven I-R compressor, and complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** Annual labor only on Kootenai County property. A small amount of development work, including 500 ft. of diamond drilling, on Shoshone County property. Stock assessments were levied during 1927 as follows: Mar. 14, 3 mills; July 21, 4 mills.

RAMONA MINING CO.
Office: Kellogg. **Officers:** R. A. Brockman, Pres.-Mgr.; R. J. Coats, Sec., both of Kellogg. **Inc.:** Nov. 24, 1924. **Capital:** 1,000,000 shares; par value 25c; 783,216 shares issued. **Property:** Ramona group; 12 unpatented claims, Evolution dist.; Osburn. **Ore:** Lead-silver. **Remarks:** A small amount of work during the year. A stock assessment of 2 mills was levied on Feb. 18, 1927.

RAVEN MINING CO., LTD.
Office: Wallace. **Officers:** W. T. McLachlin, Pres., Wardner; Franklin Pfirman, Sec., Wallace. **Inc.:** Nov. 13, 1907. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** 5 unpatented claims, Summit dist.; Murray. **Development:** Principally by 1 tunnel 1230 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Small amount of work during the year.

RAY JEFFERSON MINING CO.
Office: Wallace. **Officers:** D. C. Smith, Pres., Missoula, Mont.; P. J. Maggy, Sec., Wallace. **Inc.:** Mar. 31, 1910. **Capital:** 2,000,000 shares; par value 25c; all shares issued. **Property:** Ray Jefferson group; 32 patented, 9 unpatented claims, Beaver dist.; Wallace. **Developments:** Total development, 13,000 ft., consisting principally of a 3100-ft. crosscut. **Ore:** Lead-zinc-silver. **Men employed:** 1 watchman. **Remarks:** Annual labor only on unpatented claims. A stock assessment of 2½ mills was levied on May 17, 1927.

RED CHIEF GROUP
Owner: Fred Engstrom, Calder. **Inc.:** Not incorporated. **Property:** Red Chief group; 4 unpatented claims, St. Joe dist.; Calder. **Development:** By 2 short tunnels and an inclined shaft 90 ft. deep. **Ore:** Copper-silver. **Remarks:** Active development by owner throughout the year.

RED CLOUD MINING CO.
Office: Wallace. **Officers:** A. L. Honeker, Pres.; H. J. Rossi, Sec., both of Wallace. **Inc.:** Sept. 1, 1896. **Capital:** 500,000 shares; par value $1; 263,396 shares issued. **Property:** 1 patented claim, Yreka dist.; Kellogg. **Ore:** Lead-zinc-silver.

REINDEER-QUEEN MINING CO.

Office: Wallace. **Officers:** J. F. Gearon, Pres.-Mgr.; G. A. Halvorson, Sec., both of Wallace. **Inc.:** Sept. 27, 1913. **Capital:** 2,000,000 shares; par value 10c; all shares issued. **Property:** Reindeer-Queen group; 3 patented, 12 unpatented claims, Hunter dist.; Mullan. **Development:** Principally by 5 tunnels: No. 1, 3100 ft. long; No. 5, 7700 ft. long. **Plant:** Water-driven compressor and complete mining equipment. **Ore:** Copper-lead-silver. **Men employed:** Average, 2. **Remarks:** Active for a period of 5 months. Stock assessments were levied during 1927 as follows: Feb. 5, 5 mills; Sept. 1, 10 mills.

REVETT MINING CO.

Office: E. 604 Eighth Ave., Spokane, Wash. **Officers:** W. W. Russell, Pres.; J. F. Arnold, Sec.-Mgr., both of Spokane. **Inc.:** Feb. 7, 1925. **Capital:** 2,500,000 shares; par value 20c; 1,102,000 shares issued. **Property:** Great Western group; 7 patented claims, Lelande dist.; Burke. **Development:** Principally by 1 tunnel 1800 ft. long. **Remarks:** Property formerly owned by the Great Western Mining Co., Ltd. Idle since 1915.

RHODE ISLAND MINING CO., LTD.

Office: Wallace. **Officers:** A. G. Webb, Pres.; C. E. Clarke, Sec., both of Wallace. **Inc.:** July 13, 1900. **Capital:** 1,000,000 shares; par value 5c; all shares issued. **Property:** Rhode Island group; 4 unpatented claims, Evolution dist.; Wallace. **Development:** Approximately 900 ft. of workings. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only. A stock assessment of 1¼ mills was levied on May 16, 1927.

RICHMOND CONSOLIDATED MINING CO.

Office: 824 Old National Bank Bldg., Spokane. **Officers:** John B. White, Pres.; Fred J. Cunningham, Sec., both of Spokane. **Inc.:** June 29, 1923. **Capital:** 2,500,000 shares; par value 10c; all shares issued. **Property:** Richmond group; 7 patented claims, St. Joe dist.; Adair. **Development:** Approximately 8000 ft. of underground workings. **Ore:** Copper-gold. **Remarks:** During 1926, mine plant was dismantled and all operations were suspended.

ROANOKE MINING CO., LTD.

Office: Wallace. **Officers:** Henry L. Day, Pres.; John E. Ryan, Sec., both of Wallace. **Inc.:** Jan. 2, 1907. **Capital:** 1,500,000 shares; par value $1; 1,148,750 shares issued. **Property:** Roanoke group; 7 patented claims, Big Creek, Yreka dist.; Kellogg. **Development:** By 3 tunnels: No. 3, 650 ft. long; and an inclined shaft 340 ft. long, in which are 3 intermediate levels. **Plant:** Electrically-driven hoist. **Ore:** Lead-silver. **Men employed:** Average, 6. **Remarks:** Active development work during the first 5 months of the year. A stock assessment of 1c was levied on Jan. 26, 1927.

ROB ROY MINING CO.

Office: Wallace. **Officers:** John A. McLeod, Pres., Mullan; G. W. Dougherty, Sec., Wallace. **Inc.:** Feb. 16, 1907. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** 11 unpatented claims, Beaver dist.; Sunset. **Development:** By 1 tunnel 900 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only. Stock assessments were levied during 1927 as follows: June 7, 1 mill; Aug. 12, 1 mill.

ROYAL MINING CO.

Office: Coeur d'Alene. **Officers:** A. H. Moe, Pres.-Mgr.; Soren Simonson, Sec., both of Coeur d'Alene. **Inc.:** Dec. 24, 1910. **Capital:** 1,500,000 shares; par value $1; 783,053 shares issued. **Property:** Royal group; 11 unpatented claims; West Fork of Slate Creek; St. Joe dist.; Avery. **Development:** Approximately 2000 ft. of workings. **Plant:** 6x6 compressor driven by a Pelton water-wheel; complete mining equipment and camp. **Ore:** Lead-silver-copper. **Remarks:** Annual labor only.

RUTH CONSOLIDATED MINING & MILLING CO.

Office: 727 Old National Bank Bldg., Spokane, Wash. **Officers:** C. M. Crego, Pres.; G. D. Crego, Sec., both of Spokane, Wash. **Inc.:** Sept. 15, 1906. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Ruth group; 7 patented claims, Placer Center dist.; Wallace. **Devel-**

opment: By 2 tunnels: No. 1, 800 ft. long; No. 2, 3030 ft. long. **Plant:** Electrically-driven Laidlaw-Dunn-Gordon compressor; complete mining equipment. **Ore:** Lead-silver. **Remarks:** The lower tunnel was advanced 330 ft. under contract.

SAINT LOUIS & IDAHO MINING & MILLING CO.

Office: Wallace. **Officers:** Russell F. Collins, Pres.-Mgr.; S. B. Collins, Sec., both of Wallace. **Inc.:** June 24, 1903. **Capital:** 1,000,000 shares; par value $1; 840,251 shares issued. **Property:** Saint Louis & Idaho group; 3 unpatented claims, Lelande dist.; Burke. **Development:** By 2 tunnels: No. 1, 1000 ft. long; No. 2, 2000 ft. long. **Ore:** Lead-silver.

SAMSON MINING & DEVELOPMENT CO., LTD.

Office: Wardner. **Officers:** D. W. Raines, Pres., Spokane; R. L. Brainard, Sec., Wardner. **Inc.:** Aug. 15, 1904. **Capital:** 1,000,000 shares; par value $1; 900,000 shares issued. **Property:** Samson group; 8 unpatented claims, Eagle dist.; Prichard. **Development:** Principally by 1 tunnel 1000 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Small amount of work during the year. A stock assessment of 2 mills was levied on June 30, 1927.

SANDERS METALS CORPORATION

Office: 53 Park Place, New York City. **Officers:** W. Murray Sanders, Pres.-Mgr.; Mary S. Jones, Sec., both of New York City. **Inc.:** Mar. 22, 1926. **Capital:** 7000 shares; par value $50; 6030 shares issued. **Property:** Lease on property of Oasis Mining Co.; Kellogg. **Plant:** 200-ton flotation concentrator; 1¼-yd. clamshell bucket dredge. **Ore:** Lead-silver from reclaimed river-bottom tailings. **Men employed:** Average, 6. **Remarks:** Mill operated for a few days during early part of the year.

SENATOR MINING CO.

Office: Wallace. **Officers:** Rush J. White, Pres.-Mgr.; John J. Ferguson, Sec., both of Wallace. **Inc.:** May 3, 1920. **Capital:** 2,500,000 shares; par value 25c; 1,915,024 shares issued. **Property:** Senator group; 18 patented claims, Lelande dist.; Gem. **Remarks:** Under lease and bond to Coeur d'Alene Syndicate Mining Co., which see.

SHERMAN LEAD CO.

Office: Wallace. **Officers:** Jerome J. Day, Pres.; P. J. Maggy, Sec., both of Wallace. **Inc.:** Nov. 4, 1918. **Capital:** 3,500,000 shares; par value 25c; all shares issued. **Property:** Sherman group; 4 patented claims, Lelande dist.; Burke. **Development:** Total development, over 13,000 ft., consisting principally of Sherman No. 5 tunnel, 5660 ft. long; Sherman No. 6 tunnel, 2000 ft. long; and a 1000-ft. inclined raise. **Plant:** 2 electrically-driven hoists; trolley locomotive haulage and all mining equipment, furnished by Hercules Mining Co. **Ore:** Lead-silver. **Men employed:** Average, 12. **Remarks:** During the year the mine was connected with No. 5 tunnel of the Hercules mine, through the Humming Bird workings. Hoists were installed, 1000-ft. raise driven on the vein, and connections made with all of the old workings. A substantial tonnage of ore was removed in the development work and sent to the Hercules mill for treatment. Stock assessments were levied during 1927 as follows: June 20, 5 mills; Oct. 5, 5 mills; Dec. 7, 7½ mills.

SHRINE MINING CO.

Office: Kellogg. **Officers:** A. C. Beal, Pres.; Lester S. Harrison, Sec., both of Kellogg. **Inc.:** May 29, 1926. **Capital:** 2,000,000 shares; par value 5c; 1,000,000 shares issued. **Property:** 7 unpatented claims on Pine Creek, Yreka dist.; Masonia. **Development:** Principally by 1 tunnel 1200 ft. long. **Ore:** Lead-silver, antimony. **Remarks:** Property under option to Commercial Traveler Mining Co.

SIDNEY LEASING CO.

Office: Kellogg. **Officers:** J. B. Cox, Pres.; W. T. Simons, Sec., both of Kellogg. **Inc.:** Feb. 27, 1925. **Capital:** 25,000 shares; par value $1; 7215 shares issued. **Property:** Lease on property of the Sidney Mining Co. **Plant:** 4½-mile aerial tramway; 538-cu.-ft. I-R electrically-driven compressor; electrically driven hoist; Waugh drill sharpener; complete min-

ing equipment and camp. **Ore:** Lead-zinc-silver. **Men employed:** Average, 50. **Remarks:** In addition to maintaining a constant output throughout the year, a hoist was installed, a 200-ft. shaft sunk in No. 6 tunnel, a large amount of lateral development work performed, and the mine camp enlarged. During the year, this enterprise entered the lists of dividend-paying mines; much credit is due to the Bunker Hill & Sullivan M. & C. Co. for this success, as it financed the construction of the Sidney aerial tramway and gave assistance in its operation.

SIDNEY MINING CO.

Office: Kellogg. **Officers:** H. M. Ross, Pres., Seattle, Wash.; W. T. Simons, Sec., Kellogg. **Inc.:** June 20, 1910. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Sidney group; 8 patented, 10 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 6 tunnels: No. 1, 400 ft.; No. 3, 700 ft.; No. 5, 600 ft.; No. 6, 800 ft.; and a shaft 200 ft. deep. **Ore:** Lead-zinc-silver. **Remarks:** Under lease to Sidney Leasing Co., which see.

SIERRA NEVADA CONSOLIDATED MINING CO.

Office: Kellogg. **Officers:** Stanly A. Easton, Pres.-Mgr.; C. W. Simmons, Sec., both of Kellogg. **Inc.:** May 21, 1887. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Sierra Nevada group; 5 patented claims, Yreka dist.; Kellogg. **Development:** Principally by 4 tunnels: No. 1, 4550 ft. long; No. 2, 275 ft. long; No. 3, 700 ft. long; No. 4, 625 ft. long. Total development, approximately 10,000 ft. **Ore:** Lead-silver. **Remarks:** Property under operation throughout the year by lessees, who produced and marketed a small tonnage of ore.

SILVER CABLE CONSOLIDATED MINING CO.

Office: 338 Peyton Bldg., Spokane, Wash. **Officers:** Morris Pearson, Pres.; L. O. Tollefson, Sec., both of Spokane, Wash. **Inc.:** Sept. 27, 1927. **Capital:** 5,000,000 shares; par value 25c; no shares issued. **Property:** Silver Cable group; 6 patented, 3 unpatented claims, Hunter dist.; Mullan. **Development:** By 3 tunnels: No. 1, 600 ft.; No. 2, 700 ft.; No. 3, 7000 ft. **Ore:** Lead-zinc-silver. **Remarks:** A small amount of work by lessees during the year.

SILVER CLIFF GOLD & COPPER MINING CO., LTD.

Office: Wallace. **Officers:** Sidney L. Shonts, Pres.; Ed. C. Young, Sec.-Mgr., both of Wallace. **Inc.:** Oct. 6, 1900. **Capital:** 1,500,000 shares; par value $1; 1,416,000 shares issued. **Property:** Silver Cliff group; 19 unpatented claims, Hunter dist.; Mullan. **Development:** Over 2 miles of underground workings. **Plant:** An old water-driven compressor. **Ore:** Copper-silver. **Men employed:** Average, 2. **Remarks:** Active throughout the year. Stock assessments were levied during 1927 as follows: Apr. 20, 1¼ mills; Sept. 26, 3 mills.

SILVER CRESCENT MINING CO.

Office: Wallace. **Officers:** A. L. Hooper, Pres., Spokane, Wash.; F. C. Bailey, Sec.-Mgr., Wallace. **Inc.:** Oct. 19, 1911, as Placer Creek Silver-Lead Mining & Milling Co.; name changed, Aug. 31, 1922. **Capital:** 1,000,000 shares; par value $1; 100,000 shares issued. **Property:** Silver Crescent group; 7 unpatented claims, on Moon Creek, Yreka dist.; Kellogg. **Development:** By 4 tunnels, with a total development of approximately 1000 ft. **Ore:** Lead-silver. **Remarks:** Under option to Washington-Idaho Mining Co.

SILVER DALE AND BIG HILL MINING CO.

Office: Kellogg. **Officers:** Carl Arenander, Pres.-Mgr.; D W. Knudson, Sec., both of Kellogg. **Inc.:** Sept. 10, 1917. **Capital:** 1,000,000 shares; par value 1c; increased Oct. 25, 1927, to 1,000,000 shares; par value 25c; 550,000 shares issued. **Property:** 21 unpatented claims, Big Creek, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel 2500 ft. long. **Plant:** Water-driven 12x12 compressor. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Principal tunnel extended 250 ft. during the year. Stock assessments were levied during 1927 as follows: May 23, 2 mills; Oct. 31, 5 mills.

SILVER EAGLE MINING CO., LTD.

Office: Wallace. **Officers:** John J. Hogus, Pres.; C. W. Betts, Sec., both of Wallace. **Inc.:** Nov. 12, 1906. **Capital:** 1,000,000 shares; par value $1; 656,110 shares issued. **Property:** Silver Eagle group; 6 patented, 5 unpatented claims, Placer Center dist.; Wallace. **Development:** 4 tunnels: No. 1, 900 ft. long; No. 2, 400 ft. long; No. 3, 400 ft. long; No. 4, 300 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Principal tunnel extended 100 ft. during the year.

SILVER MOON MINING CO., LTD.

Office: Palmerston Hotel, Spokane, Wash. **Officers:** H. C. Lambach, Pres.; Gus Ehrenberg, Sec., both of Spokane, Wash. **Inc.:** Aug. 31, 1906. **Capital:** 1,500,000 shares; par value $1; 774,390 shares issued. **Property:** Silver Moon group; 9 unpatented claims, Leland dist.; Gem. **Development:** Principally by 1 tunnel 2850 ft. long. **Plant:** Electrically-driven 200-cu.-ft. compressor; complete mining equipment. **Ore:** Lead-silver. **Remarks:** Annual labor only.

SILVER REEF MINING CO.

Office: P. O. Box 558, Spokane, Wash. **Officers:** W. J. Buhler, Pres., Port Townsend, Wash.; Harry C. Buhler, Sec.-Mgr., Spokane, Wash. **Inc.:** Apr. 6, 1920. **Capital:** 1,500,000 shares; par value 10c; 1,200,000 shares issued. **Property:** 1 patented, 4 unpatented claims, Hunter dist.; Mullan. **Development:** By 2 tunnels: No. 1, 1500 ft. long; No. 2, 2000 ft. long. **Plant:** Electrically-driven compressor; complete mining equipment. **Ore:** Lead-silver. **Remarks:** Annual labor only, funds for which were derived from stock assessments.

SILVER STANDARD MINING CO.

Office: E. 604 Heroy Ave., Spokane, Wash. **Officers:** S. L. Shaw, Pres.; Mrs. C. M. Shaw, Sec., both of Spokane. **Inc.:** Unknown; never filed in Idaho. **Capital:** 2,000,000 shares; par value 25c; 262,240 shares issued. **Property:** 11 unpatented claims, Evolution dist.; Osburn. **Development:** By 2 tunnels: No. 1, 411 ft. long; No. 2, 560 ft. long. **Plant:** Water-driven Sullivan compressor. **Ore:** Lead-silver. **Remarks:** Annual labor only.

SILVER SUMMIT MINING CO.

Office: Wallace. **Officers:** Harry P. Pearson, Pres.-Mgr., Wallace. **Inc.:** Mar. 7, 1927. **Capital:** 1,500,000 shares; par value $1; shares issued, unknown. **Property:** Coeur d'Alene-Jumbo group; 21 unpatented claims, Evolution dist.; Osburn. **Development:** Over 1500 ft. of underground workings. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** Work on a new tunnel was started and continued without interruption.

SISTER MINING & MILLING CO., LTD.

Office: 1160 Winston Ave., San Marino, Calif. **Officers:** Frank P. Markwell, Pres., Los Angeles, Calif.; Everett H. Pattison, Sec., San Marino, Calif. **Inc.:** Dec. 12, 1899. **Capital:** 1,500,000 shares; par value 10c; all shares issued. **Property:** Sister group; 7 patented claims, Placer Center dist.; Wallace. **Development:** By 4 tunnels: No. 1, 108 ft.; No. 2, 1069 ft.; No. 3, 2500 ft.; No. 4, 209 ft.; a 210-ft. raise, and a 264-ft. vertical shaft. **Ore:** Lead-zinc-silver. **Remarks:** Under lease to Sisters Leasing Co.

SISTERS LEASING CO.

Office: Wallace. **Officers:** Dan Murphy, Pres.; A. G. Kennedy, Sec., both of Wallace. **Inc.:** Feb. 16, 1920. **Capital:** 10,000 shares; par value $1; no shares issued. **Property:** Lease on property of Sister Mining & Milling Co., Ltd. **Remarks:** In addition to driving No. 4 tunnel, the company produced and shipped a small tonnage of ore during the year.

SLAVONIAN MINING CO.

Office: Wallace. **Officers:** Risto V. Kojovich, Pres.-Mgr., Wardner; G. W. Dougherty, Sec., Wallace. **Inc.:** Nov. 26, 1910. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** 4 unpatented claims, Yreka dist.; Wardner. **Development:** Principally by 1 tunnel 1100 ft. long. **Ore:** Lead-silver. **Remarks:** A small amount of development work during the year with a power connection from the Last Chance compressor of the Bunker Hill & Sullivan M. & C. Co.

SMUGGLER CONSOLIDATED MINING CO.
Office: 8 Germond Bldg., Spokane, Wash. **Officers:** D. Holman, Pres.; J. A. Reubens, Sec., both of Spokane. **Inc.:** June 29, 1927. **Capital:** 1,000,000 shares; par value 10c; 639,500 shares issued. **Property:** Smuggler group; 4 patented claims, Lelande dist.; Burke. **Ore:** Lead-silver. **Remarks:** A reorganization of the Smuggler-Virginia Mining Co. A stock assessment of 5 mills was levied on Aug. 11, 1927.

SNOWSHOE MINING CO.
Office: Wallace. **Officers:** Walter H. Hanson, Pres.; Herman Marquardt, Sec., both of Wallace. **Inc.:** Sept. 30, 1903. **Capital:** 2,000,000 shares; par value $1; 260,000 shares issued. **Property:** Snowshoe; 8 patented claims, Hunter dist.; Mullan. **Development:** Approximately 4000 ft. of workings, the principal of which are No. 2 tunnel, 3000 ft. long, and No. 1 tunnel, 900 ft. long. **Plant:** Electrically-driven 3-drill compressor. **Ore:** Copper-silver. **Remarks:** Idle. A stock assessment of 1c was levied on May 2, 1927.

SNOW STORM LEASING CO.
Office: Wallace. **Officers:** Wm. Ziegler, Pres., Mullan; W. J. Stratton, Sec., Wallace. **Inc.:** Feb. 19, 1925; charter forfeited Dec. 1, 1925. **Capital:** 50,000 shares; par value $1; all shares issued. **Property:** Lease on property of Snow Storm Silver Lead Co. **Remarks:** Sub-leased to Oregon-Idaho C. & M. Co.

SPOKANE TUNNEL MINING CO.
Office: Wallace. **Officers:** John I. Johnson, Pres.-Mgr.; Otto A. Olsson, Sec., both of Wallace. **Inc.:** Oct. 29, 1906. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** 3 unpatented claims, Placer Center dist.; Wallace. **Development:** Approximately 1200 ft. of workings. **Ore:** Lead-silver. **Remarks:** Annual labor only.

SQUARE DEAL MINING & MILLING CO., LTD.
Office: Wallace. **Officers:** A. J. Dunn, Pres.-Mgr.; M. K. Howes, Sec., both of Wallace. **Inc.:** Oct. 29, 1906. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Square Deal group; 9 unpatented claims, Hunter dist.; Wallace. **Development:** By 3 tunnels: No. 1, 150 ft.; No. 2, 600 ft.; No. 3, 800 ft. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** A small amount of work during the year. A stock assessment of 1½ mills was levied on May 6, 1927.

STANLEY MINING CO.
Office: Wallace. **Officers:** John H. Wourms, Pres., Wallace. **Inc.:** Apr. 16, 1926. **Capital:** 1,500,000 shares; par value 10c; all shares issued. **Property:** Stanley group; 13 patented, 2 unpatented claims, Lelande dist.; Burke. **Development:** By 3 tunnels: No. 1, 290 ft. long; No. 2, 950 ft. long; No. 3, 1630 ft. long. **Ore:** Antimony-gold. **Remarks:** A reorganization of the Stanley Consolidated Mining & Milling Co. Annual labor on unpatented claims. A stock assessment of 4 mills was levied on Feb. 26, 1927.

STAR MINING CO.
Office: 504 Empire State Bldg., Spokane, Wash. **Officers:** W. J. C. Wakefield, Pres.; Charles Hussey, Sec., both of Spokane, Wash.; James F. McCarthy, Mgr., Wallace. **Inc.:** Sept. 17, 1900. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Star; 15 patented claims, Hunter dist.; Mullan. **Ore:** Silver-lead-zinc. **Remarks:** Property sold to Sullivan Mining Co. This company is being held together for the purpose of distributing the funds received from the sale.

STERLING MINING CO., LTD.
Office: Wallace. **Officers:** Mrs. Winnefred Presley, Pres.; J. Clarence Presley, Sec.-Mgr., both of Wallace. **Inc.:** Feb. 21, 1903. **Capital:** 1,500,000 shares; par value $1; 970,000 shares issued. **Property:** 13 unpatented claims, Evolution dist.; Wallace. **Development:** 1 tunnel, 600 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

STERLING SILVER MOUNTAIN MINING CO., LTD.

Office: 323 Lindelle Blk., Spokane, Wash. **Officers:** R. L. Brainard, Pres., Wardner; Matt Baumgartner, Sec.-Mgr., Spokane, Wash. **Inc.:** Oct. 22, 1919. **Capital:** 2,000,000 shares; par value 5c; 1,537,500 shares issued. **Property:** 17 unpatented claims, Big Creek, Evolution dist.; Kellogg. **Development:** Principally by 1 tunnel, 1500 ft. long. **Plant:** 5x5 1-R gas-driven compressor. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** Principal tunnel extended 200 ft. during the year, the funds for which were derived from stock assessments.

STRATTONS MINES CO.

Office: Wallace. **Officers:** F. M. Rothrock, Pres., Spokane; John E. Ryan, Sec., Wallace. **Inc.:** Nov. 30, 1923. **Capital:** 2,000,000 shares; par value 10c; 1,682,050 shares issued. **Property:** Stratton, Panhandle, and Monarch-Bonanza groups; 17 patented, 28 unpatented claims, Placer Center dist.; Wallace. **Development:** Stratton group: Principally by 1 tunnel 1450 ft. long, in which is an inclined shaft 326 ft. long, with 3 intermediate levels, which opens the vein to a vertical depth of 286 ft. Panhandle group: Principally by 1 tunnel 1562 ft. long, and an inclined shaft 288 ft. long, with 3 intermediate levels, which opens the vein to a vertical depth of 253 ft. Total development in both groups, over 9000 ft. **Plant:** Stratton group: Electrically-driven hoist, hand mining equipment. Panhandle group: Electrically-driven hoist and compressor; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 55. **Remarks:** This company conducted an active development campaign at the Stratton and Panhandle groups throughout the year. Many improvements were made in the mines, the plants were enlarged, and a substantial tonnage of ore was produced and marketed from each group.

SUCCESS MINING CO., LTD.

Office: Wallace. **Officers:** Dan P. Mahoney, Pres., Perma, Mont.; H. H. Miller, Sec., Wallace. **Inc.:** April 7, 1905. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Success group; 8 patented claims, Placer Center dist.; Wallace. **Development:** Principally by 3 tunnels: No. 1, 1320 ft. long; No. 2, 4585 ft. long; No. 3, 3360 ft. long; and a vertical shaft 1070 ft. deep, with 8 intermediate levels; total development, approximately 25,700 ft. **Plant:** MINE: Electrically-driven double-drum hoist; 2 electrically-driven compressors; complete mining equipment. MILL: 300-ton concentrator, including flotation and magnetic separation. **Ore:** Lead-zinc-silver. **Remarks:** In July, 1926, all operations were suspended, underground equipment was removed, and part of the mining and milling equipment was disposed of. During 1927 a few lessees extracted a small tonnage of ore.

SULLIVAN MINING CO.

Office: Kellogg. **Officers:** Stanly A. Easton, Pres.; C. W. Simmons, Sec., both of Kellogg. **Inc.:** May 22, 1917. **Capital:** 500,000 shares; par value $3; 37,448 shares issued. **Property:** Star group; 22 patented claims, Hunter and Lelande dists.; Burke. **Development:** By a crosscut tunnel known as "Star crosscut," over 4000 ft. of drifting on vein, and a 1500-ft. vertical raise. The Star crosscut is on the 2000-ft. level of the Hecla mine and it is 8900 ft. long. **Plant:** MINE: All mine equipment furnished by Hecla Mining Co. MILL: All ore is milled by Bunker Hill & Sullivan M. & C. Co. in its South mill at Kellogg. ELECTROLYTIC ZINC PLANT: See pages 33-38. **Ore:** Lead-zinc-silver. **Men employed:** Average, 66 at mine and 83 at zinc plant.

REMARKS

In 1916 the Bunker Hill & Sullivan M. & C. Co. secured an option on the Star mine from the Star Mining Co.; as the most feasible method of opening this mine was through the Hecla mine, the Hecla Mining Co. was offered and accepted a 50 per cent interest in the option.

The Sullivan Mining Co. was then formed to take over the Star option and to operate the mine. After litigation to perfect title to the Star vein system was settled in favor of the Star Mining Co., the Star crosscut was

started and continued without interruption, excepting the time lost from July 13, 1923, to March 1, 1924, as a result of the Burke fire.

On November 13, 1925, the Star ore body was encountered at a point 1650 ft. west of the east end-line, and at a depth of 4000 ft. below the apex of the vein. After encountering the ore body development work continued, and during 1925 it was opened the entire distance of 1650 ft. and a connection was made with the 2250 level of the Morning mine of the Federal Mining & Smelting Co. On account of the great depth of the Star crosscut, the development work necessary to open the mine for the extraction of ore involved a large amount of drifting and raising. This work progressed throughout 1927 and the principal raise was extended a distance of 1500 ft., at which point a connection was made with No. 6 tunnel-level of the Morning mine. The most important new construction work in the State during the year was the electrolytic zinc plant which this company is constructing at Kellogg.

In addition to construction work and mine development, a large tonnage of ore was produced during the months of January, February, and March, the zinc concentrate being shipped to Belgium. As the Belgian contract was terminated in April, production was then suspended until completion of the zinc plant.

The Star crosscut is 4000 ft. below the apex and about 70 ft. below the 2250 level of the Morning mine; the Morning vein has been proved to the 3050-ft. level, and as the Morning and Star veins are conceded to be the same, it is evident that the Star mine contains an ore body of tremendous size. An authorized statement made during 1926 was to the effect that: "At the present capacity (475 tons per day) there is sufficient proven ore in the Star mine to assure it a life of 50 years."

SUNSET MINING CO.

Office: 781 Corbett St., Portland, Ore. **Officers:** A. H. Ruedy, Pres., Oakland, Calif.; E. G. Ruedy, Sec., Portland, Ore. **Inc.:** Mar. 3, 1926. **Capital:** 500,000 shares; par value $1; 352,403 shares issued. **Property:** 10 patented, 1 unpatented claim, Placer Center and Beaver dists.; Wallace. **Development:** By 2 tunnels: No. 1, 810 ft. long; No. 2, 220 ft. long. **Plant:** 10x10 electrically-driven compressor. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

SUNSHINE MINING CO.

Office: Yakima, Wash. **Officers:** John Sawbridge, Pres.; F. H. Church, Sec., both of Yakima, Wash.; C. C. Samuels, Mgr., Kellogg. **Inc.:** Jan. 3, 1921. **Capital:** 1,500,000 shares; par value 10c; 1,490,793 shares issued. **Property:** Yankee group; 5 patented, 15 unpatented claims, Yreka dist.; Kellogg. **Development:** Principal development by 5 tunnels: No. 1, 100 ft. long; No. 2, 170 ft. long; No. 3, 800 ft. long; No. 4, 1000 ft. long; No. 5, 3000 ft. long; 1 vertical shaft 500 ft. deep, located in No. 5 tunnel; and 1 inclined shaft 250 ft. long, in No. 5 shaft-level. **Plant:** MINE: 2 I-R compressors, 1 Burry compressor, 2 hoists, all electrically driven; complete mining equipment, buildings, and camp. MILL: 100-ton concentrator, including fine grinding and flotation. **Ore:** Lead-silver. **Men employed:** Average, 113.

REMARKS

During the year, the company entered the list of dividend-paying mines of Shoshone County. The mine and mill plants were enlarged and improved; a 250-ft. inclined winze was sunk from the 500-ft. level in the mine, new hoisting machinery installed on the winze, and a large amount of development work performed on various levels. The development work greatly increased the known ore reserves.

The developing of the Sunshine into a dividend-paying mine is of vast importance to the "south side" section of the Coeur d'Alene district in which it is located. This section has always been frowned upon and considered as unlikely for ore bodies of commercial importance, but this mine has upset all of the theories, and as a result much new development work in this section was started and carried on with much vigor throughout the year.

SUNSHINE MINING CO., LTD.
Office: Wallace. **Officers:** D. C. Smith, Pres., Missoula, Mont.; H. J. Hull, Sec., Wallace. **Inc.:** Jan. 5, 1907. **Capital:** 2,700,000 shares; par value $1; 1,395,129 shares issued. **Property:** Sunshine group; 4 patented, 14 unpatented claims, Beaver dist.; Wallace. **Development:** Over 6000 ft. of underground workings. **Plant:** Electrically-driven I-R 5-drill compressor; complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

SYNDICATE MINING & EXPLORATION CO., LTD.
Office: Kellogg. **Officers:** Ed. Lagerstrom, Pres.; J. L. Moore, Sec., both of Kellogg. **Inc.:** June 24, 1907. **Capital:** 1,500,000 shares; par value 25c; 742,526 shares issued. **Property:** 7 unpatented claims, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel, 1800 ft. long. **Ore:** Lead-silver. **Remarks:** Principal tunnel was extended 300 ft. during the year. Stock assessments were levied during 1927 as follows: May 2, 1 mill; Sept. 6, 1 mill.

TAMARACK & CUSTER CONSOLIDATED MINING CO.
Office: Wallace. **Officers:** Jerome J. Day, Pres.-Mgr.; Harry L. Day, Sec., both of Wallace. **Inc.:** Aug. 6, 1912. **Capital:** 5,000,000 shares; par value $1; all shares issued. **Property:** Tamarack & Custer; 56 patented, 2 unpatented claims, Lelande and Placer Center dists.; Gem. **Development:** The three principal tunnels are: No. 5, 10,958 ft. long; No. 6, 7386 ft. long; and No. 7, 9753 ft. long. The principal shaft is a 3-compartment, vertical shaft, 600 ft. deep; and a 3-compartment raise 800 ft. long connecting No. 6 and No. 7 tunnels. Total development, approximately **12** miles. **Plant:** MINE: 100-h. p. electrically-driven hoist; 3 1300-cu.-ft. electrically-driven compressors; storage battery haulage on intermediate levels and trolley locomotive haulage on main levels. Complete mining equipment. Modern and complete machine shop. Modern hotel, change houses, and camp. MILL: 500-ton concentrator, including flotation. **Ore:** Lead-silver-zinc. **Men employed:** Average, 334. **Remarks:** The property owned by this company is one of the substantial mines of the Coeur d'Alene district and is completely equipped with modern and up-to-date mine and mill plants. During 1922 a right-of-way through No. 6 tunnel of the Mace group, commonly known as the Mammoth tunnel, owned by the Federal Mining & Smelting Co., was acquired and the tunnel renamed Tamarack No. 7. Electric haulage, a new compressor, and complete mining equipment were installed, the tunnel was extended to the Tamarack and Custer veins, and an 800-ft. raise was driven to connect this tunnel with No. 6. During 1927 over 1½ miles of development work was done and capacity production maintained. This work resulted in opening up a large, previously unknown ore body on the No. 4 shaft-level which was later opened on adjacent levels. The extent and grade of this new ore, as opened up at the close of the year, indicated that many years had been added to the life of the mine.

TEDDY MINING & MILLING CO., LTD.
Office: Kellogg. **Officers:** T. R. Mason, Pres.; S. M. Marchesi, Sec., both of Kellogg. **Inc.:** Dec. 1, 1904. **Capital:** 1,000,000 shares; par value $1; 770,000 shares issued. **Property:** Teddy group; 9 unpatented claims, Yreka dist.; Kellogg. **Development:** Over 1800 ft. of tunnels, the principal one of which is approximately 800 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** Small amount of work by lessees. A stock assessment of 2 mills was levied on Feb. 18, 1927.

TIBERIUS MINING CO.
Office: 205 Zeigler Blk., Spokane, Wash. **Officers:** S. H. Knepper, Pres., Moscow; M. L. Lewis, Sec., Spokane, Wash. **Inc.:** Mar. 9, 1916. **Capital:** 1,000,000 shares; par value 10c; 611,450 shares issued. **Property:** 40 acres of patented land on Pine Creek, Yreka dist.; Kellogg. **Ore:** Lead-zinc-silver.

TRADE DOLLAR MINING CO., LTD.
Office: 1160 Winston Ave., San Marino, Calif. **Officers:** Morton Webster, Pres., Wallace; Everett H. Pattison, Sec., San Marino, Calif. **Inc.:** Oct. 18, 1901. **Capital:** 1,000,000 shares; par value 10c; all shares issued. **Property:** Trade Dollar group; 6 patented claims, Lelande dist.; Burke. **Remarks:** Idle throughout the year.

TREASURE VAULT MINING CO., LTD.
Office: Wallace. **Officers:** P. J. Maggy, Pres.; W. A. Devan, Sec., both of Wallace. **Inc.:** Oct. 29, 1906. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Treasure Vault group; 4 patented claims, Placer Center dist.; Sunset. **Ore:** Lead-silver. **Remarks:** Idle. A stock assessment of 1 mill was levied on June 22, 1927.

TUCKER MINING & MILLING CO.
Office: Wallace. **Officers:** Peter Bahn, Pres.-Mgr.; W. R. Turner, Sec., both of Wallace. **Inc.:** Mar. 30, 1907. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Tucker group; 6 unpatented claims, Hunter dist.; Mullan. **Development:** Principally by 1 tunnel which is 1300 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

UNITED METALS CO.
Office: Wallace. **Officers:** M. W. Neary, Pres.-Mgr., San Francisco, Calif.; A. G. Kennedy, Sec., Wallace. **Inc.:** Sept. 2, 1924. **Capital:** 2,000,000 shares; par value 50c; 1,441,146 shares issued. **Property:** 61% of stock of Black Bear Mines Co.; property of Western Pacific Mining Co., Goodenough Mining Co., and Bell Mining Co. held under 50-yr. lease. 36 patented, 14 unpatented claims, Lelande and Hunter dists.; Wallace. **Development:** Principally by 2 tunnels: No. 1, 800 ft. long; No. 2, or Black Bear, 4000 ft. long. **Plant:** Electrically-driven 3-drill compressor; complete mining equipment. **Ore:** Lead-zinc-silver. **Men employed:** Average, 6. **Remarks:** Active development work until October, at which time operations were temporarily suspended.

VENDETTA CHIEF MINING CO.
Office: Murray. **Officers:** John Lillie, Pres.; E. W. Lutjens, Mgr., both of Murray. **Inc.:** Mar. 13, 1924. **Capital:** 1,000,000 shares; par value 10c; 30 shares issued. **Property:** 3 unpatented claims, Summit dist.; Murray. **Development:** 2 tunnels: No. 1, 300 ft. long; No. 2, 275 ft. long. **Ore:** Lead-silver-gold. **Men employed:** Average, 2. **Remarks:** Annual labor.

VIENNA-INTERNATIONAL MINING & MILLING CO., LTD.
Office: Wallace. **Officers:** A. H. Featherstone, Pres.; R. A. Marshall, Sec., both of Wallace. **Inc.:** Sept. 10, 1906. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Vienna International; 4 patented claims, Placer Center dist.; Wallace. **Development:** Approximately 1300 ft. of tunnels. **Ore:** Lead-silver. **Remarks:** Idle for several years.

VINDICATOR MINING CO.
Office: 2122 Dwight Way, Berkeley, Calif. **Officers:** Kathryn Powers, Pres.; Grace Powers, Sec., both of Berkeley, Calif. **Inc.:** June 9, 1902. **Capital:** 1,000,000 shares; par value 10c; all shares issued. **Property:** 5 unpatented claims, Hunter dist.; Mullan. **Development:** By 1 tunnel 1100 ft. long. **Remarks:** Annual labor only.

WALL STREET MINING CO.
Office: Mullan. **Officers:** C. A. Pooley, Pres.-Mgr., Mullan; C. Fred Kratzer, Sec., 519 Waverly Place, Spokane, Wash. **Inc.:** Apr. 20, 1907. **Capital:** 1,250,000 shares; par value $1; 1,240,000 shares issued. **Property:** 17 unpatented claims, Hunter dist.; Mullan. **Development:** Principally by 3 tunnels, the longest of which is 1400 ft. **Plant:** Electrically-driven compressor; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Small amount of work during the year.

WASHINGTON-IDAHO MINING CO.
Office: c/o Federal Land Bank, Spokane, Wash. **Officers:** Dr. Jas. Murray, Pres., Hayden Lake; A. B. Thomson, Sec.; Thos. Murray, Mgr., both of Spokane, Wash. **Inc.:** Oct. 21, 1927. **Capital:** 2,500,000 shares; par value 10c; 1,000,000 shares issued. **Property:** Crescent group; 15 unpat-

ented claims, held under lease and option from the Silver Crescent Mining Co. and the Crescent Mining & Milling Co.; Moon Creek, Yreka dist.; Kellogg. **Ore:** Lead-zinc-silver. **Remarks:** A new organization.

WASHINGTON MINING CO.

Office: Burke. **Officers:** John B. Finley, Pres., Mullan; R. W. Campbell, Sec., Burke. **Inc.:** Jan. 14, 1911. **Capital:** 1,500,000 shares; par value $1; 822,840 shares issued. **Property:** Washington group; 6 unpatented claims, Lelande dist.; Burke. **Development:** By 2 tunnels: No. 1, 300 ft. long; No. 2, 928 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** A small amount of work by contract. A stock assessment of 2 mills was levied on Mar. 28, 1927.

WEST BELL MINING CO., LTD.

Office: Wallace. **Officers:** Oscar J. Nordquist, Pres.; Otto A. Olsson, Sec., both of Wallace. **Inc.:** May 8, 1899. **Capital:** 1,000,000 shares; par value 5c; all shares issued. **Property:** West Bell group; 5 patented, 4 unpatented claims, Lelande dist.; Black Bear. **Development:** 1 tunnel, 2300 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 1. **Remarks:** Active throughout the year.

WEST GEM MINING CO.

Office: 1160 Winston Ave., San Marino, Calif. **Officers:** J. Fred Markwell, Pres., Fresno, Calif.; E. H. Pattison, Sec., San Marino, Calif. **Inc.:** Feb. 1, 1912. Charter forfeited Nov. 30, 1927. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** 1 patented claim, Lelande dist.; Wallace.

WEST HECLA MINING CO.

Office: Spokane, Wash., Box 1620. **Officers:** Dr. T. A. Russell, Pres.; J. V. Pohlman, Sec., both of Spokane, Wash. **Inc.:** Feb. 18, 1907. **Capital:** 1,500,000 shares; par value $1; 1,450,000 shares issued. **Property:** 3 patented claims, Lelande dist.; Burke. **Development:** Principally by 1 tunnel 1650 ft. long. **Ore:** Lead-silver.

WEST HUNTER MINING CO., LTD.

Office: Wallace. **Officers:** T. B. Cosgrove, Pres.-Mgr., Mullan; Herman Marquardt, Sec., Wallace. **Inc.:** July 29, 1915. **Capital:** 1,500,000 shares; par value 10c; all shares issued. **Property:** 1 patented, 12 unpatented claims, Hunter dist.; Mullan. **Development:** About 2700 ft. of tunnels. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** A small amount of work during a period of 4 months. This consisted principally of extending the principal tunnel on the west side of Mill Creek. A stock assessment of 5 mills was levied on Oct. 13, 1927.

WEST MAMMOTH MINING CO.

Office: Symons Bldg., Spokane, Wash. **Officers:** H. C. Lambach, Pres.; A. A. Booth, Sec., both of Spokane. **Inc.:** July 30, 1926. **Capital:** 1,500,000 shares; par value 25c; 1,132,000 shares issued. **Property:** Lease and option on property owned by Headlight Mining Co., Ltd., and Big Divide Mining Co., Ltd. **Development:** By 2 tunnels: Headlight, 1300 ft. long; Silvermoon, 2190 ft. long. **Plant:** Electrically-driven compressor; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 6. **Remarks:** Active development work throughout the year in Headlight tunnel.

WESTERN PACIFIC MINING CO.

Office: Wallace. **Officers:** J. Fred Markwell, Sec., Fresno, Calif. **Inc.:** Apr. 6, 1922. **Capital:** 2,500,000 shares; par value 10c; all shares issued. **Property:** 10 patented, 2 unpatented claims, Lelande dist.; Burke. Under option to United Metals Co.

WESTERN UNION MINING CO.

Office: Wallace. **Officers:** Harry L. Day, Pres.-Mgr.; W. B. Heitfield, Sec., both of Wallace. **Inc.:** Jan. 27, 1916. **Capital:** 2,000,000 shares; par value 10c; 1,997,656 shares issued. **Property:** Western Union group; 11 patented, 19 unpatented claims, Evolution dist.; Wallace. **Development:** Principally by 4 tunnels: No. 3, 3000 ft. long, and No. 4, 7000 ft. long; and a vertical shaft 477 ft. deep, with 4 intermediate levels. Total development, approximately 18,000 ft. **Plant:** I-R and Gardner-Ricks elec-

trically-driven compressors; air-driven hoist; complete mining equipment and camp. **Ore:** Lead-silver. **Remarks:** Mine operated throughout the year by lessees, who produced a small tonnage of ore. Press reports indicated that an important disclosure of new ore was made during the year.

WILBUR MINING CO., LTD.

Office: Wallace. **Officers:** A. T. Jenkins, Pres.; H. H. Miller, Sec., both of Wallace. **Inc.:** Nov. 24, 1906. **Capital:** 2,000,000 shares; par value 25c; 1,300,000 shares issued. **Property:** Wilbur group; 19 unpatented claims, Evolution dist.; Wallace. **Development:** Developed through No. 4 Western Union tunnel. **Ore:** Lead-silver. **Remarks:** Control of this company is held by the Western Union Mining Co. Annual labor only. A stock assessment of 5 mills was levied Feb. 19, 1927.

WILCOX LEASING CO.

Office: Wallace. **Officers:** Dr. R. B. Lundy, Pres.-Mgr.; Herman Marquardt, Sec., both of Wallace. **Inc.:** Mar. 25, 1924. **Capital:** 500,000 shares; par value 10c.

WILLOW CREEK MINING CO.

Office: 303 Hyde Blk., Spokane, Wash. **Officers:** Andrew Hedin, Pres.-Mgr.; John E. Hoppe, Sec., both of Spokane, Wash. **Inc.:** Jan. 25, 1924. **Capital:** 1,500,000 shares; par value 5c; 962,500 shares issued. **Property:** 12 unpatented claims, Hunter dist.; Mullan. **Development:** Principal tunnel 1650 ft. long. **Plant:** A gas-driven compressor and complete mining equipment. **Ore:** Silver-lead. **Men employed:** Average, 2. **Remarks:** A small amount of work during the year, the money for which was derived from stock assessments.

WILSON LEASING CO.

Office: Kellogg. **Officers:** O. L. Wilson, Pres.; Elmer E. Johnston, Sec.; L. D. Wick, Mgr., all of Kellogg. **Inc.:** Sept. 6, 1927. **Capital:** 250,000 shares; par value 10c; 15 shares issued.

WISCONSIN MINING CO.

Office: Kellogg. **Officers:** Louis Bolduc, Pres.-Mgr.; L. L. Ruthruff, Sec., both of Kellogg. **Inc.:** Mar. 13, 1913. **Capital:** 1,500,000 shares; par value $1; 490,975 shares issued. **Property:** Wisconsin group; 5 unpatented claims, Yreka dist.; Kellogg. **Development:** 1 tunnel 500 ft. long and a vertical shaft 100 ft. deep. **Plant:** Water-driven compressor; hoist; and complete mining equipment. **Ore:** Lead-silver. **Remarks:** Annual labor only.

WOLVERINE MINING CO., LTD.

Office: McConnell Hotel, Kellogg. **Officers:** P. C. Harrington, Pres.-Mgr., 502 W. 6th St., Spokane, Wash.; Faune Harrington, Sec., R. F. D. No. 1, Dishman, Wash. **Inc.:** Aug. 4, 1909. **Capital:** 1,250,000 shares; par value $1; 900,000 shares issued. **Property:** Wolverine group; 6 unpatented claims, Big Creek, Yreka dist.; Kellogg. **Development:** By 3 tunnels: No. 1, 350 ft. long; No. 2, 315 ft. long; No. 3, 60 ft. long; and a vertical shaft 200 ft. deep. **Plant:** Electrically-driven Sullivan compressor; hoist, and complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 4. **Remarks:** Hoist and compressor installed, and a large amount of drifting on the 200-ft. level of the shaft performed during the year.

WONDERFUL MINING CO., LTD.

Office: Wallace. **Officers:** W. H. Holden, Pres., Coeur d'Alene; A. H. Featherstone, Sec., Wallace. **Inc.:** Oct. 15, 1906. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Wonderful group; 4 patented claims, St. Joe dist.; Mullan. **Remarks:** Idle for a number of years.

WYOMING MINING & MILLING CO., LTD.

Office: Wallace. **Officers:** Alfred Page, Pres., Spokane, Wash.; A. W. Hoover, Sec.; Frederick Burbidge, Mgr., both of Wallace. **Inc.:** May 3, 1901. **Capital:** 1,000,000 shares; par value 10c; 935,554 shares issued. **Property:** Wyoming group; 11 patented claims, Yreka dist.; Kellogg. **Development:** Principally by 2 tunnels: Ranger, 2150 ft. long; Wyoming, 500 ft. long. Total development, approximately 5400 ft. **Ore:** Lead-zinc-silver. **Remarks:** A small tonnage of ore was produced during the year by lessees.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
American Placer	Summit	Joseph Laveigne	Murray
Anchor et al.	Summit	Mike Melley	Murray
Ancient Gravel	Yreka	George H. Heller	Kellogg
Aulbach Gr.	Eagle	Adam Aulbach	Murray
Birthday Group	St. Joe	Wes. J. Horsky	Falcon
Bismark Lode	Eagle	Robt. T. Horn Est.	Murray
Blackhawk Group	Hunter	Chas. M. Baillie	Mullan
Black Hill	Beaver	John Thiard	Delta
Blue Eagle Gr.	Yreka	Walter Owens	Kellogg
Blue Grouse	Evolution	C. M. Patterson	Wallace
Bonanza	Eagle	Jas. Boland	Murray
Boulder Placer	Eagle	Clay Giles	Murray
Bull Pine	Evolution	O. J. Holtz	Kellogg
Carruthers Placer	Eagle	E. N. Harwood	Billings, Mont.
Castle Rock et al.	Lelande	A. C. Livingston	Wallace
Comstock Group	Lelande	J. H. Smith	Wallace
Corby Group	Yreka	C. W. Simmons	Kellogg
Cornucopia	Eagle	Francis Frohling	Murray
Daddy Mining Co.		Robert T. Horn	Murray
Eagle Placer	Eagle	Archie Smith	Murray
Eldorado	Summit	R. B. Lundy	Wallace
Eleventh Hour	Evolution	Victor Langley	Wallace
Empress	Beaver	Hugh Mabin	Wallace
Enterprise Group	Yreka	Fred G. Donaldson	Kellogg
Fay et al.	Yreka	Fred G. Donaldson	Kellogg
Ferguson Gr.	Summit	C. B. Ferguson	Murray
Florence Group	Eagle	Frank Rose	Murray
4000 Ft. Slide	Eagle	Clay Giles	Murray
Frances Jeanne	Eagle	W. A. Taylor	Murray
Friday	Beaver	E. M. Smith	Murray
Galena	Lelande	A. W. McCune	200 N. Main St., Salt Lake City, U.
Geneva	Hunter	John Guedelhofer	Mullan
Gilbert Placer	Beaver	W. A. Mather	Murray
Gold Back	Eagle	J. D. Stoltman	Murray
Gold Circle	Summit	William Wylie	Murray
Golden Chest	Beaver	Vivian Green	45 W. 34th St., New York City
Golden Gate	St. Joe	E. A. Patrick	540 Rookery Bldg., Spokane, Wash.
Great Western & Silver Cord	Summit	Dunlap & Smith	Murray
Headlight	Black Bear	Frank P. Markwell	220 Markwell Bldg., Long Beach, Cal.
Highland Chief	Yreka	H. T. Gilbert	Kellogg
Horseshoe Pl.	Beaver	Charles H. Wilson	Murray
Indicator	Yreka	Chas. Kaufman	Wallace
Ionia Lode	Summit	Albert Otto	Murray
Iron Clad	Yreka	Henry Lamb	Kellogg
Jewel Gulch	Evolution	Jasper Allamno	Osburn
Joyce Gr.	Beaver	C. B. Ferguson	Murray
Jumbo Gr.	Eagle	Chas. J. Johnson	Murray
Leroi Gr.	Placer Center	John Guedelhofer	Mullan
Liberal King Gr.	Yreka	Leslie Lamb	Kellogg
Little Pittsburgh	Yreka	Gus Smith	Kellogg
Lucky Bill Gr.	Eagle	Chas. T. Johnson	Murray
Lucky Boy	Summit	D. A. Finlayson	Murray
Lucky Strike	Summit	M. E. Lewis	Moscow
Midnight	Hunter	Forest Clark	Mullan
Midnight Pl.	Beaver	W. A. Mather	Murray

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Morning Star	Eagle	Mike Franks	Murray
Mother Lode	Eagle	John F. Murphy	Wallace
Mountain View	Eagle	E. M. Burt	Portland, Ore.
Nellie Potter	Eagle	David Goodman	Murray
Ninety Seven	Hunter	H. Thompson	Wallace
Old Timber	Eagle	Louis Feldman	Murray
Olympia	Lelande	A. G. Kerns Est.	Wallace
Omaha Group	Lelande	August Paulsen Est.	Spokane, Wash.
Ostrog Gr.	Yreka	N. Petrinovich	Wardner
Paradox	Summit	Charles Nordquist	Murray
Paymaster	Yreka	Jas. E. Hoskins	Kellogg
Pilot Group	Eagle	J. D. Stoltman	Murray
Prudent	Summit	P. R. Kimball	Murray
St. Joe	Evolution	C. M. Patterson	Wallace
Sargent	Evolution	Mrs. Charles Sargeant	Osburn
Seward Camp	Eagle	James R. Wood	Murray
Sherlock Group	St. Joe	Frank M. Rose	Wallace
Shipka	Eagle	Godfrey Kohl	Murray
Silver Reef	Yreka	Herman J. Rossi	Wallace
Silver Star	Beaver	E. R. Oxley	Murray
Slim Show	St. Joe	Nels Dahlberg	Iron Mt., Mont.
Spokane Gr.	Yreka	Robt. F. Schneider	Kellogg
Sunset Group	Beaver	W. A. Clark Co.	Butte, Mont.
Tam O'Shanter	Evolution	David C. Coates	Spokane, Wash.
Toledo Group	Lelande	M. J. Farrell	Burke
Tommy Hawk	Yreka	Alex Vouchard	Kellogg
Troy Group	Hunter	L. E. Hanley	Wallace
Victor	Lelande	A. D. Marshall	Wallace
Vindicator Group	Yreka	Charles Kaufman	Kellogg
Virgo et al.	Evolution	Sigurd Thorkelson	Wallace
Waddell Group	Summit	Frank Hall	Murray
Wallace Group	Evolution	Jos. Peila	Wallace
Whipsaw Placer	St. Joe	Frank A. Heller	Bonners Ferry
Wild & Wooley	Beaver	J. A. Prichard	Prichard
Williams Gr.	Evolution	Jesse Freeman	Wallace
Winnie	Eagle	W. M. Smith	Murray
Yankee Group	Evolution	Dennis Blake	Kellogg

BIBLIOGRAPHY

See pages 11-12 for publisher's address, meaning of reference marks, and abbreviations.

The Coeur d'Alene silver-lead mines, by J. C. Clayton: Eng. and Min. Jour., vol. 45, pp. 108-109, Feb. 11, **1888.**§

Bitterroot Forest Reserve, by R. U. Goode: Nat. Geog. Mag., vol. 9, pp. 387-400, **1898.**§

Coeur d'Alene mining region by W. C. Clarke: Mines and Minerals, vol. 20, pp. 561-562, July, **1900.***

Survey of the boundary line between Idaho and Montana from the international boundary to the crest of the Bitterroot Mountains, by R. U. Goode: U. S. Geol. Survey Bull. 170, **1900.**‡

Coeur d'Alene mining region, by Arthur Lakes: Mines and Minerals, vol. 20, pp. 303-304, February, **1900.***

Ore deposits of Yreka district, Idaho, by E. McCormick: Eng. and Min. Jour., vol. 69, p. 404, Apr. 7, **1900.**§

Geology and water resources of Nez Perce County, Idaho, by I. C. Russell: U. S. Geol. Survey Water-Supply Papers 53 and 54, **1901.**‡*

Mining and milling in the Coeur d'Alene, Idaho, by J. R. Finlay: Eng. and Min. Jour., vol. 75, p. 87, Jan. 10, **1903.**§

Mining industry of the Coeur d'Alene, by J. R. Finlay: Trans. Am. Inst. Min. Eng., vol. 33, pp. 235-271, **1903**§; Mines and Minerals, vol. 24, p. 497, May, **1904.***

A geological reconnaissance across the Bitterroot Range and Clearwater Mountains in Montana and Idaho, by Waldemar Lindgren: U. S. Geol. Survey Prof. Paper 27, pp. 108-111, **1904.***

Economic features of northern Idaho and northwestern Montana, by D. F. MacDonald: U. S. Geol. Survey Bull. 285, pp. 41-52, **1905.***

Coeur d'Alene district, by F. L. Ransome: Min. Mag., vol. 12, pp. 26-32, July, **1905.***

Ore deposits of the Coeur d'Alene district, Idaho, by F. L. Ransome: U. S. Geol. Survey Bull. 260, pp. 274-303, **1905.***

Ore deposits in the St. Joe River Basin, Idaho, by A. J. Collier: U. S. Geol. Survey Bull. 285, pp. 129-139, **1905.***

The Coeur d'Alene in 1905, by S. A. Easton: Eng. and Min. Jour., vol. 81, p. 11, Jan. 6, **1906.**§

The Murray gold belt, Idaho, by T. L. Lammers: Min. and Sci. Press, vol. 94, pp. 636-637, May 18, **1907.***

The north side of the Coeur d'Alene district, by H. S. Auerbach: Eng. and Min. Jour., vol. 86, pp. 65-70, July 11, **1908.**§

Tungsten ore deposits of the Coeur d'Alene, by H. S. Auerbach: Eng. and Min. Jour., vol. 86, pp. 1146-1148, Dec. 12, **1908.**§

The relation between certain ore-bearing veins and gangue fissures, by F. L. Ransome: Econ. Geology, vol. 3, pp. 331-337, June-July, **1908.**§

The geology and ore deposits of the Coeur d'Alene district, Idaho, by F. L. Ransome and F. C. Calkins: U. S. Geol. Survey Prof. Paper 62, **1908.***

Coeur d'Alene mining district, by J. P. Rowe: Min. World, vol. 29, pp. 739-740, Nov. 14, **1908**; vol. 29, pp. 777-778, Nov. 21, **1908**; vol. 29, pp. 843-845, Dec. 5, **1908.***

Mining in the Coeur d'Alene district, by J. P. Rowe: Mines and Minerals, vol. 28, pp. 549-551, July, **1908.***

The geology and ore deposits of the Coeur d'Alene district, by F. L. Ransome and F. C. Calkins, reviewed by E. R. Buckley: Econ. Geology, vol. 4, pp. 178-186, **1909.**§

Geology and ore deposits of the Coeur d'Alene, by F. C. Calkins, discussion of review by E. R. Buckley: Econ. Geology, vol. 4, pp. 258-261, April, **1909.**§

Microstructure of a complex ore from Frisco mine, by William Campbell: Eng. and Min. Jour., vol. 87, pp. 260-261, Jan. 30, **1909.**§

A geological reconnaissance in northern Idaho and northwestern Montana, by F. C. Calkins, with notes on the economic geology by D. F. MacDonald: U. S. Geol. Survey Bull. 384, **1909.***

Notes on geology of Snowstorm mine, Idaho, by George Huston: Eng. and Min. Jour., vol. 90, pp. 1109-1110, Dec. 3, **1910.**§

Geology and mineralization of the upper St. Joe River Basin, Idaho, by J. T. Pardee: U. S. Geol. Survey Bull. 470, pp. 39-61, **1910.***

Geology of the St. Joe-Clearwater region, Idaho, by F. C. Calkins and E. L. Jones, Jr.: U. S. Geol. Survey Bull. 530, pp. 75-86, **1911.***

Economic geology of the region around Mullan, Idaho, and Saltese, Montana, by F. C. Calkins and E. L. Jones, Jr.: U. S. Geol. Survey Bull. 540, pp. 167-211, **1912.***

Genesis of the silver-lead ores in the Wardner district, Idaho, by O. H. Hershey: Min. and Sci. Press, vol. 104, June 1, pp. 750-753; June 8, pp. 786-790; June 15, pp. 825-827, **1912.** (Published later as a pamphlet by Min. and Sci. Press.)**

Reply to Hershey's paper on Wardner district, by F. L. Ransome: Min. and Sci. Press, vol. 105, pp. 143-144, Aug. 3, **1912.***

The Coeur d'Alene mining district, by F. R. Ingalsbe: Eng. and Min. Jour., vol. 96, pp. 156-158, July 26, **1913.**§

Secondary enrichment in the Caledonia mine, Coeur d'Alene district, Idaho, by E. V. Shannon: Econ. Geology, vol. 8, pp. 565-570, Sept. **1913.**§

Origin of lead, zinc, and silver in the Coeur d'Alene, by O. H. Hershey: Min. and Sci. Press, vol. 107, Sept. 27 and Oct. 4, **1913.***

New developments in the Coeur d'Alene, by H. I. Ellis: Eng. and Min. Jour., vol. 100, pp. 337-340, Aug. 28, **1915.**§

The application of the apex law at Wardner, Idaho, by F. T. Greene: Trans. Am. Inst. Min. Eng., vol. 52, pp. 555-562, September, **1915.**§

The copper beds of the Coeur d'Alene, by George Huston: Min. and Sci. Press, vol. 110, pp. 145-147, Jan. 23, **1915.***

Metallurgy in the Coeur d'Alene, by H. A. Megraw: Eng. and Min. Jour., vol. 100, pp. 827-830, Nov. 20, **1915.**§

Origin and distribution of ore in the Coeur d'Alene, by O. H. Hershey, published for the author as a pamphlet by the Min. and Sci. Press, 32 pp., **1916.****

Tungsten, Murray, Idaho, Bull. 128, Amer. Inst. Min. Eng., p. 1173, **1917**: Trans. Amer. Inst. Min. Eng. 58, p. 224, **1917.**§

Genesis of the Success zinc-lead deposit, Coeur d'Alene district, Idaho, by J. B. Umpleby: Econ. Geology, vol. 12, pp. 138-153, Feb.-March, **1917.**§

Flotation in the Coeur d'Alene, by C. T. Rice: Eng. and Min. Jour., vol. 105, pp. 707-716, April 20, **1918.**§

Differential flotation of lead and zinc, by W. L. Ziegler: Eng. and Min. Jour., vol. 105, pp. 741-742, April 20, **1918.**§

Recovering caved stopes in narrow veins, by C. T. Rice: Eng. and Min. Jour., vol. 105, pp. 1069-1075, June 15; vol. 106, pp. 1-7, July 6; vol. 106, pp. 243-248, Aug. 10, **1918.** (Hecla mine.)§

Differential flotation at Wallace, by C. T. Rice: Eng. and Min. Jour., vol. 106, p. 482, Sept. 14, **1918.**§

Driving and timbering transfer chutes, by C. T. Rice: Eng. and Min. Jour., vol. 106, pp. 881-993, Dec. 7, **1918.** (Hecla mine.)§

The mining districts of northern Idaho, by E. K. Soper: Min. and Sci. Press, vol. 116, pp. 122-124, **1918.***

Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****

A reconnaissance of the Pine Creek district, Idaho, by E. L. Jones, Jr.: U. S. Geol. Survey Bull. 710, pp. 1-36, **1919.**‡

Linarite and leadhillite from Idaho, by E. V. Shannon: Am. Mineralogist, vol. 4, No. 8, pp. 93-94, August, **1919.**§

A preliminary report on the clays of Idaho, by F. H. Skeels: Idaho Bureau of Mines and Geology Bull. 2, **1920.****

The Bunker Hill Enterprise, by T. A. Rickard: Min. and Sci. Press, vol. 120, Jan. 3, Jan. 10, Jan. 24, Feb. 7, Feb. 21, March 6, April 3, April 10, May 15, and May 29, **1920**; vol. 121, Aug. 14, Sept. 4, Sept. 18, **1920.** Also issued in pamphlet form.*

Petrography of some lamprophyric dike rocks of the Coeur d'Alene mining district, Idaho, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 57, pp. 475-495, Sept. 2, **1920.**‡

The Bunker Hill Smelter, by T. A. Rickard: Min. and Sci. Press, vol. 122, Jan. 8, **1921.***

Coeur d'Alene Lake, Idaho, and the overflow lands, by R. W. Davenport: U. S. Geol. Survey Water-Supply Paper 500, **1921.***

Mining methods of Hecla Mining Co., by J. F. McCarthy and C. H. Foreman: Mining & Metallurgy, vol. 4, No. 195, March, **1923**; Trans. Am. Inst. Min. Eng., vol. 72, pp. 319-340, **1925.**§

Mining methods at Bunker Hill & Sullivan mines, by H. M. Childs and S. A. Easton: Mining & Metallurgy, vol. 4, No. 195, March, **1923**; Trans. Am. Inst. Min. Eng., vol. 72, pp. 305-318, **1925.**§

Geology and ore deposits of Shoshone County, Idaho, by J. B. Umpleby and E. L. Jones, Jr.: U. S. Geol. Survey Bull. 732, **1923.**‡

Summary of Hecla reconstruction, by E. L. Wood: Mining & Metallurgy, vol. 5, No. 210, June, **1924.**§

Reconstruction methods at the Hecla mine, by A. C. Stevenson: Mining & Metallurgy, vol. 5, No. 210, June, **1924.**§
History of the Hecla mine, Burke, Idaho, by J. F. McCarthy: Mining & Metallurgy, vol. 5, No. 210, June, **1924.**§
Hindered settling classification in relation to table concentration of Idaho lead-zinc ores, by A. W. Fahrenwald: U. S. Bureau of Mines, Reports of Investigation, Serial No. 2618, June, **1924.****
The Osburn fault, Idaho, by J. B. Umpleby: Jour. Geology, vol. 32, No. 7, Oct.-Nov., **1924.**§
The Bunker Hill smelter, by F. M. Smith: Mining Truth, vol. 9, pp. 2-4, Dec. 1, **1924.**§
Notes on western lead smelters, by A. B. Parsons: Eng. and Min. Jour., vol. 119, pp. 876-883, May 30, **1925.** (Bunker Hill smelter.)§
Deformation in ores, Coeur d'Alene district, Idaho, by W. A. Waldschmidt: Econ. Geology, vol. 20, pp. 573-586, Sept.-Oct., **1925.**§
Big silver-lead producer in Idaho (Hecla mine), by W. E. Carr: Compressed Air Mag., vol. 30, pp. 1375-1379, Sept. **1925.**§
Mining methods of the Morning mines, by Frederick Burbidge: Trans. Am. Inst. Min. Eng., vol. 72, pp. 341-344, **1925.**§
Bunker Hill & Sullivan M. & C. Co.'s South mill, by R. S. Handy: Twenty-seventh Ann. Rept. Min. Industry of Idaho, **1925.****
Hecla Mining Company's mill, by W. L. Zeigler: Twenty-seventh Ann. Rept. Min. Industry of Idaho, **1925.****
Tamarack & Custer Cons. Min. Co.'s mill: Twenty-seventh Ann. Rept. Min. Industry of Idaho, **1925.****
Gold Hunter Mines, Inc., mill, by J. E. Quinlan: Twenty-seventh Ann. Rept. Min. Industry of Idaho, **1925.****
Federal Mining & Smelting Co., Morning mill: Twenty-seventh Ann. Rept. Min. Industry of Idaho, **1925.****
Constitution M. & M. Co.'s mill, by W. P. White: Twenty-seventh Ann. Rept. Min. Industry of Idaho, **1925.****
Federal Mining & Smelting Co., Page mill, by H. G. Washburn: Twenty-eighth Ann. Rept. Min. Industry of Idaho, **1926.****
Callahan Zinc-Lead Co., Galena mill: Twenty-eighth Ann. Rept. Min. Industry of Idaho, **1926.****
Concentrating lead-silver ore at Hecla mine, by W. L. Zeigler: Eng. & Min. Journal, vol. 122, pp. 444-450, Sept. 18, **1926.**§
The conduct and value of mine rescue stations, by K. T. Sparks: Min. Con. Journal, vol. 12, No. 6, pp. 452-456, June, **1926.**§
Solving a problem in silver-lead ore concentration (Wardner), by E. W. Ellis: Eng. and Min. Jour., vol. 122, pp. 815-816, Nov. 20, **1926.**§
Some Coeur d'Alene geology, by J. E. Berg: Mining and Metallurgy, vol. 8, July, **1927.**§
Operating methods at the Morning mine, by C. E. Wethered and S. H. Fairweather: Mining and Metallurgy, vol. 8, July, **1927.**§
Milling practice at Morning mill, by M. P. Dalton and G. S. Price: Mining and Metallurgy, vol. 8, July, **1927.**§
The Hecla flotation plant, by W. L. Ziegler: Mining and Metallurgy, vol. 8, Aug., **1927.**§
Concreting the Morning shaft, by J. H. Johnson: Eng. and Min. Jour., vol. 124, pp. 285-288, Aug. 20, **1927.**§
Galena flotation concentrator, Lake Gulch, Idaho, by W. L. Ziegler: Technical Publication No. 8-B.7, Amer. Inst. Min. Eng., Aug., **1927.**§
Flotation practice in the Coeur d'Alene district, Idaho, by A. W. Fahrenwald: Technical Publication No. 1-B.1, Amer. Inst. Min. Eng., July, **1927;** Min. Con. Journal, vol. 13, pp. 699-704, Sept., **1927.**§
Concentration of lead-silver ore at Hecla mine, Gem, Idaho, by W. L. Ziegler: Technical Publication No. 7-B.6, Amer. Inst. Min. Eng., Aug., **1927;** Min. Con. Journal, vol. 13, pp. 683-684, Sept., **1927.**§
The Federal Mining and Smelting Company Page mill, by H. G. Washburn: Min. Con. Journal, vol. 13, pp. 729-730, Sept., **1927.**§

TETON COUNTY

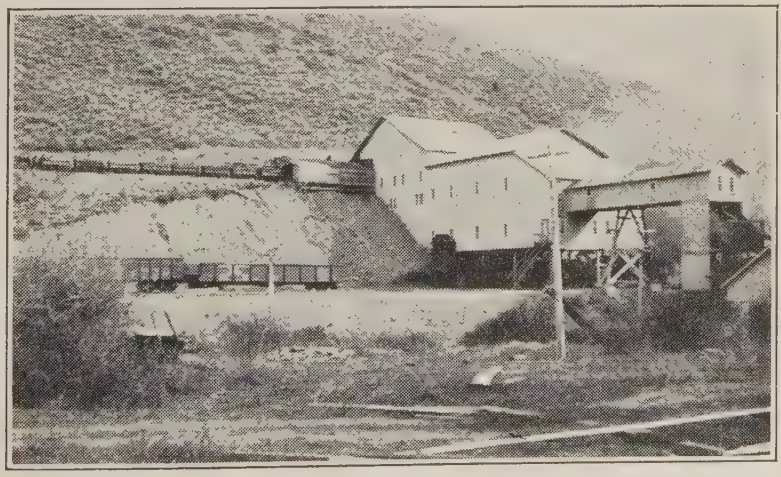
Teton is one of the southeastern counties, being bounded on the east by the State of Wyoming, on the south by Bonneville County, on the west by Madison County, and on the north by Fremont County. Containing an area of but 463 square miles, it is the second smallest county in the State. The 1920 census accredited it with a population of 3921, or 8.5 persons to the square mile, the larger part of which is located in the Teton River valley. Practically all the county is farming land, and the principal industries are wheat, potato and stockraising.

The county is served by the Teton State highway, good county roads, and the Ashton-Victor branch of the O. S. L. Railroad. Driggs is the largest town and county seat.

The principal mineral resources of Teton County are coal, phosphate rock, natural gas, limestone, and asbestos; and there are excellent possibilities for the discovery of petroleum. This county is one of the few in the State in which coal occurs in commercial quantity. Compared with the coal produced at Rock Springs, Wyoming, it is equal in quality and similar in appearance. As well as being of excellent quality for domestic and industrial purposes, it is especially adaptable for powdered coal.

The principal coal-bearing area is the Horseshoe district, seven miles west of Driggs. This district has never been sufficiently developed to prove the number or extent of the coal beds. Those which have been proved vary from one to eleven feet in thickness and repose at an angle of approximately 45 degrees. The Horseshoe district has been examined by the U. S. Geological Survey and by the U. S. Bureau of Mines in cooperation with the Idaho Bureau of Mines and Geology. The reports issued by these organizations are listed in the bibliographies, to which the reader is referred for complete descriptions, analyses, and tonnage estimates.

During the year the Teton Coal Co. completed construction of its tipple; improved and enlarged its mine plant, tunnel, and camp; and produced and marketed the largest tonnage of coal which it has ever mined in any one year. The tipple consists of sizing, screening, sorting, and loading machinery, with the necessary bins; it has a capacity of 1000 tons in 24 hours. Changes in the management and the operating personnel greatly increased the efficiency of the enterprise.

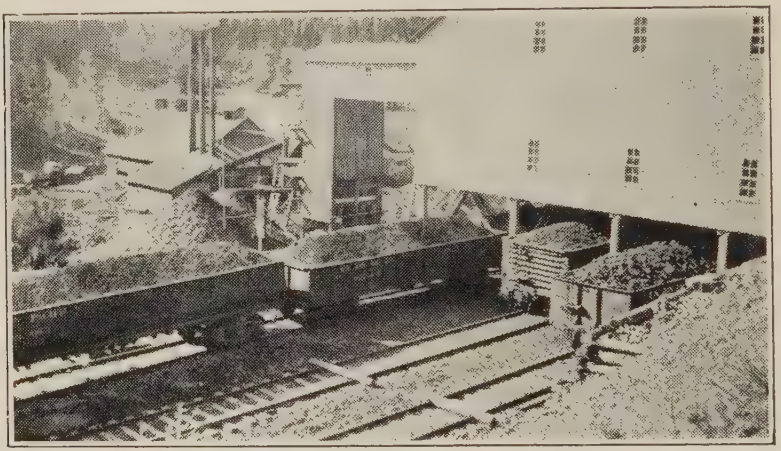


TIPPLE: TETON COAL CO.

The Superior Coal Mining Co., whose property is adjacent to that of the Teton Coal Co., conducted active development work throughout a large part of the year. This work consisted principally in driving a tunnel to intersect the Brown Bear and one other coal bed.

The Idaho Coal Mining Co., on Horseshoe Creek near the Teton Coal Co.'s property, conducted a small amount of development work throughout the year.

The Tieton Valley Land & Leasing Co., whose well reached a depth of 1325 feet in 1926, encountering a strong flow of gas, was idle throughout the year, on account of inability to finance the project to completion.



LOADING TRACKS, TETON COAL CO.'S TIPPLE

IDAHO COAL MINING CO.

Office: Driggs. **Officers:** Peter Mickelsen, Pres., Rexburg; J. F. Miller, Sec., Rigby; John R. Cluff, Mgr., Driggs. **Inc.:** Aug. 13, 1926. **Capital:** 100,000 shares; par value $1; 40,400 shares issued. **Property:** Government prospecting permit on 2160 acres, Horseshoe dist.; Sam. **Development:** By 3 tunnels: No. 1, 338 ft.; No. 2, 172 ft.; No. 3, 132 ft. **Mineral sought:** Coal. **Men employed:** Average, 2. **Remarks:** Small amount of development work during the year.

SUPERIOR COAL MINING CO.

Office: Pocatello. **Officers:** Roy L. Black, Vice-Pres.; S. Hansen, Sec., both of Pocatello. **Inc.:** Dec. 24, 1924. **Capital:** 1,000,000 shares; par value $1; 225,000 shares issued. **Property:** Assignment of prospecting permits and applications for lease on 2400 acres; Horseshoe dist.; Sam. **Development:** By 8 short tunnels, the longest being 200 ft.. all of which are drifts on coal veins; and an inclined shaft 158 ft. long. **Plant:** Steam-driven hoist. **Mineral sought:** Coal. **Men employed:** Average, 6. **Remarks:** This company's property adjoins that of the Teton Coal Co. Active development work, which consisted principally in driving a tunnel to intersect the Brown Bear and one other coal bed, was conducted throughout the greater part of the year.

TETON COAL CO.

Office: Sam. **Officers:** H. F. Samuels, Pres.; J. B. Forrester, Sec.-Mgr., both of Sam. **Inc.:** Oct. 3, 1923. **Capital:** 1,000,000 shares; no par value; 825,000 shares issued. **Property:** Brown Bear group; 1080 acres patented land, Horseshoe dist.; Sam. **Development:** By an inclined shaft 640 ft. long and a 5400-ft. crosscut tunnel. Total development, approximately 16,000 ft. **Plant:** Steam-driven hoist and 2 steam-driven compressors; tipple capable of handling 1000 tons in 24 hrs.; complete mining equip-

ment and camp. **Mineral sought:** Coal. **Men employed:** Average, 50. **Remarks:** During the year this company completed construction of its tipple; improved and enlarged its mine plant, tunnel, and camp; and produced and marketed the largest tonnage of coal which it has ever mined in any one year. The tipple consists of sizing, screening, sorting, and loading machinery, with the necessary bins; it has a capacity of 1000 tons in 24 hours. Changes in the management and the operating personnel greatly increased the efficiency of the enterprise.

TIETON VALLEY LAND & LEASING CO.

Office: Astoria, Ore. **Officers:** S. W. Lovell, Pres.; Charles Anet, Sec., both of Astoria, Ore.; F. J. Johnston, Mgr., Driggs. **Inc.:** Aug. 11, 1923. **Capital:** 100,000 shares; par value $1; 85,000 shares issued. **Property:** Oil and gas lease on 6000 acres of patented land lying west of Driggs. **Development:** 1325-ft. well. **Plant:** No. 26 Star drilling rig and complete drilling equipment. **Mineral sought:** Oil and gas. **Remarks:** Idle.

BIBLIOGRAPHY

See pages 11-12 for publisher's address, meaning of reference marks, and abbreviations.

A reconnaissance of the phosphate deposits in western Wyoming, by Eliot Blackwelder: U. S. Geol. Survey Bull. 470, pp. 452-481, **1910.***

The Horseshoe Creek district of the Teton Basin coal field, by E. G. Woodruff: U. S. Geol. Survey Bull. 541, pp. 379-388, **1912.***

A geological reconnaissance for phosphate and coal in southeastern Idaho and western Wyoming, by A. R. Schultz: U. S. Geol. Survey Bull. 680, **1918.**‡

A preliminary report on the mining districts of Idaho, by Thomas Varley and others: U. S. Bureau of Mines Bull. 166, pp. 90-103, **1919.**‡

Oil shale in western Montana, southeastern Idaho, and adjacent parts of Wyoming and Utah, by D. D. Condit: U. S. Geol. Survey Bull. 711, pp. 15-40, **1920.**‡

Coal in eastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 716, **1920.**‡

Petroleum possibilities of certain anticlines in southeastern Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Bull. 4, **1922.***

The Horseshoe Basin area of the Teton coal field in southeastern Idaho, by G. W. Evans: Idaho Bureau of Mines and Geology Pamphlet 10, **1924.***

VALLEY COUNTY

Valley County occupies the geographical center of the State. It is bounded on the north by Idaho, on the east by Lemhi and Custer, on the south by Boise, and on the west by Gem and Adams counties. It contains an area of 3779 square miles, and was accredited with a population of 2524 in the 1920 census, or 0.7 persons to the square mile. The principal industries are farming, stockraising, lumbering and mining. Cascade is the county seat.

The State highway, Payette, extending from Boise to Cascade, McCall, and New Meadows, is the principal highway; the Forest Service highways from Cascade to Knox and Yellow Pine, and from Knox into Deadwood Basin and Bear Valley, connecting with the Sawtooth Park and Payette highways, are practically completed and opened to travel. The Nampa-McCall branch of the O. S. L. Railroad is the only railroad in the county.

Isolation and lack of transportation have prevented mineral development and compelled many valuable properties to lie idle, but the system of forest roads which has been designated and partly constructed, is making many of the various sections accessible to travel, and is stimulating mining. When these roads are completed the largest undeveloped mineralized area in the State will become available to profitable development and exploitation.

The principal mineral resources of Valley County are gold (placer and lode), lead, silver, zinc, antimony, mercury, copper, tungsten, molybdenum, and monazite. Many mines containing these minerals are undeveloped but justify the finances to prove their possibilities, and many others warrant investigation. These properties and the possibilities in undiscovered veins present many opportunities to the investor, prospector, and development company.

One of the outstanding disclosures of new ore in 1926 was made in this county by the Bunker Hill & Sullivan Mining & Concentrating Co. at the Hall-Interstate mine in Deadwood Basin. The exposures were in a long crosscut tunnel which intersected the vein approximately 600 feet below the outcrop. At the point of intersection the vein was determined to be approximately 50 feet wide, throughout the largest part of which the ore was of commercial grade. During 1927 this ore was sufficiently explored to warrant building a mill, and construction work was started on a 100-ton flotation concentrator and a 250-horsepower hydroelectric power plant. In addition to this large construction program, new camp buildings were erected: and mine development work, consisting principally of a 700-foot raise to connect the lower and upper tunnels, was maintained. As the Hall-Interstate vein occurs in granite or allied rocks, this enterprise is of value to the State, as it is stimulating prospecting and encouraging the investment of capital for the development of the many similar occurrences which are found throughout the granite area of central Idaho. In past years, this area has been looked upon with disfavor, but this demonstration fully proves the potentialities of these veins.

One of the largest and most important new enterprises started in the State during the year was that of Fred W. Bradley, president of the Bunker Hill & Sullivan M. & C. Co., as the Yellow Pine Syndicate. This company acquired the Meadow Creek and Cinnabar groups owned by the United Mercury Mines Co. The mine camps at each group were enlarged and improved; a new camp was constructed on the Meadow Creek group; and an active development campaign was inaugurated. The new camp on the Meadow Creek was at a distance of 14,000 feet from the old camp and 500 feet lower in elevation. Throughout this distance the vein has been traced on the surface, and mining work at the new camp is designed to prove the vein at that point. The Meadow Creek vein is a large low-grade gold deposit about 40 feet in width. The Cinnabar group contains a large deposit of mercury ore.

The Profile Gap and Edwardsburg districts witnessed more development work by prospectors, small companies, and investigators than for many years. Two new discoveries of lead-silver ore were reported and three new companies started work; one hydraulic mining enterprise installed a small amount of new equipment.

In the Thunder Mountain district, McRae and Davis maintained active work at the Sunnyside mine throughout the year, and produced and milled a small tonnage of gold ore. An important publication issued in 1927 which is of much value in displaying the possibilities of this district is Pamphlet 25 of the Idaho Bureau of Mines and Geology (Moscow, Idaho): "Ore Deposits in the Tertiary Lava in the Salmon River Mountains, Idaho", by C. P. Ross.

BUNKER HILL & SULLIVAN MINING & CONCENTRATING CO.

(See Shoshone County.)

Officers: F. W. Bradley, Pres., 1022 Crocker Bldg., San Francisco, Calif.; Stanly A. Easton, Mgr., Kellogg; James W. Gwinn, Local Mgr., Cascade. **Property:** Lease and bond on mines owned by Hall Interstate Mining Co., and Lost Pilgrim Mining Co., Deadwood dist.; Cascade, 52 miles; Bernard. **Development:** Approximately 7000 ft. on both groups. **Plant:** 150-kw. hydroelectric power plant operating under a 510-ft. head; 385-cu-ft. I-R compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 40.

REMARKS

The properties controlled by this company were acquired in May, 1924, after many months of negotiation; immediately thereafter arrangements were completed for the construction of the necessary buildings and the installation of the equipment.

A large two-story boarding-house, a power-house, shop, barn, and outbuildings were built. The power plant was constructed, and the compressor and mining equipment were installed; mining operations were commenced on Oct. 24, 1924, and conducted without interruption throughout 1927.

The development campaign outlined consisted of extending the Independence tunnel, of the Hall group, a distance of 1500 ft., where it intersected the Hall vein at a vertical depth of approximately 600 ft. below the apex. During 1927 this ore was sufficiently explored to warrant building a mill, and construction work was started on a 100-ton flotation concentrator and a 250-h. p. hydroelectric power plant. In addition to this large construction program, new camp buildings were erected; and mine development work, consisting principally of a 700-ft. raise to connect the lower and upper tunnels, was maintained.

CASCADE VALLEY CORPORATION

Office: Fulton Nat'l Bank Bldg., Atlanta, Ga. **Officers:** N. S. Turner, Pres., Covington, Ga.; Ronald Ransom, Sec., Atlanta, Ga. **Inc.:** Apr. 27, 1925. **Capital:** 600 shares; par value $100; all shares issued. **Property:** Sunday group; 7 patented claims, Edwardsburg dist.; Edwardsburg.

DEADWOOD MINING CO., LTD.

Office: Boise. **Officers:** Jas. H. Hawley, Pres.; C. B. Steunenberg, Sec., both of Boise. **Inc.:** June 10, 1921. **Capital:** 1,000,000 shares; par value 10c; 307,504 shares issued. **Property:** Deadwood group; 8 unpatented claims, Deadwood dist.; Knox. **Development:** Principally by 1 tunnel, 600 ft. long. **Ore:** Lead-silver. **Remarks:** A small amount of development work during the year.

GOLD FORK MINING CO.

Office: 218 N. Eighth St., Boise. **Officers:** W. E. Pierce, Pres.; W. Clyde Cox, Sec., both of Boise. **Inc.:** Jan. 18, 1916. **Capital:** 2000 shares; par value $100; all shares issued. **Property:** 1520 acres patented placer ground, Gold Fork dist.; Roseberry. **Ore:** Placer gold. **Remarks:** Idle throughout the year.

GREAT NORTHERN MINES CO.

Officers: Albert Hennessy, Pres., Yellow Pine. **Inc.:** Feb. 7, 1924. **Capital:** 100,000 shares; par value $1; all shares issued. **Property:** 11 unpatented claims, Yellow Pine dist.; Yellow Pine. **Development:** By 2 short tunnels. **Ore:** Gold. **Remarks:** Developed throughout the year by the president.

HALL INTERSTATE MINING CO.

Office: Boise. **Officers:** Jas. H. Hawley, Pres.; Chas. W. Mack, Sec., both of Boise. **Inc.:** Oct. 30, 1915. **Capital:** 1,000,000 shares; par value 25c; 155,500 shares issued. **Property:** Hall group; 5 unpatented claims, Deadwood dist.; Knox. **Development:** By 2 tunnels: Independence, 6000 ft. long; Anderson, 300 ft. long. **Ore:** Lead-silver. **Remarks:** Under lease and option to Bunker Hill & Sullivan M. & C. Co.

HOLCOMB CO., LTD.

Office: Boise. **Officers:** Ario Pardee, Sec., 1600 Walnut St., Philadelphia; Chas. W. Mack, Mgr., Boise. **Inc.:** Apr. 20, 1908. **Capital:** 500,000 shares; par value $1; 169,280 shares issued. **Property:** 16 patented claims, Thunder Mountain dist.; Yellow Pine. **Ore:** Gold.

HURLEY CREEK MINING & MILLING CO.

Office: Cascade. **Officers:** Chas. C. Smith, Pres., Smiths Ferry; Forest E. Robb, Sec., Cascade. **Inc.:** Aug. 21, 1923. **Capital:** 1,000,000 shares; par value 10c; 628,676 shares issued. **Property:** Maloney group; 10 unpatented claims, unorganized dist.; Cabarton. **Development:** By 3 tunnels: No. 1, 450 ft. long; No. 2, 200 ft. long; No. 3, 780 ft. long. **Ore:** Silver-gold-copper. **Men employed:** Average, 2. **Remarks:** This company is operating the Maloney group and actively developed the property during the greater part of the year.

IDAHO CENTRAL MINES CO.

Office: Mabton, Wash. **Officers:** A. L. Livingston, Pres.; H. S. Whiting, Sec., both of Mabton, Wash.; J. R. Butler, Mgr., Clover. **Inc.:** May 12, 1927. **Capital:** 3,000,000 shares; par value $1; 1,550,010 shares issued. **Property:** Idaho Central group; 5 unpatented claims, Thunder Mountain dist.; Clover. **Development:** By 2 short tunnels. **Ore:** Copper-gold. **Remarks:** Small amount of work during the summer months.

INDEPENDENCE MINES & POWER CO.
Office: Topeka, Kan. **Officers:** W. H. Davis, Pres.; L. Biscoe, Sec., both of Topeka, Kan. **Inc.:** Apr. 27, 1906. **Capital:** 500,000 shares; par value 5c; 250,000 shares issued. **Property:** 10 patented claims, Big Creek dist.; Yellow Pine. **Development:** By 1 tunnel 500 ft. long. **Ore:** Copper-silver-gold. **Remarks:** Idle for many years.

IRON CLAD MINING & MILLING CO.
Office: Caldwell. **Officers:** Dr. W. M. Munsell, Pres., Grandview, Wash.; H. C. Heise, Sec., Mabton, Wash.; Jesse R. Butler, Mgr., Clover. **Inc.:** Apr. 9, 1924. **Capital:** 200,000 shares; par value $1; 160,000 shares issued. **Property:** Iron Clad group; 5 unpatented claims, Thunder Mountain dist.; Clover. **Plant:** 5-stamp mill. **Ore:** Gold-silver-copper. **Remarks:** A small amount of development work performed during the year.

LOST PILGRIM MINING CO.
Office: Boise. **Officers:** Jas. H. Hawley, Pres.; Chas. W. Mack, Sec., both of Boise. **Inc.:** Nov. 22, 1921. **Capital:** 600,000 shares; par value $1; 355,144 shares issued. **Property:** Lost Pilgrim group; 8 unpatented claims, Deadwood dist.; Knox. **Development:** By 2 tunnels: No. 1, 400 ft. long; No. 2, 300 ft. long; and 1 vertical shaft 40 ft. deep, at the bottom of which is a 70-ft. drift on the vein. Total development, approximately 1500 ft. **Ore:** Silver. **Remarks:** Under lease and option to Bunker Hill & Sullivan M. & C. Co.

MERRY BLUE MINING CO.
Office: Idanha Hotel, Boise. **Inc.:** A partnership consisting of Thomas McMillan and Henry Vernon, both of Boise. **Property:** Merry Blue group; 8 unpatented claims, Deadwood dist.; Lowman. **Development:** Principally by 2 tunnels: Merry Blue, 500 ft. long; Fourth of July, 900 ft. long. **Plant:** MINE: Steam-driven compressor; complete mining equipment, and sawmill. MILL: Steam-driven amalgamation mill. **Ore:** Gold. **Men employed:** Average, 2. **Remarks:** Active development work throughout the summer months.

PROFILE-TAMARACK MINES CO.
Office: Yellow Pine. **Officers:** H. T. Abstein, Pres.-Mgr., Yellow Pine; Emil P. Slovarp, Sec., Henry Bldg., Portland, Ore. **Inc.:** June 18, 1926. **Capital:** 20,000 shares; no par value; 10,300 shares issued. **Property:** 27 unpatented claims, Missouri and Profile creeks, Yellow Pine dist.; Yellow Pine. **Development:** Approximately 860 ft. of workings on both groups. **Ore:** Lead-silver, copper-gold. **Men employed:** Average, 3. **Remarks:** Active development work throughout the summer months.

PROSPECTORS MINING & DEVELOPING CO., LTD.
Office: Yellow Pine. **Officers:** H. T. Abstein, Pres.-Mgr., Yellow Pine; Homer I. Clark, Sec.-Mgr., Kuna. **Inc.:** Apr. 12, 1906. **Capital:** 50,000 shares; par value $1; 27,725 shares issued. **Property:** Golden Ibex group; on Wilson Creek, Thunder Mountain dist.; Meyers Cove. **Development:** Approximately 525 ft. of workings, the principal one of which is a tunnel 125 ft. long. **Ore:** Gold. **Men employed:** Average, 1. **Remarks:** Annual labor only.

RETALLAC MINING CO.
Office: 695 Multnomah St., Portland, Ore. **Officers:** Fenton Merrill, Pres., P. O. Box 1221, Seattle, Wash.; Paul DeHaas, Sec., Portland, Ore. **Inc.:** Unknown. **Capital:** 5000 shares; par value $1; all shares issued. **Property:** 2 unpatented claims, Yellow Pine dist.; Yellow Pine. **Ore:** Gold. **Remarks:** Annual labor only.

SMITH CREEK HYDRAULIC MINING CO.
Office: 311 McCarty Bldg., Boise. **Officers:** J. K. Burns, Pres.-Mgr.; H. M. Nelson, Sec., both of Boise. **Inc.:** Common-law trust. **Capital:** 200,000 shares; par value $1; 161,027 shares issued. **Property:** Smith Creek group; 20 unpatented placer claims, Edwardsburg dist.; Edwardsburg. **Ore:** Placer gold. **Men employed:** Average, 4. **Remarks:** Hydraulic equipment installed and a small amount of work during the year, which consisted principally of ditch and road construction.

UNITED MERCURY MINES CO.

Office: 605 Eastman Bldg., Boise. **Officers:** J. J. Oberbillig, Pres.-Mgr.; J. F. Koelsch, Sec., both of Boise. **Inc.:** Jan. 20, 1921. **Capital:** 5,000,000 shares; par value 10c; 4,340,491 shares issued. **Property:** 11 patented, 193 unpatented claims, consisting of 3 groups: Hermes, principal ore, cinnabar; Meadow Creek, principal ore, gold; Babbitt Metal, principal ore, antimony; Yellow Pine dist.; Yellow Pine. **Development:** Total development, approximately 10,000 ft. on all groups, consisting principally of No. 1 tunnel, 900 ft. long; No. 2 tunnel, 2700 ft. long, on Cinnabar group, and 1 tunnel 1700 ft. long on Meadow Creek group. **Plant:** A 6-cylindrical tube retort. **Ore:** Mercury, gold, silver, lead, and antimony. **Remarks:** Cinnabar and Meadow Creek groups under option to Yellow Pine Syndicate, which see. Annual labor only on Babbitt Metal group.

VENABLE GROUP

Owner: J. M. Venable, Boise. **Property:** Venable group; 3 unpatented claims adjoining the Sunnyside mine, Thunder Mountain dist.; Cascade. **Development:** Principally by a crosscut tunnel 840 ft. long, in which is a 150-ft. drift on the vein. **Ore:** Gold. **Remarks:** Annual labor only. The owner reports a good showing of low-grade gold ore.

WEST MOUNTAIN MINING CO.

Office: 314 Yates Bldg., Boise. **Officers:** John Alden, Pres.; H. A. Alden, Sec., both of Boise. **Inc.:** Mar. 8, 1922. **Capital:** 1,000,000 shares; par value 1c; 764,619 shares issued. **Property:** Silver Bell group; 13 unpatented claims, West Mountain dist.; Cascade. **Development:** By 2 tunnels: No. 1, 40 ft. long; No. 2, 700 ft. long. **Ore:** Lead-silver-gold-zinc. **Remarks:** Annual labor only.

YELLOW PINE SYNDICATE

Office: 1022 Crocker Bldg., San Francisco, Calif. **Officers:** Fred W. Bradley, Pres.; E. A. Griffin, Sec.; Clifford G. Dennis, Mgr., all of San Francisco; J. A. White, Supt., Yellow Pine. **Inc.:** An association. **Property:** Lease and option on Cinnabar group, 116 claims, and Meadow Creek group, 84 claims, owned by United Mercury Mines Co. **Ore:** Mercury, gold-silver. **Men employed:** Average, 30. **Remarks:** One of the largest and most important new enterprises started in the State during the year was that of this company. The mine camps at each group were enlarged and improved; a new camp was constructed on the Meadow Creek group; and an active development campaign was inaugurated. The new camp on the Meadow Creek was a distance of 14,000 ft. from the old camp and 500 ft. lower in elevation. Throughout this distance the vein has been traced on the surface, and mining work at the new camp is designed to prove the vein at that point. The Meadow Creek vein is a large low-grade gold deposit about 40 ft. in width. The Cinnabar group contains a large deposit of mercury ore.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Antimony Gr.	Yellow Pine	Albert Henessy	Cascade
Baker Pl.	Deadwood	Wm. Baker	Cascade
Boyle Gr.	Yellow Pine	Cy Boyle	Yellow Pine
Buckeye et al.	Edwardsburg	Wm. Mitchell	Meyers Cove
Call Gr.	Yellow Pine	Ray Call	Yellow Pine
Copper King	Yellow Pine	Crosby Brewer	Warren
Crater Lake	Yellow Pine	Wm. Lockpitch	Yellow Pine
Dewey	Thunder Mt.	R. A. Davis, Jr.	Nampa
Ellis Gr.	Deadwood	Jas. Ellis	Knox
Gold Fork Meadows Gr.	Unknown	W. H. Shane	Emmett
Gold Reef	Deadwood	Edw. Moran	Knox
Gold Ridge et al.	Yellow Pine	H. B. Abstein	Yellow Pine
Golden Gate Gr.	Yellow Pine	Mark Campbell	Yellow Pine
Golden Way Gr.	Big Creek	Geo. W. Laufer	Yellow Pine
Hard Rock Gr.	Deadwood	Clay Kalfus	Knox
Independence	Edwardsburg	J. B. Eldridge	Boise

NAME OF MINE	MINING DIST.	OWNER	OWNER
Jensen Gr.	Edwardsburg	Jensen Bros.	Clover
Keystone Gr.	Deadwood	Mitchell Jeannott	Pioneerville
Lake City Pl.	Lake City	Jacob Storer	McCall
Link	Deadwood	Bedan Davis	Cascade
Lucky Strike	Hurdy Cr.	D. J. Cain	Cascade
Ludwig Gr.	Edwardsburg	Anthony Ludwig	Edwardsburg
Maxwelton	Yellow Pine	Boyle & Holum	Yellow Pine
Monument	Yellow Pine	A. C. Behne	Yellow Pine
----------	Edwardsburg	Mattie Mahan	Clover
Pathfinder Gr.	Profile	Crosby Brewer	Warren
Profile Gap Gr.	Profile	Sam Wilson	Yellow Pine
Ramey Ridge	Edwardsburg	James Hand	Clover
Red Metal	Profile	Chas. Ellison Est.	Yellow Pine
Rubarbe Pl.	Yellow Pine	Vernon White	Yellow Pine
Ruby Hill	Lake City	L. L. Alsager	Emmett
Silver Blossom Gr.	Unknown	E. T. Horine	Cascade
Silver Shield	Hurdy Cr.	Charles Hardin	Cabarton
Smith Cr. Gr.	Edwardsburg	John Routsen	Warren
Snow Shoe	Big Creek	Jacob Jensen	Clover
Sparkling Spgs. Gr.	Unorganized	O. D. Bradbury	Yellow Pine
Stadium	Yellow Pine	Kennedy and Elliott	Yellow Pine
Sunday et al.	Edwardsburg	Wm. A. Edwards	Yellow Pine
Sunnyside	Thunder Mt.	Dan McRae	McCall
Taylor Ramby 1, 2, 3	Deadwood	Harold Taylor	Cascade
Warm Spring	Unorganized	E. H. Heller	Cascade

BIBLIOGRAPHY

See pages 11-12 for publisher's address, meaning of reference marks, and abbreviations.

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey, Twentieth Ann. Rept., pt. 3, pp. 75-256, **1900.***

Thunder Mountain and Mackay, Idaho, by R. N. Bell: Min. and Sci. Press, vol. 84, p. 62, Feb. 1, **1902.***

Geology of Thunder Mountain and central Idaho, by R. N. Bell: Eng. & Min. Jour., vol. 73, pp. 791-793, June 7, **1902.**§

Facts about Thunder Mountain, by R. N. Bell: Eng. and Min. Jour., vol. 74, pp. 273-275, Aug. 30, **1902.**§

Thunder Mountain, by W. E. L'Hame: Mines and Minerals, vol. 21, p. 558, July, **1901;** and vol. 24, pp. 207-209, December, **1903.***

Central Idaho gold district, by S. P. Jellum: Northwest Min. News, vol. 3, pp. 83-91, 107-114, 134-139, **1908;** vol. 4, pp. 2-6, 31-37, 66-73, **1909.***

Big Creek gold district, Idaho, by R. N. Bell: Eng. and Min. Jour., vol. 94, pp. 891-892, Nov. 9, **1912.**§

Quicksilver and antimony discoveries in central Idaho, by R. N. Bell: Idaho Mining Dept. Bull. 1, **1918.****

Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****

Geology of the Yellow Pine cinnabar mining district, Idaho, by E. S. Larsen and D. C. Livingston: U. S. Geol. Survey Bull. 715, **1920.***

A reconnaissance in south central Idaho embracing Thunder Mountain, Big Creek, Stanley Basin, Sheep Mountain, and Seafoam districts, by J. B. Umpleby and D. C. Livingston: Idaho Bureau of Mines and Geology Bull. 3, pp. 3-12, **1920.****

Antimony and quicksilver deposits in the Yellow Pine district, Idaho, by F. C. Schrader and C. P. Ross: U. S. Geol. Survey Bull. 780, pp. 137-167, **1926.**‡

Ore deposits in Tertiary lava in the Salmon River Mountains, Idaho, by C. P. Ross: Idaho Bureau of Mines and Geology, Pamphlet 25, **1927.****

WASHINGTON COUNTY

Washington is one of the southwestern counties, adjoining and lying north of Payette and Gem counties, east of Gem, and east and south of Adams County. The Snake River, which flows north, forms the entire western boundary. The county contains an area of 1479 square miles, and was accredited with a population of 9424 in the 1920 census. It is primarily an agricultural and stockraising community; that part which occupies the Snake River Valley is intensively cultivated, and is the location of the larger part of the population. Weiser is the county seat.

The North and South highway extends from the southern to the northern boundary and is situated about in the geographical center. Branch roads leading to all the settlements are maintained by the county; these are kept in good repair and open to travel the larger part of the year. The county is served by three railroads, the Pacific and Idaho Northern, which extends from Weiser to New Meadows; the main line of the O. S. L. Railroad, and the Huntington-Homestead, Oregon, branch of the same road.

The principal mineral resources are silver, copper, gold, lead, zinc, manganese, diatomaceous earth, pyrites, gypsum, clay, and garnet, practically all of which occur in the three mining districts—Washington, Cuddy Mountain, and Heath—the principal of which is the Washington, or Mineral, district. At one time the Mineral district was a large producer of silver; two blast furnaces were in operation, and the camp of Mineral was a good-sized town; but it has been deserted for many years, the smelters have been dismantled, and the district has almost reverted to its primitive condition. Nearly all the deposits are high-grade silver-copper ores, rather complex, and in some mines partly oxidized, but amenable to modern flotation methods. Many of the deposits in this district are extensive, a large tonnage of ore is available, and there appears to be no reason why the district should not be receiving more attention than it has during the past few years, as there are many properties that are worthy of investigation and development. Large deposits of pyrites and disseminated copper ore also occur in this district.

During 1927 Washington County witnessed but little improvement in mining activities over the previous year. One organization which is operating in the Cuddy Mountain district performed a small amount of work, and an organization operating at Mineral worked a few men during part of the year. One operator on Cuddy Mountain marketed a small shipment of lead-silver ore.

EDNA MAY MINES CO., INC.

Office: 1019 Grove St., Boise. **Officers:** E. W. Levander, Pres., Council; Walter Black, Sec.-Mgr., Boise. **Inc.:** Aug. 13, 1926. **Capital:** 1,200,000 shares; par value 25c; 604,625 shares issued. **Property:** 21 unpatented claims, Cuddy Mountain dist.; Council. **Development:** Principally by 1 tunnel 400 ft. long. **Ore:** Lead-silver-copper. **Men employed:** Average, 3. **Remarks:** During the year, roads were repaired and new camp buildings constructed, as those erected in 1926 were destroyed by a snowslide.

IDAHO-OREGON COAL MINING CO.

Office: 1014 N. 8th St., Boise. **Officers:** A. E. Price, Pres.-Mgr.; A. Affleck, Sec., both of Boise. **Inc.:** Nov. 5, 1920. **Capital:** 100,000 shares; par value $1; 69,000 shares issued. **Property:** Government prospecting permit on 1282 acres near Cobb Siding; Weiser. **Development:** By 1 tunnel 500 ft. long. **Mineral sought:** Coal.

SILVER STILL MINING CO.

Office: Weiser. **Officers:** John G. Still, Pres., Huntington, Ore.; E. R. Coulter, Sec., Weiser. **Inc.:** Aug. 21, 1924. **Capital:** 10,000 shares; par value $1; all shares issued. **Property:** 10 unpatented claims, Mineral dist.; Home, Ore. **Development:** 6 short tunnels, 1 shaft. **Ore:** Silver-copper. **Remarks:** A small amount of work during the year.

SNAKE RIVER GYPSUM CO.

Office: P. O. Box 1250, Boise. **Officers:** H. G. Myers, Pres.; W. G. Ash, Sec., both of Boise. **Inc.:** May 8, 1924. **Capital:** 250,000 shares; no par

value; 125,000 shares issued. **Property:** Columbine; 1 unpatented claim, unorganized dist.; Huntington, Ore. **Development:** Principally by 4 short tunnels. **Mineral sought:** Gypsum. **Remarks:** Annual labor only.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Alcorn Gr.	Cuddy Mt.	J. I. Burden	Council
Bay Horse et al.	Washington	U. S. Metals Co.	Huntington, Ore.
Black Hawk Gr.	Washington	Ladd Metal Co.	Portland, Ore.
Companion Gr.	Washington	Mary H. Darby	Baker, Ore.
Copper Bell Gr.	Washington	J. R. Weaver	Home, Ore.
Copper King	Heath	Kathleen Kevit	Baker, Ore.
Cuddy Mt. Gr.	Cuddy Mt.	W. E. Freehafer	Council
Darius Gr.	Washington	Mrs. J. G. Burnham	Home, Ore.
Eagle Gr.	Washington	John G. Still	Huntington, Ore.
Edna May	Heath	Roy Howland	Homestead, Ore.
Egan Gr.	Washington	Emil Melzer Est.	Baker, Ore.
Enterprise Gr.	Washington	Shane & McCorkle	Home, Ore.
Fremont Gr.	Heath	M. K. Straight	Heath
Galena Gr.	Cuddy Mt.	A. E. Wilkerson	Baker, Ore.
Galena Silver	Heath	I. A. Vaughn	Council
Iron Mt. Gr.	Washington	John Seigwein	Weiser
Jessie Gr.	Washington	John Flynn	Home, Ore.
Magdalene Gr.	Washington	J. R. Weaver	Home, Ore.
Monarch	Heath	Rudolph Brown	Heath
No Business Canon	Cuddy Mt.	Howland & Levander	Fruitvale
Raymond	Heath	Paul Raymond, Sr.	Heath
Reservoir Gr.	Cuddy Mt.	Louis Winkler	Council
S. & R. Gr.	Cuddy Mt.	Summercamp & Riley	Payette
----------	Cuddy Mt.	G. T. Hamill	Council

BIBLIOGRAPHY

See pages 11-12 for publisher's address, meaning of reference marks, and abbreviations.

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey, Twentieth Ann. Rept., pt. 3, **1900.***

The gold belt of the Blue Mountains of Oregon, by Waldemar Lindgren: U. S. Geol. Survey, Twenty-second Ann. Rept., pt. 2, pp. 562, 568, 579, 585, 592, 626, 629, 638, 641 and 752-756, **1901.***

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Oil and gas prospects near Vale, Oregon, and Payette, Idaho, by C. W. Washburne: U. S. Geol. Survey Bull. 431, pp. 26-55, **1909.***

The I. X. L. copper prospect, by R. N. Bell: Eng. and Min. Jour., vol. 108, p. 400, Sept. 6, **1919.**§

Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****

A preliminary report on the clays of Idaho, by F. H. Skeels: Idaho Bureau of Mines and Geology Bull. 2, **1920.***

The copper deposits of the Seven Devils and adjacent districts, by D. C. Livingston and F. B. Laney: Idaho Bureau of Mines and Geology Bull. 1, **1920.***

Gypsum deposits of the United States, by R. W. Stone and others: U. S. Geol. Survey Bull. 697, pp. 99-100, **1920.**‡

Oil and gas possibilities of eastern Oregon, by J. P. Buwalda: Oregon Bureau of Mines and Geology, vol. 3, No. 2, **1921.***

A preliminary reconnaissance of the gas and oil possibilities of southwestern and south-central Idaho, by J. P. Buwalda: Idaho Bureau of Mines and Geology Pamphlet 5, **1923.****

A geologic reconnaissance of the Mineral and Cuddy Mountain mining district, Washington and Adams counties, Idaho, by D. C. Livingston: Idaho Bureau of Mines and Geology Pamphlet 13, **1925.****

DELINQUENT MINING COMPANIES

The Idaho mining law, section 5474, Idaho Compiled Statutes, was enacted with the intent to assist the inspector of mines in properly discharging his official duties. The Blue Sky law, as applicable to mining companies, section 5320, Idaho Compiled Statutes, was enacted on the assumption that if a mining company publicly files the facts relative to its mine and organization, this information should be sufficient to indicate the character and extent of the company and its undertaking.

The forms on which the reports are to be made to the inspector are mailed out in May of each year. These forms are so arranged that the required facts can be given with little effort, and as ignorance of the law is no excuse, there must be other reasons why many reports are not filed and why many that are filed are not complete. Possibly there might be some excuse for an inactive company neglecting to comply with the law, but none can be offered for a company that is operating, and most particularly when the stock is being actively marketed or when stock assessments are being levied.

Every effort possible has been put forth during the year to get a report from all mining companies operating in Idaho whose charters are in good standing. This effort has not been entirely successful, and, believing that the list of "Delinquent Mining Companies" as published in previous annual reports has been informative, a similar list for 1927 is included.

Corporations that have forfeited their charters, and that have failed to file their reports as required by law, have been considered as legally dead; therefore no mention is made of them.

Companies whose corporate charters are in good standing, but who have failed to file annual reports with inspector of mines, as provided in sections 5320 and 5474 of Idaho Compiled Statutes:

COMPANY NAME	OFFICER	P. O. ADDRESS
Adair Mining Co.	Fred Howell	Rathdrum
Apex Mining Co.	M. L. De Julien	Montpelier
Apex Mining Co.	C. W. Herr	Priest River
Beauty Bay Mining Co.	E. V. Boughton	Coeur d'Alene
Beaver Creek Mining Co.	J. F. Sheben	St. Maries
Big Bertha Mining Co.	R. E. Bohn	Escondida, Calif.
Big Creek Mining Co., Ltd.	W. W. Smith	Wallace
Blue Grouse Mining Co., Ltd.	D. A. Callahan	Wallace
Camp Bird Mng. & Dev. Co.	E. W. Driesbach	Sandpoint
Cleveland Mining Corporation	C. C. Ames	Cleveland
Cobra Mining & Milling Co.	W. C. Kirby	Lewiston
Cuddy Mountain Gold Mining Co.	J. N. Bishop	103 Park Ave., New York City
Dickens-East Mining Co.	C. Fred Kratzer	519 Waverly Place, Spokane, Wash.
Eagle Creek Gold Mining Co.	R. E. Dunlap	Wallace
East Standard Mining Co.	J. E. Gyde	Wallace
Echo Mining Co., Ltd.	Walter H. Hanson	Wallace
Eileen Mining Co.	Mark Quackenbush	222 S. Howard St., Spokane, Wash.
Elgin & Ogden Mining Co.	H. L. Goodwin	Kellogg
Falls Creek Mining Co.	Wm. Hollenbaek	Sandpoint
Fern Quicksilver Mining Co.	D. B. Edwards	Twin Falls
Frances B. Mining Co.	C. Anderson	25 Maple St., Spokane, Wash.
Gaiety Mountain Gold Mines Co.	Geo. H. Cochran	279 Forest Ave., Inglewood, N. J.
Geisa Mining Co.	Geo. D. Ayers	Ziegler Bldg., Spokane, Wash
Golden Age Jr. Mining Co.	F. B. LaClear	508 Capital Nat'l Bk. Bldg., Lansing, Mich.

COMPANY NAME	OFFICER	P. O. ADDRESS
Golden Eagle Mining Co.	Robert Kuntz	118 Columbia Bldg., Spokane, Wash.
Golden Trail Mining Co.	J. R. Hall	Hansen
Golden Valley Mining Co.	C. D. Muxen	515 Hutton Bldg., Spokane, Wash.
Gray Wolf Mining Co.	J. E. Crawford	Coeur d'Alene
Gray Eagle M. & M. Co.	Walter H. Hanson	Wallace
Hamburg-Am. Copper M. &. M. Co.	Wm. Schaefer	Kellogg
Hennessy-Burns Mining Co.	Jos. F. Whelan	Wallace
Hummer Mining Co.	Chase A. Clark	Clayton
Idaho Cons. Placer Mining Co.	Ben R. Breding	721 Conway Bldg., Chicago, Ill.
Idaho Gold Corporation	G. G. Rice	30 W. 57th St., New York City
Idaho Mines Corporation	Walter H. Hanson	Wallace
Idaho Mining & Development Co.	Fulton Cook	St. Maries
Idaho Premier Lead Mines	C. A. Gray	415 Empire State Bldg., Spokane, Wash.
Idaho Silver Lead Mines, Inc.	R. H. Pfeffer	Symons Bldg., Spokane, Wash.
Indianola Gold M. & Reduction Co.	Wm. B. Ebbert	Idaho Falls
King Solomon's Mines Co.	Wm. Hollenbaek	Sandpoint
Lemhi-Union Co.	W. H. Gilliam	Rexburg
Little Mint Mining Co.	Jos. F. Whelan	Wallace
Lost Horse Mining Co.	Ed. C. Salomon	Challis
Mayflower Mng. & Dev. Co., Ltd.	J. B. Wilcox	Mullan
Mayflower Mining Co.	W. W. Smith	Wallace
Meadow Creek Gold Placer Co.	F. E. Lukens	Boise
Metals Mining Co.	Geo. A. Cunningham	E. 327 Boone Ave., Spokane, Wash.
M. & F. Mining Co.	O. C. Wilson	Bonners Ferry
Mineral Point Mining Co.	P. Leuschel	Wallace
Minerva M. & M. Co., Ltd.	Henry A. Jones	730 Bakewell Bldg., Pittsburgh, Pa.
Mohawk Mining Co.	Carl F. Nelson	Kellogg
Moose Creek Placers Co.	D. Williams	Kellogg
Mountain Queen Mng. Co., Ltd.	Walter Keister	Murray
Mt. Sullivan Mining Co.	Jos. Munn	Pocatello
Muscovite Mica Co.	W. E. Parry	Lewiston
National Copper Mines Co.	R. Fennell	606 Lewis Bldg., Portland, Ore.
Neva Copper Co.	Roberta Ripple	400 Hutton Bldg., Spokane, Wash.
New Caledonia Cons. Mng. Co.	O. W. Straight	Kellogg
North Hercules Mining Co.	E. F. Knudsen	Coeur d'Alene
Old Liberty Mining Co.	E. Sweet	Sweet
Panhandle Asbestos Co.	H. J. Kressly	Lewiston
Panhandle Silver-Lead Mng. Co.	James A. Wayne	Wallace
Papurel & Graham Mt. Mng. Co.	Jos. F. Whelan	Wallace
Patrick Placer Mines	T. P. Harsh	East Spokane, Wash.
Pittsburgh & Idaho M.& M.Co.,Ltd.	Daniel Laverty	Pardee
Pocatello-Lemhi Mng. & Expl. Co.	Calvin I. Sellstrom	156 S. Main St., Pocatello
Ponderay Mng. & Power Co.	H. H. Aaker	Grand Forks, N. D.
Ponderosa Mining Co.	Compton I. White	Clark Fork
Progress Gold Mining Co.	D. M. Stairs	Prichard
R. J. Price Mining Co.	R. J. Price	Cabinet
Roberts Coeur d'Alene M. & M. Co.	Geo. T. Walker	Wallace
Sabina Mines Co.	James A. Wayne	Wallace
Silver King Mining Co.	Walter H. Hanson	Wallace
Sonora Mining & Milling Co.	W. A. Smith	Wallace

COMPANY NAME	OFFICER	P. O. ADDRESS
Tammany Oil Co.	V. F. Lorang	Lewiston
Tolo Mining Co.	G. S. DeWolf	Grangeville
Torino Mining Co.	Jos. F. Whelan	Wallace
United American Mines Co., Ltd.	Everett H. Pattison	San Marino, Calif.
U. S. Silver-Lead Mines Co.	Jos. McCarthy	Paulsen Bldg., Spokane, Wash.
Unity Gold Mines Co.	Lorren M. Hart	120 Broadway, New York City
Verde-May Mining Co., Ltd.	Walter H. Hanson	Wallace
Virginia Mining Co.	Jos. F. Morton	Wallace
Wallace Silver-Lead Mines Co.	Walter H. Hanson	Wallace
Western Mining & Milling Co.	Gerald H. Harvey	Boise
Wolverine Placer Mines Co.	Wm. Story	Boston Bldg., Salt Lake City, Utah
Yankee-Polaris L. & Dev. Co.	E. C. Allen	Wallace
Ymir-Coeur d'Alene Mining Co.	W. C. Webber	Spirit Lake

Companies whose corporate charters are in good standing, but who have failed to file annual reports with the inspector of mines, as provided in sections 5320 and 5474 of Idaho Compiled Statutes, and who levied one or more stock assessments during 1927:

Ind. Copper M. & M. Co., Ltd.	John H. Nordquist	Wallace
Rockford Mining Co., Ltd.	W. H. Hanson	Wallace
Stewart Silver Lead Co.	John L. Williams	1482 Broadway, New York City
Sunrise Mining Co., Ltd.	Chalmers E. Smith	Wallace
Syndicate Mining Co., Ltd.	J. L. Moore	Kellogg
Tuscumbia Mining Co., Ltd.	Morton Webster	Wallace
Wolf Lodge Mining Co.	Oscar Nelson	Coeur d'Alene

Companies whose forms of organization are unknown, who have never complied with sections 5320 and 5474 of Idaho Compiled Statutes, and who have been levying stock assessments during 1927:

Lenore Gold Mining Co.	W. L. Heyde	St. Regis, Mont.

Companies whose corporate charters were forfeited on November 30, 1927, or prior thereto, who have failed to file annual reports for 1927 with inspector of mines, as provided in sections 5320 and 5474 of Idaho Compiled Statutes, and who have levied one or more stock assessments during 1927:

Trapper Mining & Smelting Co.	R. C. Russell	Wallace

Companies whose names were gleaned from the press, whose forms of organization are unknown, and who have failed to file annual reports with the inspector of mines, as provided in sections 5320 and 5174 of Idaho Compiled Statutes:

Blazing Star Mining Co.	O. L. Smith	Wallace
Blue Ridge Mining Co.	Chris Myer	Lewiston
Boundary Cons. Mining Co.	E. C. Outlaw	Spokane, Wash.
Domestic Manganese Dev. Co.	.....	Cleveland
Gold Eagle Mining Co.	D. W. Southworth	Placerville
K C Gold Mining Co.	.....	Nampa
Mountain View Mining Co.	E. M. Burt	Portland, Ore.
Pilot Mining Co.	J. V. Grismer	Burke
Priest Lake Mining Co.	Jos. Saccomanno	Priest River
Regal Mining Corporation	Compton T. White	Clark Fork
St. Louis Mining Co.	B. C. Williams	Salt Lake City, Utah
Sunset Mining Co.	.....	Paris
Yakima-Shoshone Mining Co.	E. S. Crane	1004 E. Mission Ave., Spokane, Wash.

MISCELLANEOUS MINERALS

COMPANY OR MINE	OWNER OR OFFICER	POST OFFICE	COUNTY
ANTIMONY			
Buzzwhizzer	I. A. Brim	Arco	Butte
Coeur d'Alene Antimony Min. Co., Ltd	C. M. Powell, Sec.	Kellogg	Shoshone
United Mercury Mines Co.	J. J. Oberbillig, Pres.	Boise	Valley
Great Northern	Albert Hennessy	Yellow Pine	Valley
Cosmopolitan Mining Co.	Oscar Brunzell, Sec.	Murphy	Owyhee
ASBESTOS			
Panhandle Asbestos Co.	H. J. Kressly, Sec.	Lewiston	Idaho
BARYTES			
Barium Group	J. G. Hedrick	Hailey	Blaine
Barytes Rare Minerals Mfg. Co.	J. L. Day, Pres.	Box 727, Tacoma, Wash.	Blaine
Bonnie Group	Bunker Hill & Sullivan M. & C. Co.	Kellogg	Blaine
COBALT			
Beliel Group	Haynes-Stellite Co.	Kokomo, Ind.	Lemhi
DIATOMACEOUS EARTH			
	H. W. Knox	Glenns Ferry	Elmore
	Austin Lightfoot	Fairfield	Camas
LIMESTONE			
Amalgamated Sugar Co.	Fera S. Young	Salt Lake City, Utah	Butte
International Portland Cement Co.	J. B. Maxfield	Spokane, Wash.	Bonner
Utah-Idaho Sugar Co.	D. B. Pratt	Salt Lake City, Utah	Butte
Washington Brick, Lime & Sewer Pipe Co.		Spokane, Wash.	Bonner
	Boyd L. Reynolds	Victor	Teton
MANGANESE			
Cleveland Mining Corporation	C. C. Ames	Cleveland	Bannock
Hub Group	S. O. Nelson	1211 E. Bannock St., Boise	Butte
Idaho Manganese Mining Co.	Geo. L. Smith	Cleveland	Bannock
Lava Manganese Co.	B. C. Madill	Lava Hot Springs	Bannock
	William Godfrey	Lava Hot Springs	Bannock

COMPANY OR MINE	OWNER OR OFFICER	POST OFFICE	COUNTY
MARBLE			
	Fairchild & Bedke	Basin	Cassia
	Ben L. Schultz	Lewiston	Nez Perce
	John Lambert	Lewiston	Nez Perce
	George T. McMahon	Pullman, Wash.	Nez Perce
MICA			
Avon	J. H. Nesbit	Avon	Latah
Maybe	Alexander Munro	Moscow	Latah
Mica Queen Group	A. H. Bentz	Avon	Latah
Muscovite Mica Mine	M. L. Gifford	Council	Adams
Rinehart Group	Gilman Rinehart	Council	Adams
Troy Mica Co.	A. N. Conger	Lewiston	Latah
MOLYBDENUM			
	W. G. Cadby	Warren	Idaho
	W. R. Deckard	Pine	Elmore
	A. J. Kent	Bonners Ferry	Boundary
	A. R. Mulkey	Leadore	Lemhi
International Molybdenum Co.	W. H. Rideout, Pres.	Porthill	Boundary
	Mack Rheinboldt	Pine	Elmore
	C. W. Robinette	Box 1104, Boise	Owyhee
OIL AND GAS			
Arbon Valley Oil Co.	L. D. Evans, Sec.	Pocatello	Power
Gem State Petroleum Co.	S. G. Baker, Sec.	Pocatello	Power
Goose Creek Oil & Development Co.	Edw. Martin, Treas.	424 4th Ave., Pittsburgh, Pa.	Cassia
Great Western Oil Co.	Harvey W. Dice	Pocatello	Caribou
Idaho Petroleum Co.	L. V. Patch, Pres.	Payette	Payette
Rockland Valley Oil Co.	E. N. Norris, Sec.	Rockland	Power
Tieton Valley Land & Leasing Co.	F. J. Johnson, Mgr.	Driggs	Teton

MISCELLANEOUS MINERALS

COMPANY OR MINE	OWNER OF OFFICER	POSTOFFICE	COUNTY
PHOSPHATE			
Anaconda Copper Mining Co.	C. E. Nighman, Mgr.	Conda	Caribou
Bear Lake Phosphate Co.	D. E. Haddock	Paris	Bear Lake
Idaho Phosphate Co.	Ray C. McIlwee	Paris	Bear Lake
	Matt Miller, Trustee	Cavanaugh	Bear Lake
San Francisco Chemical Co.	Joseph J. Taylor, Supt.	Montpelier	Bear Lake
Utah Fertilizer & Chemical Mfg. Co.	Robert J. Shields, Mgr.	Los Angeles, Calif.	Bear Lake
QUICKSILVER			
Fern Quicksilver Mining Co.	P. M. Davis, Pres.	Boise	Valley
United Mercury Mines Co.	J. J. Oberbillig, Pres.	Boise	Valley
SALT			
	Jesse Draney	Auburn, Wyo.	Caribou
	John McGrew & Co.	Auburn, Wyo.	Caribou
	John W. Booth	Fairview, Wyo.	Caribou
BUILDING STONE			
Boise Stone Co.	Thomas McMillan	Boise	Ada
Idaho State Penitentiary	Warden.	Boise	Ada
TALC			
Garner Electric Range Co.	W. C. Garner, Pres.	Kellogg	Idaho
TUNGSTEN			
Golden Chest	E. M. Smith	Murray	Shoshone
Hub Group	S. O. Nelson	1211 E. Bannock St., Boise	Butte
Ima Consolidated M. & M. Co.	Oscar W. Moyle	Salt Lake City	Lemhi
Kennan	Chester T. Kennan	Murray	Shoshone
Mother Lode	John F. Murphy	Murray	Shoshone
Unity Gold Mines Co.	Lorren M. Hart, V-P.	30 Church St., New York	Idaho

GENERAL BIBLIOGRAPHY

See pages 11-12 for publisher's address, meaning of reference marks, and abbreviations.

For production statistics, discussions on geology, description of mines and mining districts (location and production), see all volumes of: U. S. Geol. Survey Mineral Resources, U. S. Bureau of Mines Mineral Resources, Reports of Idaho Inspector of Mines, and the Annual Reports of the Director of the United States Mint.

GENERAL REFERENCES

Contributions to economic geology, by S. F. Emmons and E. C. Eckel: U. S. Geol. Survey Bull. 285, **1906.***

Retracement of the boundary line between Idaho and Washington from the junction of Snake and Clearwater rivers northward to the international boundary, by R. B. Marshall: U. S. Geol. Survey Bull. 466, **1911.**‡

An old erosion surface in Idaho, by J. B. Umpleby: Jour. Geology, vol. 20, pp. 139-147, **1912.**§

The mining districts of the western United States, by J. M. Hill, with a geological introduction, by Waldemar Lindgren: U. S. Geol. Survey Bull. 507, **1912.***

Useful minerals of the United States, by Samuel Sanford and R. W. Stone: U. S. Geol. Survey Bull. 585, pp. 63-68, **1914.***

Useful minerals of the United States, by F. C. Schrader et al.: U. S. Geol. Survey Bull. 624, pp. 115-121, **1917.***

Gold dredging in the United States, by Charles Janin: U. S. Bureau of Mines Bull. 127, **1918.**‡

An old erosion surface in Idaho: Is it Eocene? by J. L. Rich: Econ. Geology, vol. 13, pp. 120-136, March, **1918.**§

The Idaho peneplain, by Waldemar Lindgren (Discussion): Econ. Geology, vol. 13, pp. 486-488, Sept., **1918.**§

An old erosion surface in Idaho, by D. C. Livingston (Discussion of Mr. Rich's article): Econ. Geology, vol. 13, pp. 488-492, Sept., **1918.**§

A preliminary report on the mining districts of Idaho, by Thomas Varley et al.: U. S. Bureau of Mines (in cooperation with the Univ. of Idaho) Bull. 166, **1919.**‡

Types of Rocky Mountain structure in southeastern Idaho (abstract with discussion by G. W. Stose): Geol. Soc. America Bull., vol. 31, No. 1, pp. 126-127, March 31, **1920.**§

Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon, No. 2398: U. S. Nat. Museum Proc., vol. 60, art. 3, pp. 1-133, **1921.**‡

Igneous geology of southeastern Idaho, by G. R. Mansfield: Geol. Soc. America Bull., vol. 32, pp. 249-266, **1921.**§

Boundaries, areas, geographic centers and altitudes of the United States and the several states, by E. M. Douglas: U. S. Geol. Survey Bull. 689, **1923.** (Idaho, p. 210.)‡

Power resources of Snake River between Huntington, Oregon, and Lewiston, Idaho, by W. G. Hoyt: U. S. Geol. Survey Water-Supply Paper 520C, pp. 27-51, **1924.**‡

Zonal distribution of gold, silver, lead, and copper ores in Idaho, by F. A. Thomson and Fritz McGonigle: Eng. and Min. Jour., vol. 120, pp. 216-218, Aug. 8, **1925.**§

The future of Idaho as a mineral producer, by F. A. Thomson: Mining Congress Journal, vol. 11, pp. 536-538, Nov., **1925.**§

The minerals of Idaho, by E. V. Shannon: U. S. Nat. Mus. Bull. 131, **1926.**‡

CINNABAR

U. S. Geol. Survey Mineral Resources, **1917**, pt. 1, pp. 414-415.*

Quicksilver and antimony discoveries in Central Idaho, by R. N. Bell: Idaho Mining Department Bull. 1, **1918.****

Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****

Geology of the Yellow Pine cinnabar mining district, Idaho, by E. S. Larsen and D. C. Livingston: U. S. Geol. Survey Bull. 715, **1920.***

COAL

Description of the Boise quadrangle, by Waldemar Lindgren: U. S. Geol. Survey Geol. Atlas, Folio No. 45, **1898.** (Boise and Gem counties.)*

A geological reconnaissance across the Bitterroot Range and Clearwater Mountains, in Montana and Idaho, by Waldemar Lindgren: U. S. Geol. Survey Prof. Paper 27, pp. 111-113, **1904.** (Clearwater County.)*

Lignite in the Goose Creek district, Cassia County, Idaho, by C. F. Bowen: U. S. Geol. Survey Bull. 531, pp. 252-262, **1911.***

Coal at Horseshoe Bend and Jerusalem Valley, Boise County, Idaho, by C. F. Bowen: U. S. Geol. Survey Bull. 531, pp. 245-251, **1911.***

A geological reconnaissance in southeastern Idaho, by A. R. Schultz and R. W. Richards: U. S. Geol. Survey Bull. 530, p. 281, **1911.** (Bonneville County.)*

The Horseshoe Creek district of the Teton Basin coal field, by E. G. Woodruff: U. S. Geol. Survey Bull. 541, pp. 379-388, **1912.** (Teton County.)*

The Orofino coal field, Clearwater, Lewis, and Idaho counties, Idaho, by C. T. Lupton: U. S. Geol. Survey Bull. 621, pp. 99-108, **1915.***

A geologic reconnaissance for phosphate and coal in southeastern Idaho and western Wyoming, by A. R. Schultz: U. S. Geol. Survey Bull. 680, pp. 64-79, **1918.** (Teton, Bonneville, and Caribou counties.)‡

Preliminary report on the Horseshoe district of the Teton coal basin, southeastern Idaho, by G. W. Evans: A preliminary report on the mining districts of Idaho, by Thomas Varley and others: U. S. Bureau of Mines Bull. 166, pp. 90-103, **1919.** (Teton County.)‡

Coal in eastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 716, **1920.** (Fremont, Teton, Madison, and Bonneville counties.)‡

The Horseshoe Basin area of the Teton coal fields in southeastern Idaho, by G. W. Evans: Idaho Bureau of Mines and Geology Pamphlet 10, **1924.***

MONAZITE

The monazite sands, by Waldemar Lindgren: Mining districts of Idaho Basin and Boise Ridge: U. S. Geol. Survey, Eighteenth Ann. Rept., pt. 3, pp. 677-679, **1898.***

Useful minerals in the black sands of the Pacific slope, by D. T. Day and R. H. Richards: U. S. Geol. Survey Mineral Resources, **1905**, pp. 1175-1258.*

Monazite in Idaho, by D. B. Sterrett: U. S. Geol. Survey Mineral Resources, **1909**, pt. 2, pp. 898-903.*

An occurrence of monazite in northern Idaho, by F. C. Schrader: U. S. Geol. Survey Bull. 430, pp. 184-191, **1909.***

OIL AND GAS

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Notes on geology of southwestern Idaho and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Bull. 217, **1903.**‡

Gas and oil prospects near Vale, Oregon, and Payette, Idaho, by C. W. Washburne: U. S. Geol. Survey Bull. 431, pp. 26-55, **1909.** (Payette County.)*

A geologic reconnaissance for phosphate and coal in southeastern Idaho and western Wyoming, by A. R. Schultz: U. S. Geol. Survey Bull. 680, pp. 79-81, **1918.** (Teton, Bonneville, and Caribou counties.)‡

Oil shale in western Montana, southeastern Idaho, and adjacent parts of Wyoming and Utah, by D. D. Condit: U. S. Geol. Survey Bull. 711, pp. 15-40, **1920.**‡

Oil and gas possibilities of eastern Oregon, by J. P. Buwalda: Oregon Bureau of Mines and Geology, vol. 3, No. 2, **1921.** (Southwestern Idaho.)*

Petroleum possibilities of certain anticlines in southeastern Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Bull. 4, **1922.***

Oil in Idaho? by K. C. Heald: Am. Assoc. Petroleum Geologists Bull., vol. 6, No. 5, pp. 472-473, Sept.-Oct., **1922.**§

Oil shale of the Rocky Mountain region, by D. E. Winchester: U. S. Geol. Survey Bull. 729, **1923.**‡

Notes on the geology of eastern Bear Lake County, Idaho, with reference to oil possibilities, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 7, **1923.****

Geology and water resources of the Goose Creek Basin, Cassia County, Idaho, by A. M. Piper: Idaho Bureau of Mines and Geol. Bull. 6, **1923.****

A preliminary reconnaissance of the gas and oil possibilities of southwestern and south-central Idaho, by J. P. Buwalda: Idaho Bureau of Mines and Geology Pamphlet 5, **1923.****

Possibilities of petroleum in Power and Oneida Counties, Idaho, by A. M. Piper: Idaho Bureau of Mines and Geology Pamphlet 12, **1924.****

Geology and oil possibilities of Bingham, Bonneville, and Caribou counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Bull. 8, **1924.****

Oil possibilities of southeastern Idaho, by V. R. D. Kirkham: Mining and Metallurgy, vol. 6, No. 218, Feb., **1925.**§

PHOSPHATE

(Principal references only)

The Bear River formation and its characteristic fauna, by C. A. White: U. S. Geol. Survey Bull. 128, **1895.***

Phosphate deposits in western United States, by F. B. Weeks and W. F. Ferrier: U. S. Geol. Survey Bull. 315, pp. 449-462, **1907.***

Phosphate deposits in western United States, by F. B. Weeks: U. S. Geol. Survey Bull. 340, pp. 441-447, **1908.***

Preliminary report on the phosphate deposits in southeastern Idaho and adjacent parts of Wyoming and Utah, by H. S. Gale and R. W. Richards: U. S. Geol. Survey Bull. 430, pp. 457-531, **1909.***

The fauna of the phosphate beds of the Park City formation in Idaho, Wyoming and Utah, by G. H. Girty: U. S. Geol. Survey Bull. 436, **1910.**‡

Preliminary reports on a portion of the Idaho phosphate reserve, by R. W. Richards and G. R. Mansfield: U. S. Geol. Survey Bull. 470, pp. 371-439, **1910.***

A geologic reconnaissance in southeastern Idaho, by A. R. Schultz and R. W. Richards: U. S. Geol. Survey Bull. 530, pp. 267-284, **1911.***

Geology of the phosphate deposits northeast of Georgetown, Idaho, by R. W. Richards and G. R. Mansfield: U. S. Geol. Survey Bull. 577, **1914.**‡

Revision of the Beckwith and Bear River formations of southeastern Idaho, by G. R. Mansfield and P. V. Roundy: U. S. Geol. Survey Prof. Paper 98, pp. 75-84, **1916.***

Phosphate deposits in Idaho, by R. N. Bell: Eng. and Min. Jour., vol. 104, pp. 293-294, Aug. 18, **1917.**§

A geologic reconnaissance for phosphate and coal in southeastern Idaho and western Wyoming, by A. R. Schultz: U. S. Geol. Survey Bull. 680, **1918.**‡

Geography, geology, and mineral resources of the Fort Hall Indian Reservation, Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 713, **1920.**‡

Phosphate mine of Anaconda Copper Company, by C. E. Nighman: Twenty-fifth Ann. Rept., Min. Industry of Idaho, **1923.***

Phosphate deposits of Idaho and their relation to the world supply, by V. R. D. Kirkham: Trans. Am. Inst. Min. Eng., vol. 71, pp. 308-338, **1925.**§

Geography, geology, and mineral resources of part of southeastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Prof. Paper 152, **1927.****

The Idaho phosphate field, by G. R. Mansfield: Mining and Metallurgy, vol. 9, No. 253, Jan., **1928.**§

SNAKE RIVER GOLD

Sixth Ann. Rept. U. S. Geol. and Geog. Survey Terr., by F. H. Bradley, p. 266, **1873.***

Eleventh Ann. Rept. U. S. Geol. and Geog. Survey Terr., by Orestes St. John, pt. 1, pp. 321-474, **1883.***

Treatment of the fine gold in the sands of Snake River, Idaho, by Thomas Egleston: Trans. Am. Inst. Min. Eng., vol. 18, pp. 597-609, **1889.**§

Snake River gold fields, by Don Maguire: Mines and Minerals, vol. 20, pp. 56-58, September, **1899.***

Hydraulic pumping plant on the Snake River, Idaho, for power irrigation and treatment of gold sands, by John Birkinbine: Trans. Am. Inst. Min. Eng., vol. 30, p. 518, **1900.**§

Gold dredging on Snake River in Idaho, by F. Powell: Eng. and Min. Jour., vol. 70, pp. 395-396, Oct. 6, **1900.**§

Gold in Snake River gravel bars, by W. H. Washburn: Min. and Sci. Press, vol. 81, p. 610, **1900.***

The gold belt of the Blue Mountains of Oregon, by Waldemar Lindgren: U. S. Geol. Survey, Twenty-second Ann. Rept., pt. 2, pp. 759-762, **1901.***

Dredging for fine gold in Idaho, by R. N. Bell: Eng. and Min. Jour., vol. 72, pp. 241-242, **1902.**§

The origin of the fine gold of the Snake, by R. N. Bell: Eng. and Min. Jour., vol. 73, pp. 143-144, **1902.**§

The origin of the fine gold in Snake River, Idaho, by J. H. Shockley: Eng. and Min. Jour., vol. 73, pp. 280-281, **1902.**§

Description of the Nampa quadrangle, by Waldemar Lindgren and N. F. Drake: U. S. Geol. Survey Geol. Atlas, Folio No. 103, **1904.***

Useful minerals in the black sands of the Pacific slope, by D. T. Day and R. H. Richards: U. S. Geol. Survey Mineral Resources, **1905,** pp. 1175-1258.*

Investigation of black sands from placer mines, by D. T. Day and R. H. Richards: U. S. Geol. Survey Bull. 285, pp. 150-164, **1906.***

Gold development in central Uinta County, Wyoming, and at other points on Snake River, by A. R. Schultz: U. S. Geol. Survey Bull. 315, pp. 71-88, **1906.***

The gold of the Snake River, by R. N. Bell: Min. and Sci. Press, vol. 94, p. 542, Apr. 27, **1907.***

Fine gold of Snake River, by C. B. Irvine: Min. World, vol. 29, p. 916, **1908.***

A geologic reconnaissance in southeastern Idaho, by A. R. Schultz and R. W. Richards: U. S. Geol. Survey Bull. 530, pp. 282-283, **1911.***

Geology and geography of a portion of Lincoln County, Wyoming, by A. R. Schultz: U. S. Geol. Survey Bull. 543, pp. 121-129, **1914.***

Notes on the fine gold of Snake River, Idaho, by J. M. Hill: U. S. Geol. Survey Bull. 620, pp. 271-294, **1915.***

A geological reconnaissance for phosphate and coal in southeastern Idaho and western Wyoming, by A. R. Schultz: U. S. Geol. Survey Bull. 680, pp. 78-79, **1918.**‡

Annual reports of the Idaho Inspector of Mines, **1899** to **1919.***

1927 METAL PRODUCTION

The total value of the gold, silver, lead, zinc, and copper produced in Idaho in 1927 was $30,794,913.64, a decrease of $2,174,950.36 in value under the production of 1926, which was $32,969,864.02. The large decrease in value does not reflect the true situation, for the total production of silver, in ounces, and of lead and zinc, in pounds, exceeded that of any year during the past ten; the production of copper approximately doubled that of the previous year; and there was a large increase in the amount of gold produced. Excepting Boundary and Custer counties, which recorded a decline in lead and silver, every metal-producing county witnessed a substantial increase. Practically all of the mines operated at full capacity; in a few instances, production was increased over that of 1926, and the total was supplemented by an increase in production from new mines. The only curtailment was in the suspension of operations at the Star mine of the Sullivan Mining Co. and a 25 per cent reduction by one large producer, both in Shoshone County. However, the increase in the amount of the five principal metals produced was not sufficient to offset the decrease in value due to the decline in the prices of lead, zinc, and silver under those of the previous year. If the prices of these three metals had remained the same during the past two years, the value of the 1927 production would have exceeded that of 1926 by about $5,000,000.

Shoshone County maintained its position as the principal mining county in the State. Although its total production greatly exceeded that of 1926, the increase in production in other counties reduced its percentage of total State production. In 1926 its production amounted to $31,008,975.64, or 94.5 per cent of the total State production, while in 1927 it amounted to $28,574,-891.88, or 92.79 per cent of the total for the State. This county held first place for the production of lead, silver, and zinc; Custer County held first place for the production of copper from strictly copper-producing mines; and Boise County held first place for the production of gold.

The respective rank of the principal mining counties in point of total production was: Shoshone, Lemhi, Custer, Blaine, Bonner, Butte, Boise, Elmore, Boundary, Gem, Idaho, and Owyhee.

Gold

The 1927 output of gold was 15,592.01 ounces, valued at $322,286.86, an increase of 837.37 ounces and $17,308.47 as compared with that of 1926, which was 14,754.64 ounces valued at $304,978.39. On a comparative basis the increase is small, yet there was a sufficient production from new mines to partly offset the loss caused by the suspension of dredging operations by the Yukon Gold Co.; a comparison with other years, after eliminating this company's production, shows a large increase. This is significant in indicating that interest is again being taken in gold mining.

The respective rank of the leading mining counties in point of total gold produced was: Boise, Elmore, Custer, Gem, Lemhi, and Shoshone. The principal gold-producing companies were: South Park Dredging Co., in Elmore County; Idawa Gold Mining Co., Gold Dredging & Power Corporation, Mineral Mining Co., and Boise Placer Co., all in Boise County; Idaho Metals Co., in Custer County; United Idaho Mining Co., in Lemhi County; and Lincoln Mine Operating Co., in Gem County.

Silver

The output of silver increased from 7,552,881.88 ounces with a value of $4,672,236.26, in 1926, to 8,896,293.08 ounces with a value of $5,014,840.42, in 1927, an increase of 1,373,411.20 ounces and of $342,604.16 in value. The small increase in value as compared with the large increase in production is attributed to the low price of silver during the year; its average price in 1927

was $0.5637 per ounce, as against $0.6211 per ounce in 1926. The greater part of the increase was in Shoshone County, although Blaine, Lemhi, Butte, Boise, and Gem counties recorded a substantial increase in production over that of 1926.

The 1927 silver production in Shoshone County was 8,236,341.70 ounces valued at $4,642,825.82, as compared with 6,930,126.97 ounces valued at $4,304,093.96 for 1926. This record production, 92.58 per cent of the total for the State, indicates the importance of the Coeur d'Alene district and Shoshone County, particularly as Idaho produces one-third of all the silver of the United States. The order of prominence of the principal silver-producing counties was: Shoshone, Lemhi, Custer, Bonner, Blaine, Butte, Boise, and Boundary. The largest producers in Shoshone County were: Federal M. & S. Co., Bunker Hill & Sullivan M. & C. Co., Hecla Mining Co., Sunshine Mining Co., Tamarack & Custer Consolidated Mining Co., Gold Hunter Mines, Inc., Callahan Zinc-Lead Co., Strattons Mines Co., Sidney Leasing Co., and Constitution Mining & Milling Co. In other counties the most important producers were: United Idaho Mining Co. and the Allie mine, in Lemhi County; Livingston Mines Corporation, Ramshorn mine, and Idaho Metals Co., in Custer County; Whitedelf Mining & Development Co. and Elsie K. mine, in Bonner County; Triumph Development Co. and Independence mine of the Federal M. & S. Co., in Blaine County; Wilbert Mining Co., Ltd., in Butte County; and the Continental mine, in Boundary County.

Lead

The 1927 production of lead exceeded that of 1926 by 29,465,332 pounds, the largest production which has been obtained since the war period. However, on account of the great decrease in the price of lead during 1927 from that of 1926, the value of the 1927 production was $2,718,155.11 less than the value of the 1926 output.

The 1927 output was 312,770,885 pounds valued at $21,127,673,28, as compared with 283,305,553 pounds valued at $23,845,828.39 in 1926. The average price of lead in 1926 was 8.417 cents a pound, and in 1927 it was 6.755 cents a pound. If the price of lead had remained the same in 1927 as in 1926, the value of the 1927 production would have exceeded that of 1926 by approximately $4,000,000.

Shoshone County furnished 93.91 per cent of the State total with a production of 293,728,390 pounds, an increase of 26,316,808 pounds over that of the previous year. But the large increase in lead production by the mines in Lemhi, Blaine, and Bonner counties reduced its total percentage from 94.39 in 1926 to 93.91 in 1927.

The importance of Idaho as a lead-producing State, and particularly of Shoshone County, is apparent from the fact that the entire State production is approximately one-fourth that of the entire United States.

The order of prominence of the principal lead-producing counties was: Shoshone, Lemhi, Custer, Bonner, Butte, Blaine, Boundary, and Boise.

The Bunker Hill & Sullivan M. & C. Co. maintained its record as the largest lead-producing company in the State, if not in the United States; the Federal M. & S. Co. was second; and the Hecla Mining Co. was third. The other large lead-producing companies in Shoshone County, in their order of prominence, were: Tamarack & Custer Consolidated Mining Co., Gold Hunter Mines, Inc., Callahan Zinc-Lead Co., Sidney Leasing Co., Strattons Mines Co., Sullivan Mining Co., Constitution Mining & Milling Co., Jack Waite Mining Co., Ltd., Sunshine Mining Co., Hypotheek Mining & Milling Co., and Hayes Co. Important lead producers in other counties were: United Idaho Mining Co. and Allie mine, in Lemhi County; Livingston Mines Corporation and Ramshorn mine, in Custer County; Whitedelf Mining & Development Co., Elsie K. mine, and Lawrence Consolidated Mining Co., in Bonner County; Wilbert Mining Co., Ltd., in Butte County; Triumph Development Co. and the Independence mine of the Federal M. &. S. Co., in Blaine County; Continental mine, in Boundary County; and Mineral Mining Co., in Boise County.

Zinc

The 1927 production of recoverable zinc was greater than that of any year since 1917, exceeding the 1926 production by 10,557,713 pounds and $68,565.23 in value. The total production was 64,479,833 pounds valued at $4,024,831.18, as compared with 53,922,120 pounds valued at $3,956,265.95 in 1926. The cancellation of the contracts between the Veille-Montagne Zinc Co. of Chenee, Belgium, the Sullivan Mining Co., and the Highland-Surprise Consolidated Mining Co., resulting in the suspension of production by these companies in May, together with the Douglas Mining Co.'s suspending production, greatly reduced the possible output.

The satisfactory price level which zinc maintained throughout the year was a dominant factor in stimulating production, and improvements in milling practice, particularly in flotation, were responsible for an increase in recoveries and grade of concentrate produced. In 1927 the price of zinc averaged 6.242 cents a pound, as compared with a price of 7.337 cents a pound in 1926.

The Veille-Montagne Zinc Co. of Chenee, Belgium, and the Anaconda Copper Mining Co. of Anaconda, Montana, were the principal buyers of zinc concentrate. However, the Bunker Hill and Sullivan M. & C. Co. purchased and stock-piled a large tonnage, pending completion of the Sullivan electrolytic zinc plant at Kellogg.

Shoshone, Blaine, Custer, and Camas were the only counties that produced a marketable zinc product. The output of the latter two was unimportant, but the Blaine County production, which was obtained principally from the Triumph mine by the Triumph Development Co., was quite significant. The principal zinc-producing companies in Shoshone County were: Federal M. & S. Co., Sidney Leasing Co., Constitution Mining & Milling Co., Sullivan Mining Co., Highland-Surprise Consolidated Mining Co., Humming Bird Mining Co., Douglas Mining Co., and Tamarack & Custer Consolidated Mining Co.

Copper

The output of copper in 1927 was 2,362,863 pounds valued at $305,281.90, an increase of 981,529 pounds and $114,726.87 in value over that of 1926, which was 1,381,334 pounds valued at $190,555.03. The price of copper averaged 12.92 cents a pound in 1927, and 13.795 cents a pound in 1926. The increase in production was due to the resumption of operations by the Idaho Metals Co. in Custer County, which was active throughout a large part of the year; to a short period of productive operations by the Harmony Mines Co. in Lemhi County; to an increase in output by lessees at the Snow Storm mine in Shoshone County; and to an increase in the production of lead.

The order of prominence of the principal copper-producing counties was: Shoshone, Custer, and Lemhi. The principal copper-producing companies or mines were: The Idaho Metals Co., in Custer County; lessees at the Snow Storm mine, in Shoshone County; and the Harmony Mines Co., in Lemhi County. Excepting the copper produced by these companies and a few isolated small shipments, the remainder of the copper produced in the State was associated with lead-silver ores and was recovered by the smelters as a by-product.

STATISTICS

The production statistics are based upon the gross metal content of all ores or bullion produced and sold from Idaho mines during 1927. The tabulation constitutes the production as reported to the inspector's office, reports have been verified in every possible manner, and no estimates have been used in the compilation. If any error exists in the totals, it is due to unreported production, and as production statements were furnished by all the large producers, the margin of error is very small. Any unreported production would cause these figures to be larger than the amounts set forth, so this compilation represents, as nearly as possible, the correct minimum production.

The values have been figured from the average price of metals for the year, based on New York and St. Louis quotations, as published in the Engineering & Mining Journal.

1927 METAL PRODUCTION BY COUNTIES

Number of Producers				Value
	ADA COUNTY			
4	Gold	22.43	oz.	$ 463.63
	Silver	20.24	oz.	11.41
	Lead	306.00	lbs.	20.67
	Copper	24.00	lbs.	3.10
				$ 498.81
	ADAMS COUNTY			
2	Gold	7.12	oz.	$ 147.17
	Silver	870.91	oz.	490.93
	Copper	54,145.00	lbs.	6,995.53
				$ 7,633.63
	BEAR LAKE COUNTY			
1	Silver	40.03	oz.	$ 22.56
	Lead	31,183.00	lbs.	2,106.41
				$ 2,128.97
	BLAINE COUNTY			
12	Gold	102.27	oz.	$ 2,113.92
	Silver	96,168.00	oz.	54,209.90
	Lead	1,596,000.00	lbs.	107,809.80
	Zinc	1,812,083.00	lbs.	113,110.22
	Copper	3,890.00	lbs.	502.59
				$ 277,746.43
	BOISE COUNTY			
27	Gold	7,388.77	oz.	$ 152,725.88
	Silver	18,691.64	oz.	10,536.48
	Lead	136,522.00	lbs.	9,222.06
	Copper	5,786.00	lbs.	747.55
				$ 173,231.97
	BONNER COUNTY			
8	Gold	2.94	oz.	$ 60.77
	Silver	123,906.50	oz.	69,846.09
	Lead	2,236,284.00	lbs.	151,060.98
	Copper	3,214.00	lbs.	415.25
				$ 221,383.09
	BONNEVILLE COUNTY			
2	Gold	20.52	oz.	$ 424.15
	Silver	2.31	oz.	1.30
				$ 425.45
	BOUNDARY COUNTY			
2	Silver	13,549.00	oz.	$ 7,637.57
	Lead	745,100.00	lbs.	50,331.51
	Copper	2,681.00	lbs.	346.39
				$ 58,315.47

Number of Producers				Value
	BUTTE COUNTY			
2	Gold	2.50 oz.		$ 51.68
	Silver	44,392.00 oz.		25,023.77
	Lead	2,418,081.00 lbs.		163,341.37
	Copper	1,957.00 lbs.		252.84
				$ 188,669.66
	CAMAS COUNTY			
1	Gold	1.05 oz.		$ 21.70
	Silver	1,013.00 oz.		571.03
	Lead	1,307.00 lbs.		88.29
	Zinc	1,850.00 lbs.		115.48
	Copper	121.00 lbs.		15.63
				$ 812.13
	CLEARWATER COUNTY			
3	Gold	27.23 oz.		$ 562.84
	Silver	3.19 oz.		1.80
				$ 564.64
	CUSTER COUNTY			
12	Gold	931.03 oz.		$ 19,244.39
	Silver	133,496.93 oz.		75,252.22
	Lead	3,446,839.00 lbs.		232,833.97
	Zinc	24,561.00 lbs.		1,533.10
	Copper	783,382.00 lbs.		101,212.95
				$ 430,076.63
	ELMORE COUNTY			
10	Gold	4,178.16 oz.		$ 86,362.57
	Silver	1,367.46 oz.		770.84
				$ 87,133.41
	GEM COUNTY			
2	Gold	727.51 oz.		$ 15,037.63
	Silver	12,971.38 oz.		7,311.97
	Lead	44,651.00 lbs.		3,016.18
	Copper	2,414.00 lbs.		311.89
				$ 25,677.67
	IDAHO COUNTY			
24	Gold	665.65 oz.		$ 13,758.99
	Silver	225.98 oz.		127.38
				$ 13,886.37
	LATAH COUNTY			
2	Gold	16.83 oz.		$ 347.88
	Silver	0.85 oz.		0.48
				$ 348.36
	LEMHI COUNTY			
15	Gold	681.60 oz.		$ 14,088.67
	Silver	207,384.24 oz.		116,902.50
	Lead	8,359,674.00 lbs.		564,695.98
	Copper	176,111.00 lbs.		22,753.54
				$ 718,440.69

Number of Producers			Value
	OWYHEE COUNTY		
14	Gold	208.45 oz.	$ 4,308.66
	Silver	5,551.12 oz.	3,129.17
	Lead	1,948.00 lbs.	131.59
	Copper	119.00 lbs.	15.37
			$ 7,584.79
	SHOSHONE COUNTY		
49	Gold	436.04 oz.	$ 9,012.95
	Silver	8,236,341.70 oz.	4,642,825.82
	Lead	293,728,390.00 lbs.	19,841,352.74
	Zinc	62,641,339.00 lbs.	3,910,072.38
	Copper	1,328,390.00 lbs.	171,627.99
			$28,574,891.88
	VALLEY COUNTY		
3	Gold	160.00 oz.	$ 3,307.20
	Silver	109.40 oz.	61.67
			$ 3,368.87
	WASHINGTON COUNTY		
2	Gold	0.03 oz.	$ 0.62
	Silver	186.43 oz.	105.09
	Lead	24,600.00 lbs.	1,661.73
	Copper	629.00 lbs.	81.27
			$ 1,848.71
	MISCELLANEOUS COUNTIES		
6	Gold	11.88 oz.	$ 245.56
	Silver	0.77 oz.	0.43
			$ 245.99
	STATE TOTALS		
171	Gold	15,592.01 oz.	$ 322,286.86
	Silver	8,896,293.08 oz.	5,014,840.42
	Lead	312,770,885.00 lbs.	21,127,673.28
	Zinc	64,479,833.00 lbs.	4,024,831.18
	Copper	2,362,863.00 lbs.	305,281.90
	TOTAL		**$30,794,913.64**
	MISCELLANEOUS		
	Building stone and coal		$ 86,800.00
	Limestone	77,118 tons	108,480.00
	Phosphate rock	46,630 tons	233,150.00
	Diatomaceous earth	312 tons	3,120.00
	Manganese	3,558 tons	53,370.00
	Mica	16 tons	1,600.00
	TOTAL		**$ 486,520.00**
	GRAND TOTAL		**$31,281,433.64**

ANNUAL METAL OUTPUT FOR IDAHO SINCE 1903

(Statistics for 1903 to 1920, inclusive, from U. S. Geol. Survey Mineral Resources. Statistics for 1921, 1922, 1923, 1924, 1925, and 1926 from Annual Reports, Mining Industry of Idaho.)

1903

Gold	65,850 oz.	$	1,361,119
Silver	7,398,970 oz.		3,951,790
Lead	213,143,618 lbs.		9,135,335
Copper	569,484 lbs.		78,589
Total value		$	14,526,833

1904

Gold	82,739 oz.	$	1,710,365
Silver	7,666,382 oz.		4,389,004
Lead	233,096,375 lbs.		10,197,966
Zinc	2,600 lbs.		130
Copper	5,087,518 lbs.		635,940
Total value		$	16,933,405

1905

Gold	52,033 oz.	$	1,075,618
Silver	8,679,093 oz.		5,242,172
Lead	259,812,428 lbs.		12,211,184
Zinc	1,228,449 lbs.		72,479
Copper	7,321,585 lbs.		1,142,167
Total value		$	19,743,620

1906

Gold	55,588 oz.	$	1,149,100
Silver	9,018,815 oz.		6,042,606
Lead	255,014,446 lbs.		14,535,823
Zinc	2,065,597 lbs.		126,001
Copper	9,558,913 lbs.		1,844,870
Total value		$	23,698,400

1907

Gold	60,755 oz.	$	1,255,911
Silver	8,415,431 oz.		5,554,185
Lead	233,823,854 lbs.		12,392,664
Zinc	6,985,732 lbs.		412,158
Copper	10,890,731 lbs.		2,178,146
Total value		$	21,793,064

1908

Gold	69,827 oz.	$	1,443,459
Silver	7,469,981 oz.		3,959,090
Lead	206,827,816 lbs.		8,686,768
Zinc	37,410 lbs.		1,758
Copper	10,041,850 lbs.		1,325,524
Total value		$	15,416,599

1909

Gold	70,329	oz.	$ 1,453,822
Silver	7,041,633	oz.	3,661,649
Lead	215,986,285	lbs.	9,287,410
Zinc	1,351,010	lbs.	72,954
Copper	9,115,489	lbs.	1,185,014
		Total value	$ 15,660,849

1910

Gold	53,060	oz.	$ 1,096,842
Silver	7,369,742	oz.	3,979,661
Lead	228,258,839	lbs.	10,043,389
Zinc	5,603,114	lbs.	302,568
Copper	7,037,292	lbs.	893,736
		Total value	$ 16,316,196

1911

Gold	66,389	oz.	$ 1,372,387
Silver	8,196,136	oz.	4,343,952
Lead	272,556,525	lbs.	12,265,044
Zinc	8,340,249	lbs.	475,394
Copper	5,152,937	lbs.	644,117
		Total value	$ 19,100,894

1912

Gold	66,816	oz.	$ 1,381,214
Silver	8,294,745	oz.	5,101,268
Lead	284,185,657	lbs.	12,788,355
Zinc	13,905,502	lbs.	959,479
Copper	7,492,152	lbs.	1,236,205
		Total value	$ 21,466,521

1913

Gold	65,043	oz.	$ 1,344,559
Silver	9,989,193	oz.	6,033,473
Lead	317,871,945	lbs.	13,986,366
Zinc	23,173,953	lbs.	1,297,741
Copper	9,592,966	lbs.	1,486,910
		Total value	$ 24,149,049

1914

Gold	55,743	oz.	$ 1,152,315
Silver	12,479,516	oz.	6,901,172
Lead	348,526,069	lbs.	13,592,517
Zinc	42,012,435	lbs.	2,142,634
Copper	6,445,187	lbs.	857,210
		Total value	$ 24,645,848

1915

Gold	57,069	oz.	$ 1,179,731
Silver	11,769,128	oz.	5,966,948
Lead	345,999,466	lbs.	16,261,975
Zinc	70,153,234	lbs.	8,699,001
Copper	6,978,713	lbs.	1,221,275
Total value			$ 33,328,930

1916

Gold	53,977	oz.	$ 1,115,810
Silver	12,300,873	oz.	8,093,974
Lead	375,081,781	lbs.	25,880,643
Zinc	86,505,219	lbs.	11,591,699
Copper	8,478,281	lbs.	2,085,657
Total value			$ 48,767,783

1917

Gold	38,933	oz.	$ 804,809
Silver	12,029,338	oz.	9,912,175
Lead	393,559,521	lbs.	33,846,119
Zinc	79,854,136	lbs.	8,145,122
Copper	7,827,574	lbs.	2,136,928
Total value			$ 54,845,153

1918

Gold	33,999	oz.	$ 702,816
Silver	9,172,340	oz.	9,172,340
Lead	294,695,993	lbs.	20,923,416
Zinc	45,161,712	lbs.	4,109,716
Copper	6,533,888	lbs.	1,613,870
Total value			$ 36,522,158

1919

Gold	34,503	oz.	$ 713,238
Silver	5,579,056	oz.	6,248,543
Lead	182,341,898	lbs.	9,664,121
Zinc	15,994,229	lbs.	1,167,579
Copper	3,122,763	lbs.	580,834
Total value			$ 18,374,315

1920

Gold	23,490	oz.	$ 485,590
Silver	7,326,794	oz.	7,986,205
Lead	249,609,976	lbs.	19,968,798
Zinc	27,932,326	lbs.	2,262,518
Copper	2,538,396	lbs.	467,065
Total value			$ 31,170,176

1921

Gold	26,750.76 oz.	$ 552,938
Silver	6,184,989.73 oz.	6,184,989
Lead	210,100,194.00 lbs.	9,559,558
Copper	1,380,168.00 lbs.	172,521
Zinc	1,818,313.00 lbs.	94,006
	Total value	$ 16,564,014

1922

Gold	22,178.39 oz.	$ 458,427.32
Silver	6,149,336.15 oz.	6,149,336.15
Lead	205,132,588.00 lbs.	11,762,302.60
Zinc	5,596,514.00 lbs.	394,666.17
Copper	3,225,762.00 lbs.	431,671.47
	Total value	$19,196,403.71

1923

Gold	35,506.23 oz.	$ 733,913.78
Silver	7,669,393.43 oz.	6,158,099.48
Lead	255,266,476.00 lbs.	18,550,214.82
Zinc	34,690,620.00 lbs.	2,292,009.26
Copper	4,183,495.00 lbs.	603,303.12
	Total value	$28,337,540.46

1924

Gold	26,237.21 oz.	$ 542,323.12
Silver	7,774,747.00 oz.	5,192,053.79
Lead	260,356,490.00 lbs.	21,081,065.00
Zinc	21,310,559.00 lbs.	1,351,941.86
Copper	3,146,997.00 lbs.	409,864.89
	Total value	$28,577,248.66

1925

Gold	20,108.41 oz.	$ 415,640.82
Silver	7,708,938.55 oz.	5,324,178.41
Lead	265,302,880.00 lbs.	23,930,319.78
Zinc	37,110,647.00 lbs.	2,828,573.51
Copper	3,370,016.00 lbs.	473,217.65
	Total value	$32,971,930.17

1926

Gold	14,754.64 oz.	$ 304,978.39
Silver	7,522,881.88 oz.	4,672,236.26
Lead	283,305,553.00 lbs.	23,845,828.39
Zinc	53,922,120.00 lbs.	3,956,265.95
Copper	1,381,334.00 lbs.	190,555.03
	Total value	$32,969,864.02

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THIRTIETH
ANNUAL REPORT

OF THE

Mining Industry of IDAHO

FOR THE YEAR

1928

STEWART CAMPBELL
INSPECTOR OF MINES

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1928

STEWART CAMPBELL
INSPECTOR OF MINES

ALICE DARRAH
SECRETARY

LETTER OF TRANSMITTAL

To His Excellency,
THE HONORABLE H. C. BALDRIDGE,
Governor of Idaho.

SIR:

In compliance with the provisions of section 5480, Idaho Compiled Statutes, I have the honor to transmit herewith the annual report of the inspector of mines for the year ended December 31, 1928.

Respectfully submitted,

STEWART CAMPBELL,
Inspector of Mines.

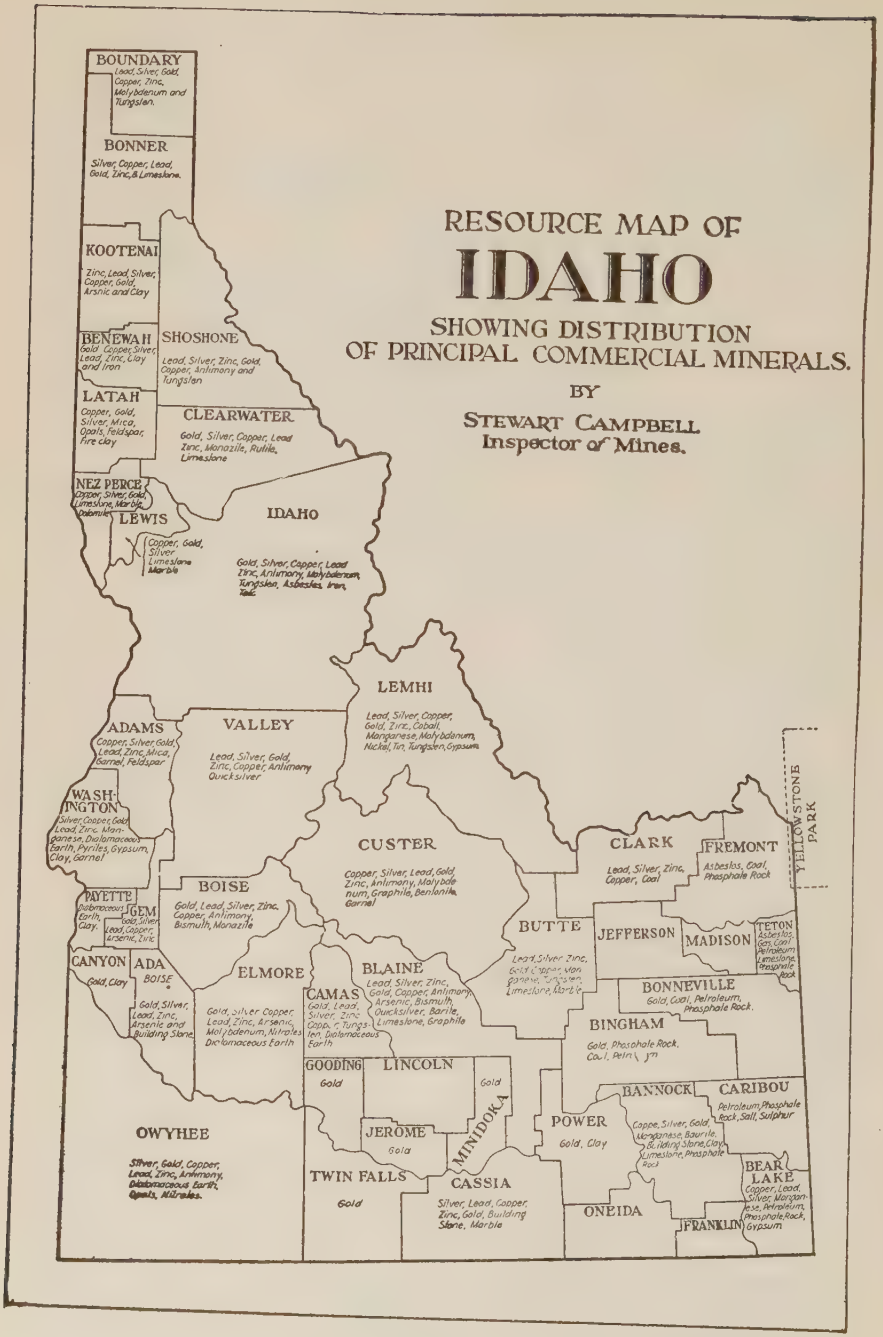
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RESOURCE MAP OF
IDAHO
SHOWING DISTRIBUTION
OF PRINCIPAL COMMERCIAL MINERALS.
BY
STEWART CAMPBELL
Inspector of Mines.
BOUNDARY
Lead, Silver, Gold, Copper, Zinc, Molybdenum and Tungsten.
BONNER
Silver, Copper, Lead, Gold, Zinc, & Limestone.
KOOTENAI
Zinc, Lead, Silver, Copper, Gold, Arsnic and Clay
BENEWAH
Gold, Copper, Silver, Lead, Zinc, Clay and Iron
SHOSHONE
Lead, Silver, Zinc, Gold, Copper, Antimony and Tungsten
LATAH
Copper, Gold, Silver, Mica, Opals, Feldspar, Fire clay
CLEARWATER
Gold, Silver, Copper, Lead Zinc, Monazite, Rutile, Limestone
NEZ PERCE
Copper, Silver, Gold, Limestone, Marble, Dolomite
LEWIS
Copper, Gold, Silver, Limestone Marble
IDAHO
Gold, Silver, Copper, Lead Zinc, Antimony, Molybdenum, Tungsten, Asbestos, Iron, Talc
LEMHI
Lead, Silver, Copper, Gold, Zinc, Cabalt, Manganese, Molybdenum, Nickel, Tin, Tungsten, Gypsum
ADAMS
Copper, Silver, Gold, Lead, Zinc, Mica, Garnet, Feldspar
VALLEY
Lead, Silver, Gold, Zinc, Copper, Antimony Quicksilver
WASHINGTON
Silver, Copper, Gold, Lead, Zinc, Manganese, Diatomaceous Earth, Pyrites, Gypsum, Clay, Garnet
CUSTER
Copper, Silver, Lead, Gold, Zinc, Antimony, Molybdenum, Graphite, Bentonite, Garnet
CLARK
Lead, Silver, Zinc, Copper, Coal
FREMONT
Asbestos, Coal, Phosphate Rock
YELLOWSTONE PARK
PAYETTE
Diatomaceous Earth, Clay.
GEM
Gold, Silver, Lead, Copper, Lesene, Zinc
BOISE
Gold, Lead, Silver, Zinc, Copper, Antimony, Bismuth, Monazite
BUTTE
Lead, Silver, Zinc, Gold, Copper, Manganese, Gypsum, Limestone, Marble
JEFFERSON
MADISON
TETON
Asbestos, Iron, Coal, Petroleum, Limestone, Phosphate Rock
CANYON
Gold, Clay
ADA
BOISE
Gold, Silver, Lead, Zinc, Arsenic and Building Stone
ELMORE
Gold, Silver Copper, Lead, Zinc, Arsenic, Molybdenum, Nitrates, Diatomaceous Earth
BLAINE
Lead, Silver, Zinc, Gold, Copper, Antimony, Arsenic, Bismuth, Quicksilver, Barite, Limestone, Graphite
CAMAS
Gold, Lead, Silver, Zinc Copper, Tungsten, Diatomaceous Earth
BONNEVILLE
Gold, Coal, Petroleum, Phosphate Rock.
BINGHAM
Gold, Phosphate Rock, Coal, Petroleum
GOODING
Gold
LINCOLN
Gold
MINIDOKA
BANNOCK
CARIBOU
Petroleum, Phosphate Rock, Salt, Sulphur
OWYHEE
Silver, Gold, Copper, Lead, Zinc, Antimony, Diatomaceous Earth, Opals, Nitrates.
JEROME
Gold
POWER
Gold, Clay
Copper, Silver, Gold, Manganese, Baurite, Building Stone, Clay, Limestone, Phosphate Rock
BEAR LAKE
Copper, Lead, Silver, Manganese, Petroleum, Phosphate Rock, Gypsum
TWIN FALLS
Gold
CASSIA
Silver, Lead, Copper, Zinc, Gold, Building Stone, Marble
ONEIDA
FRANKLIN

FOREWORD

One of the dominating ideas of this administration has been that it is the legal and moral duty of the inspector of mines to encourage and promote the development of Idaho's mineral resources, and that this can best be done by protecting the public against fake promotions and dishonorable promoters. If the investing public can be impressed with the fact that Idaho is using every precaution and is particularly vigilant in preventing shady promotions, and that through this attitude fair treatment can be expected, then the prospector, the miner, the legitimate promoter, and the State will benefit by this faith. If, on the other hand, the public is excited and deceived into buying stock in fraudulent promotions, which almost invariably result in total loss, then the cause of honest mineral development is injured, and not only does the State suffer, but every legitimate miner and operator as well.

The policy of encouraging the development of Idaho's mineral resources and the right of this department to permanently protect the reputation and honor of the State for fairness in mining development were attacked by the Idaho Copper Corporation. On May 19, 1925, this company filed, in the District Court of the United States, in and for the District of Idaho, Southern Division, a suit against the inspector of mines for $100,000, alleging the publication of false, malicious and defamatory statements. The suit was against the inspector, as an individual, for attacking the company's promotion methods in his official capacity. It questioned the right of this department to guard the investing public against misrepresentations and unjustifiable inducements for stock-gambling purposes.

After the suit was filed, the company availed itself of all dilatory proceedings to prevent the suit coming to trial, but the inspector assumed the initiative and was successful in having the case set for trial on May 6, 1926. On May 5, 1926, the company dismissed this suit and simultaneously filed a new one for $500,000, which was similar in all particulars to the first, except that one new alleged libelous statement was added. Objection to a dismissal of the first suit was filed, and a strenuous effort made to have the issues heard at that time, but the objection was overruled.

After the second suit was filed, the initiative was again assumed by this department, and the case was finally set for hearing on October 12, 1926. The inspector cast aside his defenses of privilege and mitigation of damages in order to squarely present the case to an Idaho jury on the sole issue of the truth of his statements. So the only question involved was the truth of the statements, some of which were:

> "What difference does it make where the property is located, if the promotion is a swindle?"
>
> * * * * * * * *
>
> "That you may know our position, and why we have requested that the stock of the Idaho Copper Corporation be removed from listing and trading on your exchange, we will state that this department is endeavoring to be particularly vigilant concerning all mining promotions, because experience has proven that when misleading and extravagant statements have been made in the sale of mining stocks and when the purchasers of these stocks discover that they are misled, they never place the blame where it rightfully belongs, that is, upon the promoters and brokers, but they place the blame upon the State in which the mine is located. As the circulars recommending the purchase of Idaho Copper Corporation stock which have come to the attention of this department (but not officially), some of which are represented to be the president's report, are grossly misleading and greatly divergent from the facts,

we feel it to be our duty to warn the public; but before issuing this warning we deemed it advisable to inform your exchange; hence our reason for wiring you on March 24, in part as follows:

> 'This department requests that in behalf of the investing public and the honor of your exchange that this stock be removed from listing and trading until such time as this company complies with all necessary laws and until statements relative to the mine are confined to the facts.'
>
> * * * * * * * *
>
> "This department is maintaining that any corporation holding mining property in Idaho must comply with this law (Section 5320-A, Chap. 151, 1925 Session Laws) regardless of the residence of the one distributing the advertising. It is our opinion that if mining companies, promoters, or brokers are confining their statements to the facts, such companies, promoters or brokers will be glad to comply with this and all other laws; and when compliance is refused, it is but natural for this department to assume that the promotion will not bear inspection and that the public should be warned.
>
> "The statements and recommendations concerning the stock and the mine of the Idaho Copper Corporation are so grossly misleading and extravagant that they are discrediting the good name of the State. Idaho regrets that your exchange is being used as a medium of foisting the stock upon the public and we trust that in behalf of the honor of the Boston Curb Exchange that you will accede to our request.
>
> * * * * * * * *

The issue of truth alone caused the plaintiff to plead for nominal damages only, and the plaintiff's leading counsel, in his argument to the jury, said:

> " * * * We don't ask to punish him; we don't ask for large damages. That isn't what we are here for. We ask to have from your hands a vindication of that foul charge that we are swindlers. That is why we come here; that is why I am facing you; that is why I ask you, as business men, to vindicate these men from that charge—the charge that this promotion was organized in bad faith and for the purpose of effecting a swindle. * * * I leave the case with you, gentlemen, asking that you do what you think is right—not to punish anybody, but vindication. A verdict from your hands which will show the world that twelve men of the State of Idaho, sitting upon a jury, and hearing all the facts, do not believe that foul charge that these men are swindlers. * * * "

In closing the final argument to the jury, associate counsel for the plaintiff said:

> " * * * A verdict against them means that they didn't act in good faith; a verdict for them, however nominal in amount, refutes that charge that they acted in bad faith, and that is all we ask of you. We want vindication. * * * "

In his brief statement to the jury, Jess Hawley, of Hawley & Hawley, Boise, Idaho, counsel for the inspector, said:

> " * * * I ask you to bear in mind that in March of 1925, when Mr. Campbell, with all the bravery, with all the courage and all the character that any man may possess, threw down the gauntlet against the spider of Wall Street, who sits and weaves and weaves and weaves; who had brought many and many a stockholder into the Idaho Copper Corporation, as he did this man Hawes, prior to the date that the mine could be seen or entered; * * * * * I only ask you to read the report of Yorston and the Iconoclast papers in evidence, and then, gentlemen, bring in a verdict that will make it clear that Idaho is not, so long as honest men live in

it, so long as brave and courageous men represent it as public officials, going to permit a wrong to be done to the investing public, and to the mining industry, by permitting stock manipulations and misleading statements to be made in furtherance of a stock-jobbing proposition."

The jury promptly returned a verdict for the inspector. The company then sought a new trial, which Judge Frank S. Dietrich denied and upheld the decision of the jury. In so doing, among other things he said:

" * * * As stated from the bench at the time of the oral hearing upon the motion, I have no question that while the evidence was in a measure circumstantial it was abundant to support a finding by the jury that the articles in the Iconoclast were published with the knowledge, consent and encouragement, and indirectly by the procurement, of plaintiff; and furthermore that the jury was amply warranted in finding from all of the evidence, including that furnished by the publications themselves, that the representations made were substantially of the character charged in the alleged libelous writings. For the purpose of showing that the verdict is supported by the evidence, it would be interesting to analyze these articles and to explain the history of the promotion and the means by which investment in stock was made alluring to unsophisticated purchasers, but at this juncture that is not thought to be necessary. * * * "

In commenting upon the plaintiff's appeal to the jury for vindication, Judge Dietrich said:

" * * * Upon this, the real issue, upon which plaintiff thus earnestly asked for an unequivocal finding, the jury decided squarely against it. * * * They were convinced that the defendant's charges were true and that plaintiff had been engaged in a swindle. * * * "

On February 1, 1927, the plaintiff filed an appeal from this decision to the United States Circuit Court of Appeals for the Ninth Circuit. The company again availed itself of all dilatory proceedings, and the case was finally submitted on briefs on the 30th of July, 1928. On August 20, 1928, the Circuit Court affirmed the finding of the jury and the decision of Judge Dietrich.

In commenting upon the plaintiff's appeal the Circuit Court said, in part:

"This is a writ of error to review a judgment in favor of the defendant in an action for libel. * * *

"The property of the corporation consisted largely of mining claims and properties in the State of Idaho. For some time prior to March 24, 1925, The Wall Street Iconoclast carried advertisements giving rather a glowing description of the mining properties of the corporation and recommending its stock to the investing public. As stated by the court below in its opinion on motion for a new trial, the evidence was ample to justify a finding by the jury that the articles published in the Iconoclast were so published with the knowledge and consent, and indirectly by the procurement of the plaintiff in error.

* * * * * * * *

"The sole defense relied upon at the trial was the truth of the publications as made. * * * The principal issue in the case was the truth or falsity of the charges contained in the telegram and letters of which the defendant in error was the author, and these charges had nothing whatever to do with the future development of the mines or the future expenditures by the plaintiffs in error. The only fraud charged or intimated had to do with the representations contained in the advertising matter circulated by the plaintiff in error or on its behalf and its failure to comply with the Blue Sky Law of the State of Idaho, and, while subsequent develop-

ment and expenses might tend to prove the good faith of the plaintiff in error and its officers, it would have no tendency to prove either the truth of the representations contained in the advertisements or the falsity of the charges preferred by the defendant in error. For these reasons, there was no error either in the rejection of the testimony or in limiting the scope of the testimony admitted."

Shortly after the Circuit Court rendered its decision, the plaintiff filed a petition for a rehearing. This petition was denied on October 1, 1928, thus definitely ending the case and fully sustaining the inspector in all of his acts.

However, during the interim the United States Post Office authorities were giving this promotion their attention, and on February 27, 1928, George Graham Rice, editor and publisher of the Wall Street Iconoclast, Walter K. Yorston, organizer and first president of the Idaho Copper Corporation, the Wall Street Iconoclast, The Idaho Copper Corporation, and others, were indicted in the United States District Court, Southern Division of New York. The indictment charged conspiracy to use the mails in a scheme to defraud in the promotion of stock of the Idaho Copper Corporation on the Boston Curb Exchange.

The trial under this indictment was started on November 14, 1928, and continued to December 14, resulting in the conviction of Rice, Yorston, the Wall Street Iconoclast, and the corporation. On December 21 Rice was sentenced to four years in the Atlanta Penitentiary and to pay a fine of $5,000; Yorston was sentenced to nine months in the penitentiary of Westchester County, New York; and each received an additional sentence of five years' imprisonment to begin at the expiration of the first, which was suspended during good behavior throughout the five-year period. The Wall Street Iconoclast was fined $10,000, and sentence was suspended on the Idaho Copper Corporation. After the sentences were pronounced the attorneys for the defendants announced that they would ask writs of error pending appeal.

ANNUAL REPORTS

The first report submitted by the present inspector, in 1921, was largely an experiment. It introduced much miscellaneous matter never previously printed in such a report and presented detailed information concerning Idaho mining companies in the form of a directory. It was, in fact, a handbook rather than a formal report. It received such favorable press comment, notably by the Engineering and Mining Journal, the foremost mining magazine of the United States, that the same plan was followed in subsequent reports. As these proved equally popular with the mining public of Idaho and other states, the 1928 report is offered in the same form.

It is a cause for great satisfaction that it has been possible to increase the size of the report each year, without adding greatly to the expense. The 1921 issue consisted of but 150 pages; that of 1922 of 200 pages, that of 1923 of 221 pages, that of 1924 of 249 pages, that of 1925 of 270 pages, with five insert diagrams of mill flow sheets, that of 1926 of 269 pages, and that of 1927 of 280 pages. As the 1923, 1924, 1925, 1926, and 1927 editions were printed more compactly, they included much more additional information than their increased bulk would indicate. The increase in size has been made possible by the growing cooperation of mining companies in the matter of filing full reports concerning their organization, property, plant equipment, and development campaigns. The reports for the years 1923, 1924, 1925, 1926, 1927, and 1928 have also been rendered more interesting by the inclusion of many pictures of various Idaho mining plants.

Idaho is the only state in the Union which is presenting the data and information relative to its mineral resources in this form. The merit and popularity of the report are proved by the continually increasing demand for copies of it, as well as by the efforts those interested in mining in other states have made toward having their state governments publish a similar report. Less than 1,000 copies of the 1921 report were distributed, while 2900 copies of the 1927 report were not sufficient to meet the demand.

The list of prospects contained in this report has been corrected and brought down to date through the cooperation and assistance of the auditors and recorders of many of the principal mining counties. Appreciation for this assistance is extended to the following:

Matilda Moser, Adams County.
C. G. Cromwell, Benewah County.
P. B. Dance, Bingham County.
B. P. Thamm, Blaine County.
Robert S. McCrea, Bonner County.
George Witt, Bonneville County.
B. F. Wilson, Cassia County.
G. B. Allen, Clark County.
Joseph Kauffman, Clearwater County.
Emmett Donohue, Custer County.
Frank M. Hobbs, Elmore County.
Lillian M. Campbell, Gem County.
Henry Telcher, Idaho County.
Chas. O. Sowder, Kootenai County.
Harry A. Thatcher, Latah County.
W. A. Lewis, Owyhee County.
Harry A. Rogers, Shoshone County.
Forest E. Robb, Valley County.
Frank E. Smith, Washington County.

Many of these prospects are worthy of more prominent mention, but, as the owners failed to submit data, it is impossible to give further information than the owner's name and address, location of his mine and its name. If the small mine-owner could realize that it would be beneficial to him if he furnished detailed information to the inspector, it would greatly assist in displaying the mining possibilities of Idaho and result in his property receiving more attention. The list published in the twenty-third annual report was the first of its kind ever compiled in Idaho and proved that the practice is worthy of continuation, as it has been a guide to those looking for mines. These lists have found extensive use and in a number of cases resulted in the prospect being examined and a sale made.

Unincorporated mines have been included in the body of this report on the same basis as the reporting mining companies, whenever their owners submitted the data. This policy will be continued in the future. The necessary form on which the data can be submitted is mailed on request to all those interested in having their properties receive a more prominent mention.

NEWSPAPERS

As pointed out in previous years, the visits which the inspector makes to the numerous mining counties are necessarily so short that they are inadequate to enable him to keep directly in touch with all mining activities, so that it is always necessary that he supplement his personal information by that gleaned from the press. Most of the publishers located in mining communities have been very willing to furnish gratuitous subscriptions of their newspapers to the office of the inspector. This courtesy is greatly appreciated, and has been of much assistance in enabling the inspector to keep abreast of the mining news. Accordingly, the State of Idaho, through the mine inspector, extends its thanks to the following:

Arco Advertiser	Arco
Idaho County Free Press	Grangeville
Kellogg-Wardner News	Kellogg
Lemhi County Recorder Herald	Salmon
The Mackay Miner	Mackay
Mining Truth	Spokane
Mullan News	Mullan
Pend d'Oreille Review	Sandpoint
Priest River Times	Priest River

The Salt Lake Mining Review	Salt Lake City
The Times-Register	Idaho Falls
The Wallace Miner	Wallace
Wallace Press-Times	Wallace

MINERAL MARKET INFORMATION

As there has continued to be a demand for possible markets for uncommon minerals and metals, the lists prepared in 1921, which include the names and addresses of the purchasers or users, have been brought up to date wherever it has been possible to obtain the information. The office will be glad to furnish copies of the list for any particular mineral or metal upon request. The following are listed:

Aluminium	Fluorspar	Pumice
Antimony	Fullers Earth	Radium
Arsenic	Graphite	Silica Sand
Asbestos	Gypsum	Sodium
Barytes	Magnesium	Strontium
Bauxite	Magnesite	Talc
Bismuth	Manganese	Tin
Cadmium	Mica	Titanium
Chromium	Molybdenum	Tripoli
Cobalt	Monazite	Tungsten
Diatomaceous Earth	Nickel	Uranium
Feldspar	Platinum	Vanadium

LIBRARY

The library, which was started by the present mine inspector during 1921, and which now consists of over 3,500 volumes, is believed to be the largest library of its kind in the State. It contains virtually every publication of the U. S. Geological Survey and U. S. Bureau of Mines, most of the U. S. Mint Reports, numerous volumes published by the geological surveys of other states, and many volumes of journals dealing with mining and geology.

Except a few articles published in old issues of the various journals, everything of importance dealing with the mining industry of Idaho, including geology, mineralogy and mineral resources, is contained in the library. Whenever requests are made for any of the missing articles, photographic copies are procured from the publishers or from some large research library.

The following magazines are regularly received: Engineering and Mining Journal; Mining Review; Mining Truth; The Mining Congress Journal; Mining and Metallurgy; Rock Products; Compressed Air Magazine; The Explosive Engineer; Economic Geology; and Asbestos. Complete files of these magazines are being preserved for reference use. Although most of them have been received only since 1921, the file of the Engineering and Mining Journal is virtually complete for the past 20 years, the present mine inspector having donated to the State his personal files of this journal for the years 1911 to 1920, inclusive.

The State of Idaho, through the inspector of mines, takes this opportunity of thanking Mr. Walter Hovey Hill for his donation to the library of bound volumes of the Transactions of the American Institute of Mining and Metallurgical Engineers for the years 1900 to 1920, inclusive. These volumes have added greatly to the value of the library.

The library is equipped with the U. S. Geological Survey Finding List of States, Areas and Subjects, which makes it possible to locate quickly and completely all publications of the U. S. Geological Survey concerning the geology and mineral resources of any state of the United States or concerning any particular mineral.

Visitors are always welcome to consult the books of the library or to read the magazines. The office is open from 9 a. m. to noon and from 1 p. m. to 5 p. m. In the absence of the inspector, the secretary will be glad to assist visitors in finding desired information.

In order to accommodate readers who find it inconvenient to consult books in the library at the inspector's office, the practice of lending books for a period of not over two weeks has been established, and they are mailed out to all responsible persons within the State upon request. A few rare volumes, now out of print, and of which the library contains no duplicates, and books frequently called for at the office, cannot be mailed out. Individuals not personally acquainted with the inspector, when writing in for books, should accompany their requests by letters of introduction or recommendation from some reliable person in their community personally known to the office, or by a letter from the nearest public library.

MINING LAWS

In May, 1923, the inspector caused to be published a new edition of the State mining laws; and as the 1925 Legislature passed a few amendments to them, a supplement containing these changes and a few extracts from the corporation law was published in 1925. These two pamphlets contained all of the Idaho mining laws as well as extracts from the United States mining laws, and amendments. The supply of these pamphlets is completely exhausted, so they are no longer available for distribution. However, a new edition will be published early in 1929, and copies will be mailed to anyone interested on request.

BIBLIOGRAPHIES

Much information concerning the geology, mineralogy and mineral resources of Idaho has been collected and published by the U. S. Geological Survey, the U. S. Bureau of Mines, and the Idaho Bureau of Mines and Geology. Much is also contained in the various reports of the inspector of mines and in journals dealing with mining and geology. In order to make this information readily available to the public, in 1921 the inspector indexed this material according to counties and subjects and published it in his report. The indexing has been kept up to date, and so far as is known, each county bibliography contains references to all material of any importance that has ever been published concerning that county. Publications relating to specific minerals found in the State are listed also under the "General Bibliography" in the back of the report. The usefulness of the bibliographies has been further increased by including publishers' addresses and information as to whether each particular reference can be procured or not. Symbols have been added as a guide to facilitate explaining this information. Practically all of the publications listed are found in the inspector's library, and arrangements have been made so that copies of those not on file can be procured when requested. However, **these publications may be consulted in all large libraries.**

ABBREVIATIONS AND SYMBOLS USED IN BIBLIOGRAPHIES

Am. Geology.....American Geology†
Am. Jour. Sci.....American Journal of Science
Tuttle, Morehouse & Taylor Co., 123 Temple St., New Haven, Conn.
Am. Mineralogist.....American Mineralogist
Princeton, N. J.
California Jour. Tech.....California Journal of Technology
University of California, Berkeley, Calif.
Canada Geol. Survey Ann. Rept.....Canada Geological Survey Annual Report
Ottawa, Canada.
Colorado Sci. Soc. Proc.....Colorado Scientific Society Proceedings†
Columbia School of Mines Quart.....Columbia School of Mines Quarterly
Columbia University, New York City.
Compressed Air Mag.....Compressed Air Magazine
Bowling Green Bldg., 11 Broadway, New York City.
Econ. Geology.....Economic Geology
University of Illinois, Urbana, Ill.
Eng. and Min. Jour.....Engineering and Mining Journal
Tenth Ave. & 36th St., New York City.
Franklin Inst. Jour.....Franklin Institute Journal
15 South 7th St., Philadelphia, Pa.

Geol. Soc. America.....Geological Society of America
Museum of Natural History, Columbus Ave. & 77th St., New York City.
Idaho Bureau of Mines and Geology, Moscow, Idaho.
Jour. Canadian Min. Inst.....Journal of Canadian Mining Institute
Drummond Bldg., Montreal, Quebec, Canada.
Jour. Geology.....Journal of Geology
University of Chicago Press, Chicago, Ill.
Min. Con. Journal.....Mining Congress Journal
American Mining Congress, 841 Munsey Bldg., Washington, D. C.
Min. and Eng. World.....Mining and Engineering World†
Mining and Metallurgy
American Institute of Mining and Metallurgical Engineers, Inc.,
29 West 39th St., New York City.
Mines and Minerals.....Mines and Minerals†
Mining Magazine.....Mining Magazine†
Min. and Sci. Press.....Mining and Scientific Press†
Min. Reporter.....Mining Reporter†
Min. World.....Mining World†
Nat. Geog. Mag.....National Geographic Magazine
National Geographic Magazine Society, Hubbard Memorial Hall,
Washington, D. C.
No. ..... Number
Northwest Min. News.....Northwest Mining News†
Pacific Miner.....Pacific Miner†
p., pp.....page, pages
pt. ..... part
Proc. Int. Min. Cong.....Proceedings International Mining Congress
International Mining Congress, Washington, D. C.
Salt Lake Min. Review.....Mining Review
Walker Bank Bldg., Salt Lake City, Utah.
Sci. Amer. Suppl.....Scientific American Supplement
New York City.
ser. ..... series
sess. ..... session
Trans. Am. Inst. Min. Eng.....
Transactions American Institute of Mining and Metallurgical Engineers
29 West 39th St., New York City.
Trans. New York Acad. Sci.....Transactions New York Academy of Science
New York Academy of Science, New York City.
U. S. Bureau of Mines Bull.....U. S. Bureau of Mines Bulletin¶
U. S. Geol. and Geog. Survey.....U. S. Geological and Geographical Survey†¶
U. S. Geol. Survey Ann. Rept.....U. S. Geological Survey Annual Report†¶
U. S. Geol. Survey Bull.....U. S. Geological Survey Bulletin¶
U. S. Geol. Survey Geol. Atlas.....U. S. Geological Survey Geologic Atlas¶
U. S. Geol. Survey Mon.....U. S. Geological Survey Monograph¶
U. S. Geol. Survey Prof. Paper....U. S. Geological Survey Professional Paper¶
U. S. Nat. Mus. Proc.....U. S. National Museum Proceedings¶
Univ. of Idaho.....University of Idaho, Moscow, Idaho
vol. ..... volume
Washington Acad. Sci. Jour.....Washington Academy of Science Journal
211 Church St., Easton, Pa.

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*.....Available in libraries only. Publication out of print.
**.....Can be procured from publisher.
§.....Not available for general distribution; may possibly be procured from publisher.
‡.....Can be purchased from Superintendent of Documents, Government Printing Office, Washington, D. C.
†.....Publication suspended.
¶.....Address: Washington, D. C.

GENERAL REVIEW AND 1928 ACTIVITIES

During 1928 the mining industry of Idaho witnessed a more prosperous year than at any period during the past eight years. This prosperous condition was brought about through a substantial increase in production, ore reserves of the producing mines, new ore discoveries and disclosures, new milling plants, new mine plants, new mining enterprises, one new dividend-paying mine, and larger pay rolls. In addition to the foregoing, the year witnessed the coming in of at least four large new producing mines in the Coeur d'Alene district which should equal some of the large ones which have previously been exhausted. Excepting at the Star mine of the Sullivan Mining Company, which was idle throughout the year, capacity production was maintained by all of the producers. In a few instances, production was increased over that of 1927 and there was a substantial increase in the number of new small producers.

All of the principal producing companies conducted active development work which proved the extent of their ore bodies at greater depth and laterally. The increased ore reserves and the improvements added to mine and mill plants have greatly enhanced the physical condition and future life of these mines and, added to the new enterprises, have caused an expansion of the industry for the entire State.

Many new companies were organized and much new work was undertaken by old companies. Many of these were started in the southern part of the State, although the increase in the Coeur d'Alene district exceeded that of any year during the past eight. In addition to the new enterprises, new discoveries, and improved conditions throughout the State, there were also many inquiries and investigations by those seeking mines and mining investments, particularly in Custer, Boise, Valley, and Camas counties. Many of these inquiries were conducted by large mining companies who in some instances were favorably impressed by their investigations. As Idaho offers unequalled opportunities in mining and the diversity of its mineral wealth exceeds that of any state of similar size in the Union, the substantial growth witnessed during 1928 should be maintained in the future. The healthy condition of Idaho's mining industry at the close of the year can best be outlined by the five principal factors responsible for it:

1. Increased ore reserves of producing mines.
2. New ore disclosures of importance.
3. New reduction plants.
4. New dividend-paying mines.
5. New enterprises including new mine plants.

1. Increased Ore Reserves of Producing Mines:

The principal producing mines in which the ore reserves were increased by new development work during the year were: Bunker Hill mine of the Bunker Hill & Sullivan M. & C. Co., Morning and Page mines of the Federal Mining & Smelting Co., Sunshine mine of the Sunshine Mining Co., Sidney mine, being operated by the Sidney Leasing Co., Stratton mine of the Dayrock Mining Co., and Sherman mine of the Sherman Lead Co., all in Shoshone County; Whitedelf mine of the Whitedelf Mining & Development Co., and the Elsie K. mine of the Hope Mining Co., both in Bonner County; Pittsburgh-Idaho mine of the United Idaho Mining Co., and the Allie mine owned by the Gilmore Mercantile Co., both in Lemhi County; Lone Pine mine at Golden, owned by O. F. Miiller, in Idaho County; and the Livingston mine of the Livingston Mines Corporation, in Custer County.

2. New Ore Disclosures of Importance:

The principal new ore disclosures and new discoveries of importance were those at: The Douglas mine of the Douglas Mining Co., Lookout Mountain mine of the Lookout Mountain Mining & Milling Co., and the Dickens mine of the Dickens Consolidated Mines Co., in Shoshone County: Triumph mine of the Triumph Development Co., and the Jennie R. mine, owned by

W. P. Fowler, both in Blaine County; Belshazzar mine of the Idawa Gold Mining Co., and the Gold Hill & Iowa mine of the Talache Mines Inc., in Boise County; Boyer mine under operation by the Boyer Bros. Mining Co. and the Katherine B. mine owned by H. L. Thomason and James Evans, in Bonner County; Silver Bell mine of the Federal Mining & Smelting Co. and Hornsilver mine of the Hornsilver Mining Co., in Butte County; Hall Interstate mine of the Bunker Hill & Sullivan M. & C. Co., in Valley County; and Empire copper mine of the Mackay Metals, in Custer County.

3. New Reduction Plants:

The most important new construction work to be completed during the year was the electrolytic zinc smelter at Kellogg, constructed by the Sullivan Mining Co., which is owned jointly by the Bunker Hill & Sullivan M. & C. Co. and the Hecla Mining Co. The plant was completed and operations started with a capacity of 50 tons of zinc metal per day. Metal produced by this plant is the world's highest grade zinc; for this the company is receiving a substantial bonus, the metal being so pure that new methods for its analysis had to be devised. The construction of this plant will tend to perpetuate the mining industry of the Coeur d'Alene district, as well as giving a market for the immense proved and potential tonnage of zinc ores in this district.

The principal new milling plant construction during the year was: Completion of the mill at the Hall Interstate mine by the Bunker Hill & Sullivan M. & C. Co., Valley County; completion of the mill at the Pope-Shenon mine by the Winder-Stillman Copper Co., and rebuilding of mill at Copper Queen mine by the Tendoy Copper Queen Mining Co., Lemhi County; new mill at the Golconda mine by the Golconda Lead Mines, rebuilding of the Jack Waite mill by the Jack Waite Consolidated Mining Co., new mill at the Dickens mine by the Dickens Consolidated Mines Co., all in Shoshone County; the starting of construction on new mills by the Whitedelf Mining & Development Co., in Bonner County, and by the Talache Mines, Inc., at the Gold Hill & Iowa mine in Boise County.

4. New Dividend-Paying Mines:

The year also witnessed the coming in of a new dividend-paying mine in the Belshazzar of the Idawa Gold Mining Co., located near Placerville, Boise County. This mine is the largest and most important producer of gold ore in the State, and its entry into the dividend-paying ranks will have an important bearing on the future of Boise County and the city of Boise in particular, as it is stimulating gold mining. Two other companies operated at a substantial profit, but neither of them declared an initial dividend.

5. New Enterprises Including New Mine Plants:

The outstanding new enterprises, developments, construction, mine plant installations, and principal activities can best be reviewed through an outline by counties:

Adams County

This county witnessed but little mining activity during the year, and no new enterprises were started. The Idaho Copper Company, whose properties were placed under receivership in November, 1927, continued in receivership and no development work of any kind was performed. A small amount of development work was done on the old Peacock and Bluejacket properties near Helena, and a few prospectors in other parts of the county performed a small amount of new work. The mica deposits in the Council Mountain district received more attention than in previous years, and the work done during the year greatly enhanced the possibility of these deposits being of commercial importance.

Bannock County

One of the most important new enterprises to be started in the State during the year was that of the Idaho Portland Cement Co., near Inkom, about 12 miles south of Pocatello. This company acquired a large deposit of limestone, constructed a new railroad siding, and commenced installation of a 1500-barrel cement plant. The manganese mines near Cleveland and

Lava Hot Springs were active throughout the greater part of the year. A substantial tonnage of high-grade manganese ore was produced and marketed, and three new companies were actively engaged in developing their properties.

Bear Lake County

The San Francisco Chemical Co. was the only phosphate mine in this county which was active during the year. A substantial tonnage of phosphate rock was produced and shipped to San Francisco, California, where the company manufactures it into a high-grade fertilizer. During the year four new mining enterprises, based on the development of the lead and copper properties, were organized and development work started. These were: Gold Star Mining Co.; Leadville Consolidated Mining Co.; Utah-Idaho M. & M. Co.; and Wasatch Mining & Development Co. In addition to these, the Sunset Mining Co. was active throughout the summer months, and produced and marketed one shipment of high-grade lead ore.

Blaine County

The principal operation in this county throughout the year was that of the Triumph Development Co. at the old Triumph mine, which adjoins the North Star of the Federal Mining & Smelting Co. A large tonnage of mixed ore was produced and sent to a milling plant in Utah for reduction. During the closing months of the year surveys and plans were completed for the construction of an aerial tramway, four miles long, and a mill at a point adjacent to the railroad. The Liberty Gem Mines, Inc., which was organized in 1927 to develop the new discovery made by the Mathewses in the early part of that year, maintained active development work throughout 1928. This work exposed a large amount of new ore, and at the close of the year arrangements had been completed to extend the shaft to a total depth of 150 feet. The Hailey Bonanza Mining Co., whose property is in Greenhorn Gulch north of Hailey, maintained work throughout the greater part of the year with a small crew and produced and marketed a small shipment of crude ore. The Crooked River Mining Co., operating in the Muldoon district, installed a gas-driven compressor and complete mining equipment, and actively developed its property by contract throughout the year. A new organization, the Pandora Mining Co., with property in the Lava Creek district adjacent to that of the Federal Mining & Smelting Co., in Butte County, installed a gas-driven compressor and complete mining equipment, constructed new camp buildings, and started active development work. The Vienna mine in the Sawtooth district was under operation by A. F. Peery; the Parker mine near Ketchum was actively developed throughout the year; and a few lessees produced and marketed a substantial tonnage of ore from the Independence and North Star mines owned by the Federal Mining & Smelting Co. What appears to be a substantial discovery of new ore was made by W. P. Fowler at the Jennie R. mine in the Rock Creek district. This new ore was uncovered during the closing months of the year, so at the present time its extent is not definitely known. The Wood River Mining Co. near Ketchum was active for eight months with a small crew, the funds for this work being derived from stock assessments. Peter L. Kent at the Lone Pine group on Deer Creek performed a small amount of work, and lessees at the Eureka and Idahoan groups in the Bullion district were also active.

Boise County

During 1928 this county witnessed a larger increase in new mine plant installation, new development work, new enterprises, and new discoveries than at any period during the past ten years, all of which greatly stimulated prospecting, new locations and investigations by those seeking gold mines. The most important discoveries and opening up of new ore were: That of the Talache Mines Inc., at its Gold Hill & Iowa mine, where a substantial showing of high-grade gold ore was opened up on the 700-foot level; the high-grade gold ore opened by the Idawa Gold Mining Co. at the Belshazzar mine; and the opening up of gold ore of importance which was reported at the Mountain Chief mine. The most important construction work was the

rebuilding of the mine surface plant and the installation of a new mill at the Gold Hill & Iowa mine by the Talache Mines Inc., the remodeling of its mill by the Idawa Gold Mining Co., and the remodeling of the mill at the Mountain Chief mine, which is being operated by the Federated Mines Co., a new organization. Others who developed their mines throughout the year were: The American Mines Development Co., a new organization which is operating the Brunnell group near Grimes Pass; the Missouri Mining Co., Ltd.; the Penn Mining Co. at the Coin Bond group; and Jarvis Bros. at the Hay Fork. The Idaho Gold Dredging Corporation and the Boise Placer Co., both producers of placer gold, were active throughout the summer months and each increased its production over that of the previous year. The Crooked River Mining Co. reconstructed its new dredge, which sank on being put into operation in 1927.

Bonner County

This county witnessed a greater substantial improvement in the development of new ore by old companies, new mine plant and mill plant installation, discoveries of new ore, development work by prospectors and new organizations than it had witnessed in many years. The Whitedelf Mining & Development Co. and the Hope Mining Co. both proved their properties and the continuation of ore at a greater depth, and both produced and marketed a greater tonnage of ore than for any previous year. The Whitedelf completed plans for and commenced the construction of a 75-ton flotation concentrator during the closing months of the year. Other new discoveries of importance were: That of the Boyer Bros. at the property now known as the Boyer Bros. Mining Co.; that at the Catherine group near Talache, by H. L. Thomason and James Evans; and that at the old Minerva, which was operated by lessees. The Hewer Mining Co. was reorganized as the Idaho Lakeview Mines Co., the mine reopened and active development work started. The International Portland Cement Co., with quarries at Bayview, mined the largest tonnage of limestone that it has ever produced in any one year. This limestone is ferried across the lake and then sent by rail to Spokane, where it is manufactured into cement.

Bonneville County

One of the most important new enterprises to start during the year was that of The California Co., a subsidiary of the Standard Oil Co. of California, which acquired a large acreage on the Meadow Creek structure in Bonneville County, installed a drilling rig and equipment capable of drilling to a depth of 6000 feet, and began drilling operations, the well being 14 inches in diameter. This company's activities were instrumental in the starting of other drilling operations by small companies and the investigation of petroleum possibilities in eastern Idaho by two large oil companies.

Butte County

This county witnessed more new mine development, more new investigations and more prospecting and location of new claims than during the past 30 years. A large amount of these activities were inspired to a great degree by the entry into this county of the Federal Mining & Smelting Co., who acquired the Silver Bell group in the Lava Creek district, installed complete mining equipment, and commenced driving a long crosscut tunnel. This tunnel encountered two blind veins which greatly enhance the possibility of the property developing into a substantial producer. The Wilbert Mining Co., Ltd., operating in the Dome district, maintained active production and mine development work throughout the year. This company is one of the largest producers of lead-silver ore in southern Idaho. The Dahle Bros. at the Hornsilver mine, known as the Horn Silver Consolidated Mines Co., maintained active development work throughout the year and were successful in proving a substantial showing of new ore.

Camas County

The Consolidated Mines Syndicate, which is developing a prospect in the Willow Creek district, maintained exploration work with a small crew throughout the summer months. I. E. Haight at the Tafe mine on Little

Smoky installed complete mining equipment, erected new camp buildings, and started an active mine development campaign. This work proved to be encouraging through the exposure of a substantial showing of new ore.

Caribou County

The Anaconda Copper Mining Co., which is operating one of the largest phosphate mines in the United States, enlarged its mining equipment, constructed nine new homes for its employees, and maintained capacity production throughout the greater part of the year. The phosphate rock which this company is producing is shipped to Anaconda, Montana, where it is manufactured into high-grade fertilizer and sold under the trade name of "Anaconda treble superphosphate."

Custer County

The most important event in this county during 1928 was the acquisition of the Empire copper mine at Mackay by the Mackay Metals in June. After this new company acquired control of the property, the mine and mill plants were entirely rebuilt, the mine rehabilitated, an active mine development campaign was started and operations commenced by a large number of lessees. The development work opened up a substantial tonnage of new ore, and at the end of the year the mine and mill were practically on capacity production. The Camp Bird group near Clayton was acquired by H. B. Kingsbury of Wallace and Wilbur Greenough of Spokane, who immediately started mine development and the construction of a hydroelectric power plant. After the plant is completed, during the early part of 1929, it is proposed to develop the property by a new 400-foot shaft.

The Livingston Mines Corporation improved and enlarged its mine and mill plants and proved the extent of its ore reserves through additional development at depth. This company is the largest producer of lead and zinc ore and concentrates in southern Idaho and maintains one of the largest pay rolls. The Twin Apex Mining Co. on Squaw Creek near Clayton, the Aztec Mining & Milling Co. on Fourth of July Creek, and the Crater Mines Co. on Lake Creek conducted active operations during the summer months. A large amount of new development work was performed by the MacGinniss-Walker Metals Co. at the Phi Kappa group and the Black Rock group, both on the head of Big Lost River, and the Franklin group on Yankee Fork. The Red Bird mine of the Ford Motor Co. was idle throughout the year, while the only operation conducted at the Ramshorn was that conducted by lessees, who produced and marketed a small tonnage of high-grade hand-sorted ore.

Gem County

The only active mine in this county was the Lincoln Mine Operating Co., which controls the famous old Lincoln mine at Pearl. This company maintained a pay roll of 20 men throughout the year, unwatered and repaired the 600-foot vertical shaft, and performed a small amount of development work.

Idaho County

A gradual return to more normal conditions, under which gold mining is again becoming profitable, affected this county during the year by a small substantial increase in mining operations, investigations, new enterprises and increased production. The most important of these was the resumption of operations by the Unity Gold Mines Co., which remodeled its mill, adding flotation cells, and performed a large amount of new development work in addition to operating the mill throughout the greater part of the year. An important production from a new mine was that from the Lone Pine group at Golden, Ten-Mile district, which is owned by F. O. Miiller and son; they remodeled their 5-stamp mill, constructed new camp buildings, performed a large amount of development work, and marketed a substantial amount of bullion. A new enterprise of importance is the Golden Anchor Mining Co., which purchased the Holte mine in the Marshall Lake district, constructed a small hydroelectric power plant, and commenced driving a long crosscut tunnel which will intersect the Holte vein at a substantial depth below the present workings.

The Buffalo-Idaho Mining Co. at the Mackey group in the Ten-Mile district, the Garner Electric Range Co., developing a talc property near Pollock on the Little Salmon River, and the Moose Creek Placers Co. at Elk City were active throughout the year. The principal development of importance in the Elk City district was that of George Henton, who was actively engaged in churn-drilling extensive placer ground in that vicinity. The results of this work were satisfactory, a company has been organized, and an additional drill will be installed early in 1929, that all of the ground may be prospected at an early date, in anticipation of the construction of a large dredge. The Salmon River Development Co., whose enterprise is based on the recovery of black sand from the bars of the Salmon River, commenced the construction of a large flume to convey the waters of Lake Creek to the ground it proposes to mine.

Kootenai County

This county witnessed more development and prospecting in the vicinity of Coeur d'Alene Lake than at any time during the past few years. The principal companies developing prospects in this vicinity are: Silvertip Mining Association, Caribou Mining Co., Ltd., Bluebird Mining Co., Royal Mining Co., Gray Wolf Mining Co., and Wolf Lodge Mining Co.

Latah County

The development of the mica deposits in this county was resumed during the year. The principal one of these was the Muscovite Mica Co., which reported that it had driven a 300-ft. tunnel to intersect the vein at greater depth.

Lemhi County

In point of production and number of men employed, Gilmore continues to be the most active mining camp in Idaho outside of the Coeur d'Alene district. The Pittsburgh-Idaho mine of the United Idaho Mining Co., a subsidiary of the U. S. Smelting, Refining & Mining Co., is the largest lead-producing mine and maintains the second largest pay roll in southern Idaho. During the year this company extended its shaft from the 800-foot level to the 1000-foot level, where the ore bodies proved to be of greater extent than on the 800-foot level. In addition to sinking the shaft, this company performed a large amount of development work and produced and marketed a large tonnage of high-grade, direct-shipping ore, some of which was obtained by lessees. During the year the United States Smelting, Refining & Mining Co. obtained a lease and option on the Allie mine and commenced developing it through what is known as the Transportation tunnel. This tunnel is about 600 feet under the upper workings, which were operated throughout the year by lessees who produced a substantial tonnage of direct-shipping ore. Two small organizations developing prospects in the Gilmore district were also active during the year. The Spring Mountain and Nicholia districts witnessed a little increase in activity over the previous year, and one small organization shipped two carloads of hand-sorted ore.

The only work done in the Leadore district during the year was necessary annual labor. In the vicinity of Salmon there was a marked improvement in mining conditions which was principally brought about by the operations at the Pope-Shenon mine by the lessee, the Winder-Stillman Copper Co., which rebuilt the mill, added flotation cells, performed a large amount of development work in the mine, and produced and marketed a substantial tonnage of high-grade copper concentrate. The Tendoy-Copper Queen Mining Co., operating the Copper Queen mine, rebuilt the mill, constructed new mine camp buildings, and placed the mine in condition for operation. The Harmony Mines Co. performed a small amount of development work and operated its mill for a short period, although the company's principal activity appeared to be that of raising more funds.

In the Leesburg district the principal new activities were based on the revival of hydraulic placer mining. Four enterprises constructed ditches, dams, and flumes, completed the installation of hydraulic mining equipment, and performed a small amount of hydraulicking. These were: Bonanza Placer, Inc.; H. F. Byram at the McNutt Placers on Moose Creek; Montana

Mining & Livestock Co.; and Leesburg Placer Mine Co. The Patterson Mines Corporation, which is operating the Ima mine on Patterson Creek in the Pahsimeroi district, completed the rehabilitation of the power plant and mill and commenced active mine development work. The Clipper Bullion mine in the Shoup district was acquired by H. W. Ingalls and associates of Mullan, and development work started in October. The Buckhorn Mining Co., a new organization on the Sellers Bros. property on Little Eight-Mile, installed a compressor, complete mining equipment, and began the active development of the property.

Owyhee County

The new dredge of the American Gold Dredging Corporation, being of the flume type, was completed and placed in operation in January, 1928, and continued without much interruption throughout the year. During the year three new development enterprises were started, and a large number of investigations by those seeking gold-silver mines were conducted.

Shoshone County

During 1928 this county witnessed more new development, the starting of more new enterprises, more new profitably operating mines, a larger pay roll, and a greater production than at any time since the peak of wartime activities. At least three new producers reached the stage that places them in the list of mines with an assured future, and two others rapidly approached that position. All the large mines conducted active development work throughout the year which proved the extent of their ore bodies at increased depth and laterally. The increased ore reserves and the improvements added to mine, mill, and smelter plants, together with the new Sullivan zinc plant, have greatly enhanced the physical condition and future life of the mines, as well as assuring a long period of prosperity for the Coeur d'Alene district. The thought and attention that all of the large operators are giving to safety conditions and safety supervision were reflected in the smallest number of fatal accidents that have ever happened throughout the district in any one year.

The principal producing mines in which the ore reserves were increased by new development work during the year were: The Bunker Hill mine of the Bunker Hill & Sullivan M. & C. Co., whose ore deposits were opened on the 1900-foot level; the Hecla mine of the Hecla Mining Co., where the shaft was extended and ore opened to the 2800-foot level from the 2000-foot level; the Morning mine of the Federal M. & S. Co., opened to the 3450-foot level, and the Page mine of the same company to the 900-foot level; the Sunshine mine of the Sunshine Mining Co., to the 900-foot level; the Dayrock Mining Co., formerly the Strattons Mines Co.; Sidney Leasing Co.; Jack Waite Consolidated Mining Co.; Sherman Lead Co.; Douglas Mining Co.; Galena mine of the Callahan Zinc-Lead Co.

The most important new construction work completed during the year was the electrolytic zinc plant at Kellogg which was built by the Sullivan Mining Co. to treat the zinc ores of the Coeur d'Alene district. The Sullivan Mining Co. is owned jointly by the Bunker Hill & Sullivan M. & C. Co. and the Hecla Mining Co. The Hercules mill at Wallace, owned by the Hercules Mining Co., was rebuilt, a zinc flotation unit added, and converted into a custom mill which now offers milling facilities for practically all the mines operating in the vicinity of Wallace. During the year this mill treated the ores from the following mines: Tamarack & Custer Consolidated Mining Co.; the Humming Bird Mining Co.; the Sherman Lead Co.; and the Dayrock Mining Co., as well as from a few small producers.

Other new construction work was: New flotation concentrator of the Dickens Consolidated Mines Co.; new flotation concentrator of the Golconda Lead Mines; the rehabilitation of the Amy Matchless mill by the Lookout Mountain Mining & Milling Co.; and completion of the new flotation concentrator of the Cedar Creek Mining & Development Co.

Working conditions throughout the Coeur d'Alene district are exceptionally favorable. All the mines are well ventilated, and the operators devote much time and thought to making the mines safe and keeping them in

such condition that the men can do a full day's work without expending the energy that is necessary in poorly ventilated mines. Both attention and money have been devoted to this phase of the operations, and it can safely be said that these are the best ventilated mines in the country. Serious attention is given not only to ventilation, but to safety, recreation, and general welfare. The value of the welfare work to company employees and to the communities has been demonstrated through the Morning Club at Mullan and the new club house built at the Page mine in 1928, both erected by the Federal M. & S. Co.; the Y. M. C. A. Building at Kellogg, donated by the Bunker Hill & Sullivan M. & C. Co.; and the Hercules Hall at Burke, erected by the Hercules Mining Co. Another outstanding contribution to this work is the baseball field—located a short distance above the town of Burke and named Hearn Field in honor of W. F. Hearn of that town—which the Hecla Mining Co. constructed and donated to the community during 1927. The building of the field involved engineering and construction difficulties, as level land in this vicinity is unknown; it was done in the interests of inter-mine baseball teams, which are sponsored by all the large mines and between which there is keen rivalry.

The outstanding new developments, new construction and new enterprises can best be reviewed through an outline by companies.

The extensive development work which was done during 1927 in the Bunker Hill mine greatly increased its resources. The completion of the shaft to the 1900-foot level and the opening of the ore bodies at that depth, where the ore and geological conditions were found to be normal, added much to the life of the mine which is estimated in decades instead of in years. The Bunker Hill & Sullivan M. & C. Co., because of the magnitude of the Bunker Hill mine, has become more of a manufacturing than a mining operation, and with its smelter, mills, experimental plants, and organization, is one of the largest of its kind in the world. This company maintained its usual production record throughout the year, and the many plant betterments which were added greatly increased the efficiency of the enterprise. The principal betterments were the remodeling of the Sweeny mill and enlargements and improvements at the smelter and the surface plant of the mine. The Tainton electrochemical experimental lead-leaching plant was modified and improved, and many details perfected which add greatly to the importance of the process. In addition to extensive development work in the Bunker Hill mine, this company was actively engaged in prospecting and developing other properties throughout the Coeur d'Alene district, in Valley County, and in Nevada, Alaska, and Canada. A projected tunnel one mile in length, to intersect the Crescent vein at a greater depth, was started on the property formerly owned by the Big Creek Mining Co., the portal of this tunnel being located adjacent to the Crescent mill, which was constructed in 1927.

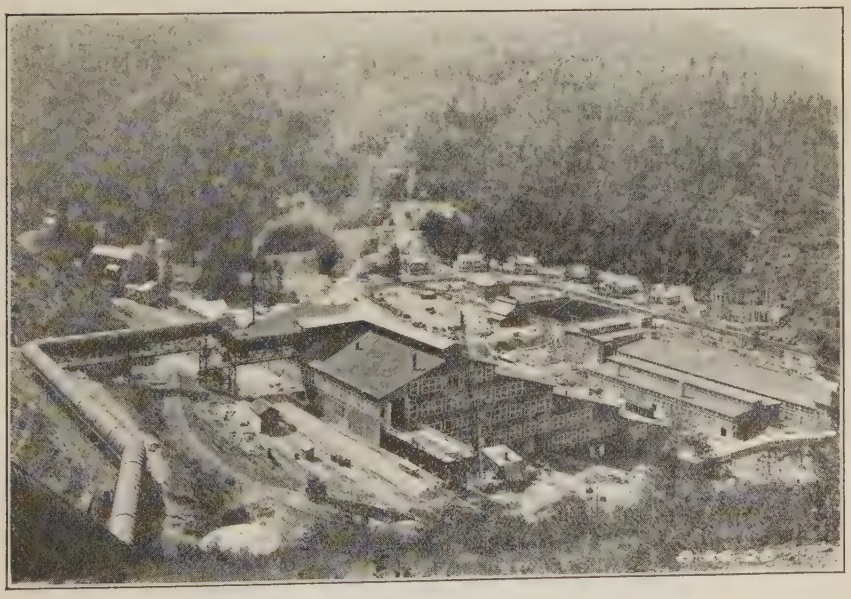
The Hecla Mining Co., which is recognized as one of the principal lead-silver producing companies of the United States, greatly increased its ore reserves and resources in the Hecla mine. The vein was further explored on the 2800-foot level and work was completed in sinking the main shaft to this level. The mine and mill plants were enlarged and improved, and the mine maintained in first-class condition. In addition to this, the contract was let for and construction was started on the installation of a powerful new electrically operated hoist; when installed, this hoist will be the largest and most complete in the Coeur d'Alene district. At the old Tiger-Poorman mine, which was purchased in 1920, machinery and equipment were installed in 1927 and work was started on unwatering it to the 600-foot level. During 1928 this work was completed, and a large amount of exploration work was done on the 300-foot and 600-foot levels.

The Morning mine of the Federal Mining & Smelting Co., which is one of the oldest in the Coeur d'Alene district in point of continuous production, as well as one of the largest lead-silver-zinc mines in the United States, was maintained at capacity production throughout the year. The number of years that this record will continue is unknown, as development

work on the 3250 and 3450-foot levels has proved the ore bodies to be larger and more extensive than on any of the upper levels. During the year the 3050-foot level was opened to the full length of the ore, and the shaft completed from the 3050 to the 3450-foot level. The mine and mill plants were greatly enlarged and improved. The principal improvement was the installation of a modern electrically operated hoist, which required the cutting of a new station for its accommodation. The change in the milling methods from jigs and tables to fine grinding and flotation resulted in a reduction of milling costs and an increase in recoveries. In addition to the ore mined under company operation, a large tonnage was extracted from the upper levels by a number of lessees; the most important of these is the Sheridan Lease, which employes over 100 men.

The Page mine of the Federal Mining & Smelting Co., in Government Gulch near Kellogg, was reopened in 1926, equipped with mine and milling plants, and placed on a producing basis. It was operated throughout 1928 on a profitable producing basis. During the year the ore bodies were fully opened on the 900-foot level, at which point they proved to be of greater extent and higher grade than on any of the upper levels. The success of this operation can be accredited entirely to flotation, because with the old milling methods it was impossible to mine and mill such low-grade ore at a profit. One of the valuable improvements added to this mine during the year by the company was the construction of a club house and recreation hall for the benefit of the employees.

The Sullivan Mining Co. suspended production in 1927 at its Star mine, pending completion of its new electrolytic zinc plant at Kellogg, and devoted all its energies to this construction and to underground development work. The 4000-foot level of the Star mine is connected with the 2000-foot level of the Hecla mine by the Star crosscut, which is 8900 feet long. This crosscut made a blind connection with the Star vein at a point 2800 feet below the Star tunnel, and a vertical operating raise, which was driven to connect the crosscut and Star tunnels, was completed during the year. In addition to this work, the mine was further placed in a position



SULLIVAN ELECTROLYTIC ZINC PLANT.

to permit production, which is anticipated early in 1929. The zinc plant, which was fully described, with flow sheet and illustrations, in the 1927 report of the mining industry of Idaho, was completed and formally placed in operation on June 24, and the first metallic zinc was produced on August 3. The metal produced by this plant is of exceptionally high grade and is finding a ready market at an increase in price over that of any other zinc metal. This part of the Sullivan Mining Co. now constitutes one of the largest and most important enterprises in the Pacific Northwest, and one which assures the perpetuation of the mining industry in Shoshone County.

The Tamarack & Custer Consolidated Mining Co., which operates one of the substantial producing mines of the Coeur d'Alene district, maintained a steady output and an extensive mine development campaign throughout the year. During the year a sorting plant was installed at the portal of No. 7 tunnel; the mill and tramway were abandoned, and No. 7 tunnel was converted into the outlet for the ore, whence it was transported to railroad cars and then to the Hercules Mining Co.'s mill at Wallace, which began to treat the entire output from this mine.

At the Galena mine of the Callahan Zinc-Lead Co. capacity output, together with an extensive development campaign, was maintained until July, at which time the mill was placed on a one-shift basis, the men being taken from production work in order to increase development. At the same time an extensive diamond-drilling campaign was started. The diamond drilling was successful in encountering a heretofore unknown vein, and at the close of the year work had started on driving a crosscut to it. As this mine is located in the so-called "dry belt," or south side of the district, the success it is attaining has been an important factor in stimulating development throughout this area.

The Sunshine Mining Co. improved its mine and mill plants, and installed a new eletrically driven hoist at the winze on the 500-foot level. The extension of the winze from the 700 to the 900-foot level was completed and the ore opened on both of these levels, at which points it proved to be of greater extent and value than at any of the upper levels. In addition to the foregoing, a large amount of lateral development on the various levels was performed. This work greatly increased the ore reserves. The payment of dividends, which was started in 1927, was continued throughout the year.

The Sidney, operated by the Sidney Leasing Co., suffered a severe handicap through the destruction by fire of the upper terminal of its tramway. This retarded production, as well as decreasing the dividend payments from those made during previous years. The terminal was reconstructed, the shaft sunk an additional 200 feet in depth, and a large amount of lateral development work performed. This work greatly increased the ore reserves. The fact that this mine, located on Pine Creek, is being operated at a substantial profit, is significant in proving that this section of the Coeur d'Alene district is not without merit.

One of the large and most active development campaigns conducted during the year, including mine improvement, was that of the Dayrock Mining Co., formerly Strattons Mines Co., at the Stratton mine. During the year the shaft was extended to the 400-foot level and a large amount of development work performed on the 300-foot level. This work greatly increased the known ore reserves. In addition to the foregoing, production was maintained throughout the year and the enterprise was placed on a profitably operating basis. This mine is fast developing into one of the important producers of the Coeur d'Alene district.

The Gold Hunter Mines, Inc., at Mullan, one of the oldest mines in Shoshone County in point of continuous production, maintained capacity output and an extensive development campaign during the year. The principal new work was drifting on the 1500 and 1600-foot levels, which resulted in exposing new ore. By proving the continuation of its ore at this depth, the company greatly increased its resources and future life.

In addition to the foregoing work, the mill was enlarged and improved by the addition of more modern equipment.

In January the Jack Waite Mining Co., Ltd., which owned the Jack Waite mine on the Idaho side of the State line, and the Silver King Mining Co., a Montana corporation which owned the Jack Waite Extension on the Montana side of the line, were merged as the Jack Waite Consolidated Mining Co., after which the mine was entirely rehabilitated, electric-trolley haulage installed, the mill modernized and its capacity increased to 400 tons per day, a large amount of lateral development work performed, and a winze sunk on the ore body to a depth of 200 feet. The new improvements and the additional ore exposed added greatly to the importance of this enterprise.

The Constitution Mining & Milling Co., whose mine is on Pine Creek, was idle throughout the greater part of the year, because of fire destroying the entire surface mine plant. The plant was reconstructed, new equipment installed (including a new electrically driven hoist), and the shaft from the tunnel level to the 400-foot level was completed.

The Douglas Mining Co., Ltd., whose property is located on Pine Creek near the Constitution, maintained an active development campaign until February, at which time the entire surface plant was destroyed by fire. As rapidly thereafter as possible, complete new buildings were constructed, new equipment installed (including electrically driven hoist), and operations were resumed. The development work consisted principally of extending the No. 2 and No. 3 tunnels; in December work was started extending the shaft from the 180 to the 300-foot level. This work resulted in greatly increasing the known ore reserves.

One of the largest new mills to be constructed in Shoshone County during the year was that of the Dickens Consolidated Mines Co., whose property is on Moon Creek. In addition to constructing the mill, the company maintained an active development campaign throughout the year. This work consisted principally of sinking the shaft from the No. 5 to the No. 7 level and lateral development work on both of these levels.

One of the principal new mines which started production during the year was that of the Sherman Lead Co., whose property is on Canyon Creek east of the Tamarack & Custer. Its mine is connected with the No. 5 tunnel of the Hercules mine through the Humming Bird workings, and the ore was taken to the Hercules Mining Co.'s mill at Wallace for reduction. In addition to maintaining production throughout the greater part of the year, a large amount of development work was performed. This company absorbed the Oreano Mining Co., Ltd., through an exchange of stock, thus adding five important mining claims to its holdings.

The Humming Bird Mining Co. conducted an active development campaign throughout the year and produced a substantial tonnage of ore, which was sent to the Hercules Mining Co.'s mill at Wallace for treatment.

One of the largest development campaigns on Pine Creek during the year was that of the Lookout Mountain Mining & Milling Co., which also performed some new construction and installed new equipment. In March its No. 3 tunnel encountered an excellent showing of ore, after which ore-bins were constructed, an aerial tramway 1600 feet in length installed, new camp buildings erected, and the Amy Matchless mill acquired under lease and rehabilitated. After this work was completed, the ore was transported from the terminal of the tramway to the mill by truck and a small tonnage of concentrate was produced. The vein was opened to a depth of 150 feet below No. 3 tunnel by a shaft.

One of the principal new mills constructed during the year was the 200-ton flotation concentrator of the Golconda Lead Mines. The mill building was erected, machinery and equipment installed, and operations started on August 1, after which capacity production was maintained on a 24-hour operating basis for the remainder of the year. During construction of the mill, the mine was actively developed and placed in position for production. This work consisted principally of completing the

800-foot raise from the Mayflower tunnel to the surface and extending the vertical shaft from the 1200 to the 1400-foot level. In November this company purchased the property owned by the Mayflower Mining & Development Co., thus acquiring title to its principal operating tunnel and greatly adding to the extent of its holdings.

On Nine Mile Creek near the old Success mine, the Bell of the West Mining Co. constructed two large boarding and bunk houses, office building, blacksmith shop, and compressor building and installed an electrically driven hoist and complete mining equipment preparatory to starting an active development campaign.

At the King of Pine Creek mine the New Jersey Consolidated Mines Co. constructed a new blacksmith shop and a compressor building, installed an electrically driven compressor and an air-driven hoist, erected a headframe, and commenced sinking a 200-foot vertical shaft.

Companies which installed new equipment and conducted active development work during all or part of the year were as follows:

The Cedar Creek Mining & Development Co., Ltd., installed a large electrically driven compressor, completed adjustments on its new mill, which was built in 1927, and commenced milling operations in April. After running the mill a short period it was found necessary to suspend operations pending installation of the new compressor.

The Delaware Mines Corporation installed a new electrically driven compressor and complete mining equipment at the Red Monarch tunnel and commenced the extension of this tunnel under contract.

The Lansing Silver-Lead Mining Co. installed a small gas-driven compressor and complete mining equipment, and conducted an active development campaign throughout the greater part of the year.

The Mutual Mines Development Co. erected a new building and installed a new electrically driven compressor to replace its former equipment which was destroyed by fire in February. Excepting the time lost on account of the fire, this company maintained an active development campaign throughout the entire year.

The Blue Eagle Mining Co., whose property is on Pine Creek, installed a new electrically driven compressor and complete mining equipment, and performed a small amount of development work under contract.

The Commercial Traveler Mining Co. installed an electrically driven compressor and complete mining equipment, and drove a 500-foot crosscut tunnel under contract.

The Decker Development Co., which controls the old Stewart mine at Kellogg, installed a 4-drill electrically driven compressor and reopened the main haulage tunnel.

Companies which employed more than five men and which conducted development work throughout the year were as follows:

The Alameda Mining Co., whose property adjoins the Success mine on Nine Mile Creek, further explored the vein by drifts and raises.

The Ajax Mining Co. extended its shaft from the 200-foot to the 400-foot level, and performed a large amount of development work at the lower levels.

In April the Atlas Mining Co. commenced work on a projected 3000-foot drift on the Carbonate Hill vein. The Evolution Mining Co. performed a small amount of development work on the 300-foot level and commenced extending the shaft an additional 200 feet. The Hecla Extension Mining Co. unwatered the Anchor shaft to the 600-foot level, after which a large amount of development work was performed on that level. Part of this work consisted of diamond drilling. The Hypotheek Mining & Milling Co. performed a large amount of drifting and crosscutting on the 900-foot level of its mine.

The Independence Lead Mines, Ltd., maintained an active development campaign throughout the year. This work consisted principally of extending the No. 4 tunnel, which is the lowest level in the mine. The Little Sunshine Mining Co. completed its crosscut to a total length of 2700 feet.

The Nabob Silver-Lead Mining Co. unwatered its 300-foot shaft and performed 1200 feet of development work by contract.

The Olympic Mines Co., whose property is on Pine Creek, was active throughout the year. At the property of the Silver Summit Mining Co. mine buildings were erected and work was started on a projected 4000-foot crosscut. The Wolverine Mining Co., Ltd., extended its shaft from the 150-foot level to the 450-foot level and commenced drifting at the lower level.

Valley County

One of the largest and most important enterprises bearing on the future of south-central Idaho is the mine plant installed, buildings erected, and road construction performed during 1928 by Fred W. Bradley, president of the Bunker Hill & Sullivan M. & C. Co., operating as the Yellow Pine Co. near Yellow Pine. During the year construction on a 12-mile highway from Yellow Pine to Meadow Creek was started; a steam-driven sawmill, compressor, and complete mining equipment were installed at a large expenditure, as the equipment had to be drawn over the old Thunder Mountain road. The Yellow Pine Co. is developing the Meadow Creek gold mine and the quicksilver properties of the United Mercury Mines Co. Another large operation in this county which is also of importance to southern Idaho is that of the Bunker Hill & Sullivan M. & C. Co. at the Hall Interstate and Lost Pilgrim mines. During the year this company completed the erection and installation of a 100-ton flotation concentrator with a building of sufficient capacity to house a 300-ton one, performed a large amount of development work, and placed the mine and mill in condition for production early in 1929.

The beginning of construction by the U. S. Forest Reserve on its projected highway from Yellow Pine over Profile Gap into the Edwardsburg and Big Creek districts, of which approximately 4 miles were constructed during the year, was one of the principal new road projects to be started. This road and the road into Meadow Creek, which is being constructed by the Yellow Pine Co., will open up one of the largest virgin mineral districts in the State—the Big Creek and Edwardsburg districts. During the year these districts received more attention from prospectors and large organizations seeking gold-mining enterprises than at any time since the Thunder Mountain boom, and at the close of the year three new organizations were actively engaged in raising funds with which to commence work in 1929.



TRANSPORTATION DURING WINTER MONTHS IN CENTRAL VALLEY COUNTY.

OWNERSHIP OF TIMBER ON UNPATENTED MINING CLAIMS IN FOREST RESERVES

On February 11, 1928, Judge C. C. Cavanah, of the District Court of the United States for the District of Idaho, Northern Division, rendered an important decision bearing upon the ownership of timber on unpatented mining claims in Forest Reserves and the right of the Secretary of Agriculture, through the Forest Service, to sell or dispose of any timber within the boundaries of such a claim.

The case originated in Shoshone County, where the Forest Service had entered into a timber sale contract with the Jack Waite Mining Company. In accordance with the terms of this contract the mining company was permitted to cut "approximately 500,000 feet of timber * * * from certain mining claims located and possessed by" Dan Beasy, Frank McLaughlin, James Leary and Dennis Conners. These men, acting through their attorneys, applied to the State District Court of Shoshone County for a restraining order temporarily forbidding the mining company to cut timber on the mining claims in question. This order was granted. Shortly thereafter the United States District Attorney, upon representations made by the Forest Service, brought an action in the Federal Court, in the name of the United States Government, against the owners of the mining claims. This action asked the court to restrain the claim owners from interfering with the mining company in carrying out the terms of its contract with the Forest Service. In denying the Government's prayer for a temporary injunction, Judge Cavanah said in part:

> " * * * * The only contention of the government is that the Secretary of Agriculture has a right to sell and dispose of the timber in the national forests, and that although the defendants may have a valid lode mining location, yet they have no exclusive right to the timber growing thereon.
>
> "This brings us to a consideration of the principal question involved, as to what are the rights of the locator of a mining claim upon public lands, and we must turn to Section 2322 of the Revised Statutes of the United States (U. S. Comp. Stats., Sec. 4618, p. 5466) to determine it.
>
> "It is there declared that the locators 'shall have the exclusive right of possession and enjoyment of all the surface included within the lines of their locations, and of all veins, lodes, and ledges throughout their entire depth, the top or apex of which lies inside of such surface-lines extended downward vertically,' etc. This right has been extended to the use of sufficient timber upon the claim for development purposes, and includes the use of timber for fuel and what is necessary for shafts, tunnels and the construction of buildings as may be necessary as an adjunct to such development. The purpose of Congress in enacting this statute was to secure the fullest working of the mines and complete development of the mineral property by securing to the locator the undisturbed possession of not less than a specified amount of surface, and this surface is as much the property of the locator as the vein or lode discovered and located by him. * * *

"It is true that the locator has only a possessory title, but it is just the same a valuable property right, and as long as he complies with the law it is good against the United States as well as the world. * * And when it appears, as it does here, that the locators of these claims have initiated them in good faith, and have complied with the spirit of the law, their rights will be protected not only to extract ore from the claims, but also to the use of the timber growing thereon in the development thereof, against any act or attempt on the part of the United States to deprive them of such use of the timber.

"In the well considered opinions in Teller v. United States, 113 Fed. 273, and United States v. Rizzinelli, et al., 182 Fed. 675, the conclusion is reached that the rights of a locator of a mining claim within the boundaries of a forest reserve are substantially those of one who locates such claim upon the public domain, and gives the locator the right of 'exclusive possession and enjoyment of all the surface of their locations.' His rights of enjoyment, including the surface of his claim, are not qualified nor can they be infringed upon by including the claims in a forest reserve.

"The general mining laws of the United States apply to mining claims located within the forest reserves, as the Act creating the national forests declares that any mineral lands therein which have been or which may be shown to be such, and subject to entry under the existing mining laws of the United States, shall continue to be subject to such location and entry, notwithstanding any provision of the National Forest Act.

"Having reached the conclusion that the defendants have initiated in good faith their location of these claims, and are complying with the law in possessing and operating the same, and have exclusive right to the use of the timber in question for mining purposes, we then find from the undisputed affidavits presented by the defendants that all of the 750,000 feet of timber growing upon the claims will be needed in their development, and that one-fifth of that amount has already been cut and removed by the defendants. If the Secretary of Agriculture can deprive these locators of two-thirds of the timber upon the contention that they do not need but one-third thereof, he would be granted the power of deciding what amount of timber is necessary to be used in the development of mines, and those engaged in locating and developing mining property would have to secure permission from the Secretary as to the amount of timber they could use upon their claims. The law does not contemplate such a course to be taken. Should the court restrain the defendants from cutting and using the 500,000 feet of timber covered by the contract of sale between the United States and the company, and the company is permitted to deprive the locators of the necessary use of it in the development of their claims, then we have a situation of the Government first, by statute, granting to the defendants, as locators, the exclusive right to the timber, and thereafter conveying it to another, thus depriving the first locators of their statutory right of use. It would be an idle thing to grant an exclusive right by one act of law, and then take it away by another. This course is not only in violation of their rights granted by the statute, but does not appeal to a court of equity as being just."



Fig. 1. 110,000-VOLT TRANSMISSION LINE IN BURKE CANYON

ELECTRICITY IN THE COEUR D'ALENE DISTRICT

By R. B. Childs,
The Washington Water Power Company.

The use of electricity for mining operations in the Coeur d'Alene mining district is not a new idea. Thirty years ago there were several small isolated plants in the district, both hydroelectric and steam, that supplied power for pumps, compressors and small miscellaneous motors. The early prospectors and operators believed that there were tremendous ore bodies awaiting development and that the district contained untold mineral wealth. It was evident that considerably more power than was then available in the territory was essential if these developments were to be made, and it was logical to obtain such power from some public utility generating power outside the district.



Fig. 2. 20,000 K.V.A. BUNKER HILL SUBSTATION

In 1903, The Washington Water Power Company built the first high tension transmission line into the Coeur d'Alene from its plants near Spokane. Electric power was delivered over this line at a potential of 60,000 volts as far as Kellogg, in August of 1903, and by December of the same year, the line was extended to Burke. This marked the beginning of increased mining and milling operations which have gone forward steadily year by year. Believing in the future growth of the district and in order to make the existing service more reliable, the Power Company built another 60,000-volt line in 1907 from Spokane as far as Cataldo and continued this second line on to the switching station at Mullan Junction in 1909. These two lines supplied all the power used in the territory up to 1915 when the Idaho Trans-

mission Company built two 110,000-volt lines into the Burke district and supplied power from Thompson Falls to various customers in that area.

In the meantime, the growth in the Power Company's load kept pace with the increased mining operations. As the ore persisted to depth, existing shafts were deepened; larger compressors were installed; electricity was available at lower and lower levels in the mines; the faithful mule moved into the background and was replaced by the electric locomotive; the increased tonnage necessitated construction of new and larger mills; new ore bodies were discovered, necessitating an ever increasing extension of power lines, and many new other uses were found for electric power. From the early isolated power plants furnishing light and power to the mines thirty-odd years ago, the load has grown steadily until at the present time the use of electric power in the entire Coeur d'Alene district amounts to a demand of some 40,000 horse power.

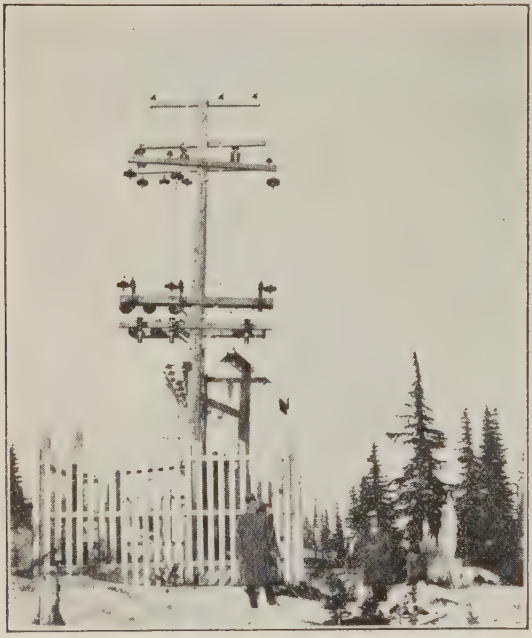


Fig. 3. TYPICAL 13,000 TO 2300-VOLT DISTRIBUTION SUBSTATION

Four years ago, it was felt that the two 60,000-volt lines of The Washington Water Power Company were not going to be large enough to supply the future electric power needs in the district, and in 1926, the Power Company built a new large capacity 110,000-volt line which replaced the original 60,000-volt line built in 1903. The general type of construction of this new line and some of the country which it serves are shown in Figure 1. The second 60,000-volt line referred to above, is still in service, supplementing the new 110,000-volt line and is connected to the latter at the Power Company's substation at Government Gulch.

Power is thus delivered in the Coeur d'Alene mining district from the Power Company's system at 110,000 volts. This is reduced to 13,000 volts through banks of transformers at two main switching stations: one at Kellogg and the other at Mullan Junction. The Bunker Hill substation at Kellogg, shown in Figure 2, supplies power from Cataldo on the west to Osburn on the east. A similar substation at Mullan Junction supplies the load from Osburn to the Wallace district, up the Burke canyon, as far as Larson on the east and into the Murray district on the north. From these switching stations, secondary feeder lines are built operating at 13,000 volts which spread out like the spokes of a wheel, forming a network over the territory. Certain additional feeders can be arranged to connect the main 13,000-volt feeders together in cases of emergency, thus insuring better service and continuity of operation on the secondary network. Power is delivered to the customers for mining operations at 2300 volts and in most cases therefore it is necessary to install a transformer on the customer's premises which reduces the line voltage of 13,000 down to 2300 volts. Figure 3 shows the

general type of construction of such a distribution substation. Where it is possible, more than one customer is served from one of these stations, the determining factors being the size of the customer's load, its location, and possible additional load that may be secured in the future near that particular point.

Outside of the larger operators with extensive surface operations, the mining customers of the Power Company are fortunate in that their operations are underground and are not influenced by weather conditions. The rugged and broken character of the Coeur d'Alene country, the excessive snowfall and storms during the winter months, and the fire and lightning hazard during the dry summer months, all combine to handicap the Power Company in the original construction of its lines and in the maintenance of reliable and continuous service after the lines are built. Reference to Figure 4 will indicate some of the difficulties which the Power Company experiences in maintaining its lines. This is a portion of a 13,000-volt line in the Murray district on the summit near the Idaho-Montana line. In this particular location, the winter conditions are extremely severe and in order to maintain service at all, it was found necessary to replace the ordinary copper wire with five-sixteenths stranded steel wire, to more than double the normal number of poles per mile and to guy practically every structure four ways.

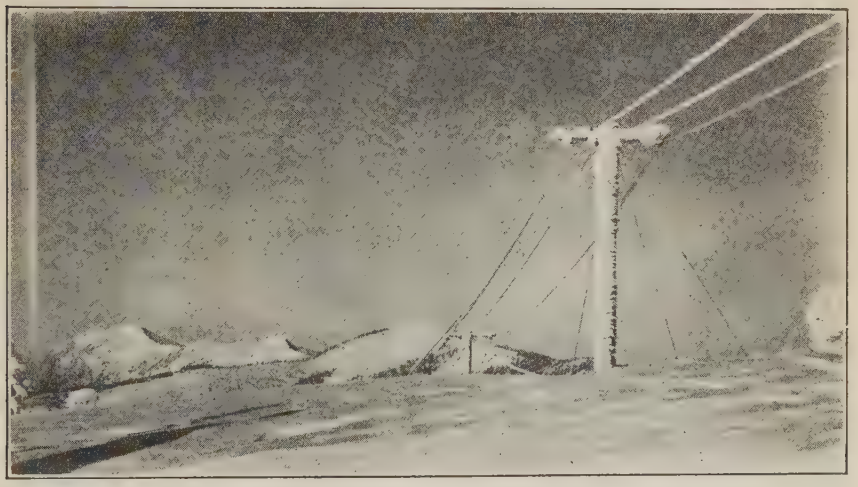


Fig. 4. WINTER SCENE ON 13,000-VOLT FEEDER NEAR IDAHO-MONTANA SUMMIT

Patrolling and maintaining distribution lines over much of the Power Company's Coeur d'Alene territory necessitates the use of snowshoes during the winter months. At such times, travel by automobile is often out of the question, and material and supplies must be handled by horses. Severe storms and the accompanying heavy snows retard the work of repairing any damage to the lines, and reduce very materially the physical effort which a man can put forth on such work. Nevertheless the service must be maintained and the Power Company uses its best endeavor to do so by providing stability in the original construction of its lines, followed by frequent patrolling and inspection. The contour of the country not only makes line construction difficult but also offers obstacles in the location and erection of substations. In the Burke Canyon level ground is at a premium, as the design of the substation shown in Figure 5 will indicate. In this case it was necessary to put the transformers on one level, the 110,000-volt oil cir-

cuit breakers on a higher level and the low-tension switches, lightning arresters and meters on still a higher level.

The flexibility and reliability of electricity make it an ideal form of power for mining operations. This is particularly true in the Coeur d'Alene. If electric power were not universally available in the district, other forms of energy would have to be used, necessitating long and expensive hauling of fuels, oil, supplies, etc. This alone would add materially to the cost of mining operations without taking into account the losses due to delays occasioned by improper functioning of the particular form of motive power employed. Distances in the territory are no real handicap to the transmission of electric power, hence it is relatively as simple to the customer to receive power half way up the side of a mountain as it would be if he were immediately adjacent to one of the main transforming substations.

The uses to which the power is put are varied, and include all the steps in the process incident to the extraction and reduction of the ores. Following the early discovery, electricity provides the energy for the resulting mining, hoisting, milling, concentrating, smelting and refining operations. It is quite a step forward from the early one-man-power hand-operated windlass to the modern 2000-horsepower electrically operated hoist serving depths of over 3000 feet; it is an equally long step from the former discarded complex zinc-lead ores to the modern, highly technical electrolytic deposition of zinc metal. Electric power has played its part in these developments and will continue to help the further advances that are forecasted for the metallurgical art. The past year has witnessed a very material increase in mining activities throughout the entire Coeur d'Alene district, and all indications point toward a continuation of its growth and prosperity.

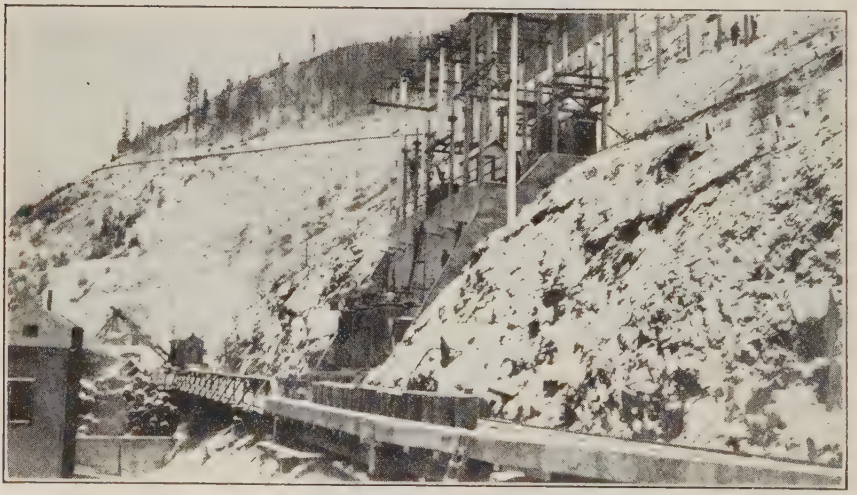


Fig. 5. CONSTRUCTION OF 6,000 K.V.A. SUBSTATION ON HILLSIDE

MINE-RESCUE WORK IN THE COEUR D'ALENE DISTRICT

By K. T. SPARKS, Director, Central Mine Rescue Station.

One of the worst catastrophes that can happen in the mining industry is an underground fire, and few mines are free from such a hazard. If the fire is accompanied by any great loss of life, thereafter that mine has a "black eye" in the minds of the underground workers. In the event of a large fire, a great amount of repair work is necessary before the mine returns to a production basis, and much money is lost on account of the enforced shutdown.

Every mine which has passed the prospect stage should install and maintain a mine-rescue station suitable to its requirements, just as all villages and towns, however small, have some sort of fire department. Stringent fire-prevention measures are a necessity, and next in importance is equipment for fire fighting, including the necessary training of the personnel in the use of the equipment.

In 1923 the principal mine operators in the Coeur d'Alene district, realizing the necessity of mine-rescue equipment and training, established a central mine-rescue station. Since then it has been in operation, working smoothly and at small expense.

The central station is a mine-rescue car, which is maintained in Wallace on a spur track common to both railroads of the district, in order that it may be quickly moved to any point where needed. This car is a large railroad coach rebuilt for mine-rescue purposes. It carries 14 sets of oxygen breathing-apparatus, commonly called "helmets"; 12 large storage tanks of oxygen; 1000 regenerating cans; one power-driven and one hand-operated pump; also spare parts, necessary tools, and miscellaneous equipment, including resuscitating apparatus and various gas-testing devices, as well as a complete line of fire-hose fittings, revolving nozzles, spray nozzles, and quick connectors. The car is equipped with living quarters for a small crew and is ready to move at any time.



MINE-RESCUE CAR

Rescue Stations Located at Mines

The Hecla Mining Co. and the Hercules Mining Co., both at Burke, the Federal Mining & Smelting Co. at Mullan, the Tamarack & Custer Consolidated Mining Co. at Gem, and the Bunker Hill and Sullivan Mining & Concentrating Co. at Kellogg all have complete rescue stations located at their mines. Each of these stations has from 8 to 15 sets of breathing-apparatus and an ample supply of spare parts, regenerating cans, and oxygen pumps. In the event of a large mine fire in the district, the equipment from all the mine stations, together with the apparatus from the mine-rescue car, can be concentrated at one place in a very short time, thus making available about 100 sets of apparatus and a large quantity of spare parts.

Type of Breathing-Apparatus

The Paul self-contained breathing-apparatus is standardized for use in the Coeur d'Alene district, and all the mine stations and the mine-rescue car are equipped with this type. Standardization is an important factor when men from different mines are called upon to help fight a fire in a strange mine, as they gain confidence upon discovering that the apparatus in use is similar to that which they have been trained to use.

The Paul breathing-apparatus weighs about 40 pounds. As the oxygen feed is controlled by automatic valves which give the wearer the amount of oxygen he requires, it is practically "fool-proof". The valves are so set that the pressure inside the machine is slightly greater than that of the surrounding atmosphere, so should a leak develop while the machine is in use there is no danger of the wearer being gassed. This apparatus supplies the wearer with ample oxygen, under average working conditions, for a period of two and one-half hours.

Training of "Helmetmen"

During the year 1928, continuous mine-rescue training was maintained at the large mines mentioned above, so, with men previously trained, there are at present about 225 competent "helmetmen" in the district, and they, together with the breathing-apparatus and equipment, are all available in the event of a fire at any mine.

The men are trained in groups of five, which number has been found to be the most conveniently handled unit for maximum efficiency, both in training and in actual underground fire-fighting. Their training covers a period of three months at three-week intervals for a duration of four hours each time. Preliminary training consists of acquiring the basic principles in the construction, oxygen circulation, and testing of the breathing-apparatus. The men wear the machines first in fresh air and then in an irrespirable atmosphere, which usually consists of formaldehyde fumes or wood smoke. They are required to perform physical labor, both in the fresh air and in smoke, thus learning the limitations of the machines, which establishes their confidence in the apparatus because they know how much work may safely be done while wearing it and the limit for which it can be used at one time. After completing the first course of training, they receive practice one afternoon at intervals of six weeks throughout the year.

First-Aid Work

U. S. Bureau of Mines Car No. 9 visits the Coeur d'Alene district for a period of from five weeks to two months each year. During this period classes are conducted at all the large mines in the district, not only for the miners, but for the general public as well. The course lasts two and one-half hours a night for five nights, and everyone who completes it is given a Government certificate of competency and a First-Aid Manual.

First aid is merely the treatment given a person who has suffered an accident, bridging the time before a doctor can reach the case. The Bureau of Mines course consists of teaching bandaging for wounds on all parts of the body; the application of tourniquets to check arterial bleeding; the proper methods for reducing and dressing dislocations; and the application of splints

for fractured bones. Artificial respiration, burns, nervous shock, strains, and sprains are all discussed and the correct treatment demonstrated. Any one who completes the course has a good working knowledge of first aid and will be competent to handle almost any accident that may happen.

Stench Warning System Installed in Mines

Several of the mines of the district have installed a stench warning system to notify men employed underground that a fire has broken out in the mine. As the name implies, a "stench warning" is obtained by introducing an offensive-smelling substance into the compressed-air pipes and ventilating current. The odor quickly penetrates to all parts of the mine; the men, detecting it, know that a fire has occurred and that they must hasten to the nearest available exit.

The stench system consists essentially of an injector placed in the compressed-air line by means of which the stench material may be introduced into the compressed air. Usually the injector is placed in a by-pass, as it is essential that the stench material should drop on a screen which assists in disseminating it; as such a screen in the main air line is objectionable in normal mine usage, the by-pass is added to the air lines.

The stench material is a liquid with a very offensive odor, having the property of vaporizing quickly and not to be mistaken for any of the usual mine smells. In the Coeur d'Alene district the stench material used is ethyl mercaptan (CH_3CH_2SH); it has a peculiar, strong, onion-like odor, and one pint is sufficient to saturate the air in a large mine. Tests made at one of the largest mines in the district proved that this odor was plainly discernible 4000 feet from the point of injection in a little less than six minutes. The stench material is usually kept in a cabinet near the injector, and a small atomizer or sprayer is provided for introducing it into the injector and the ventilating current.

Value of Oxygen Breathing-Apparatus

During the past ten years there has been a noticeable increase in the use of breathing-apparatus through the United States. Several States now require mines of a certain size to be equipped with oxygen breathing-apparatus and to train their employees in the use of it, and some States maintain well-equipped rescue stations. Several insurance companies grant reduced rates to mining companies whose mines are provided with rescue apparatus and regularly trained men, so the mines in the Coeur d'Alene district are receiving this indirect benefit as a reward for their progressiveness.

The value of mining property saved through the use of oxygen breathing-apparatus is, of course, enormous, and properly maintained apparatus, together with a crew of trained men, is a real asset to any mining company. Apparatus crews have on numerous occasions made hazardous trips through gas-filled passages of mines to rescue the living and recover the bodies of the dead; they have, at the request of responsible authority, changed the ventilation currents, bulk-headed underground fires to localize them, and in many instances fought fires directly. The history of mining is replete with instances in which a mine that has had an underground fire has been saved for future operation solely through the accomplishment of the apparatus men.

The organization of the central mine-rescue station, installation of mine stations, selection of equipment, first-aid and mine-rescue training, fighting of underground fires and rescue work performed have been described in the 1923, 1924, 1925, 1926, and 1927 Annual Reports of the Mining Industry of Idaho. These articles are profusely illustrated with pictures of mine stations, Paul breathing-apparatus, gas masks, and mine-rescue crews from the principal mines in the district.

ACCIDENTS

The minor accidents listed in the accompanying table, pages 40 and 41, "Classification of Accidents", are taken from the records of the Industrial Accident Board and arranged to comply more nearly with the classifications made by the U. S. Bureau of Mines. The table is somewhat misleading, as a very large proportion of the accidents listed "Time Lost Over 14 Days" did not greatly exceed this number of days, and the majority of those listed "One to 14 Days" did not exceed seven days. All accidents that did not cause a loss of time of more than seven days should not have been included, as no compensation is paid. However, as the U. S. Bureau of Mines and many State officials are including these minor injuries in their reports, they are therefore included in the accompanying table as a matter of uniformity.

A comparison of the total accidents in 1928 with those in 1927 shows a decrease of 9 in the number of fatal accidents and a decrease of 184 in the number of minor accidents. A comparison of the total number of men employed with the total number of accidents shows the very low accident rate of 0.48 accidents per 1000 man-shifts. This low rate can be attributed to a great extent to the safety organizations, to the first-aid training given the men by all the larger mining companies, and to the sustained effort and interest maintained in safety work by those in charge, further augmented by close supervision. The results of this work are particularly apparent in the small number of fatal accidents in the large mines of Shoshone County; these mines employ over 80 per cent of the total number of men working in the mines of the State, yet out of a total of 13 fatal accidents during the year only 4 occurred in them.

A comparison of the number of accidents with the number of men employed shows that the accident rate is in direct proportion to the efforts given to maintaining and enforcing safety provisions. The Bunker Hill and Sullivan Mining & Concentrating Co., which has always been very vigilant, has demonstrated that this effort is successful by establishing an accident rate that reflects greatly to the company's credit, showing a large decrease in the number of accidents during 1928 as compared with the number in 1927. During 1928 this company had an average payroll of 985 men, and its accident rate was 0.25 accidents per 1000 man-shifts, as compared with a rate of 0.32 in 1927. Its nearest competitors among the large mines were the Federal Mining & Smelting Co., with an accident rate of 0.88 per 1000 man-shifts, and the Hecla Mining Co., with a rate of 1.14 accidents per 1000 man-shifts.

Out of a total of 1120 accidents during the year, 13 were fatal, which is the smallest number in any year since 1921. Seven of these fatalities could have been prevented, had the victims been more careful; company responsibility can be placed for two of them; and the others were unavoidable. Out of the 1107 minor accidents listed, 552 did not compel a loss of time to exceed 14 days; 511 incapacitated the injured person for more than 14 days; and 44 resulted in a permanent injury.

The loss of both legs or arms, one leg and one arm, total loss of eyesight, paralysis or other condition permanently incapacitating a workman from doing any work of a gainful occupation, is classified as "Permanent Total Disability." The loss of one foot, leg, hand, eye, one or more fingers, one or more toes, any dislocation where ligaments are severed, or other injury known in surgery to be a permanent partial disability, is classified as "Permanent Partial Disability."

Notes on Fatal Accidents

January 6, John Colonello, Lessee; Shoshone County. John Colonello, age 38, married, lessee. Deceased and Olaf Wold were going down into the mine in a skip. When they came to the 200-foot level two other miners were retimbering a cave and were having some trouble inserting the lagging. Colonello stopped and helped them place the lagging, which one of the men

wished to nail, but Colonello told him to leave it as it was, that it was perfectly safe, and for the two of them to get another lagging. Colonello and Wold then continued on down in the skip to the 500-foot level. As the other two men returned with the lagging which they had been sent to get, they saw the lagging that had recently been placed fall out and drop down the shaft. When the skip stopped at the 500-foot level they waited to see if a signal was given to move the skip. None being given, they decided to climb down and see what had happened. They found Wold outside the skip with his side torn and disemboweled, while Colonello was found inside the skip with his chest in the heart region terribly crushed. Both men had met instant death. The lagging was lying by the side of the skip. The miner who wanted to nail this lagging in place evidently knew that there was danger in leaving it unsecured; when Colonello told him not to do it but to get another lagging, it is conclusive that Colonello was willing to take a chance for the sake of saving a little time. The result was that no time was saved and two lives were lost.

January 6, Sather Lease; Shoshone County. Olaf Wold, age 33, single, miner. Deceased and John Colonello were going down into the mine in a skip. When they came to the 200-foot level two other miners were retimbering a cave and were having some trouble inserting the lagging. Colonello stopped and helped them place the lagging, which one of the men wished to nail, but Colonello told him to leave it as it was, that it was perfectly safe, and for the two of them to get another lagging. Colonello and Wold then continued on down in the skip to the 500-foot level. As the other two men returned with the lagging which they had been sent to get, they saw the lagging that had recently been placed fall out and drop down the shaft. When the skip stopped at the 500-foot level they waited to see if a signal was given to move the skip. None being given, they decided to climb down and see what had happened. They found Wold outside the skip with his side torn and disemboweled, while Colonello was found inside the skip with his chest in the heart region terribly crushed. Both had met instant death. The lagging was lying by the side of the skip. The miner who wanted to nail this lagging in place evidently knew that there was danger in leaving it unsecured; when Colonello told him not to do it but to get another lagging, it is conclusive that Colonello was willing to take a chance for the sake of saving a little time. The result was that no time was saved and two lives were lost.

April 23, Hecla Mining Co.; Shoshone County. John Mansfield, age 21, single, shoveler. Deceased was shoveling in the face of a stope. A large slab of rock fell from the face of the stope one floor above him. The rock broke through the floor under which he was working and struck him, killing him almost instantly.

May 14, Sherman Lead Co.; Shoshone County. Donald C. Paterson, age 26, married, shoveler. The shift boss and cager were drawing rock from a long raise chute. Deceased was sent to top of chute to observe and signal when the rock in the chute had been sufficiently lowered. Not receiving a signal after considerable rock had been removed, the two of them went to top of chute, but deceased was missing. On investigation it was found that the rock from an underhand stope which was fed into the raise chute by stope chute had hung up in the latter, and that deceased in attempting to loosen the rock with a bar had either stepped on the rock in the raise chute and been drawn down with the rock, or that he slipped and fell into the chute; apparently the latter, as his head was crushed and neck broken.

June 25, Federal Mining & Smelting Co., Morning mine; Shoshone County. William Willoughby, age 32, single, timberman-miner. Two large timbers are carried over all drift sets and are pushed forward as the drift advances for the protection of the men working in the untimbered face. Deceased was on top of the drift set, in the act of pushing the timbers forward, when a large slab of ore fell from the top of the drift, striking and instantly killing him.

CLASSIFICATION OF ACCIDENTS

MINE	Killed	Seriously Injured Time Lost More Than 14 Days: Permanent total disability	Seriously Injured Time Lost More Than 14 Days: Permanent partial disability	Slightly Injured: Time lost over 14 days	Slightly Injured: Time lost 1 to 14 days
UNDERGROUND					
1. Fall of rock or ore from roof or wall	4		7	100	92
2. Rock or ore while loading at working face or chute			1	34	45
3. Timber				29	22
4. Explosives	3		1	2	3
5. Haulage, Cars or Motors	1		3	50	37
6. Persons falling down chute, winze, raise or stope	1			18	15
7. Drilling (by machine or hand drills)			1	14	14
8. Hand tools			1	33	34
9. Machinery (other than motors or drills)			4	9	9
10. Flying or falling objects			4	31	90
11. Fall of persons				34	24
12. Lifting			1	15	17
13. Nails and splinters			1	13	27
14. Other causes			2	6	10
Total	9		26	388	439

MILL	Killed	Seriously Injured Time Lost More Than 14 Days: Permanent total disability	Seriously Injured Time Lost More Than 14 Days: Permanent partial disability	Slightly Injured: Time lost over 14 days	Slightly Injured: Time lost 1 to 14 days
MILLING ACCIDENTS					
1. Haulage (cars and locomotives)				3	3
2. Railway cars or motors					
3. Crushers, rolls or stamps			1	1	2
4. Tables, jigs, etc					1
5. Other machinery	1		2	3	2
6. Falls of persons			2	6	6
7. Suffocation in ore bins					
8. Falling objects (rocks, timbers)			1	4	5
9. Scalding (steam, water or acid)				2	3
10. Lifting					2
11. Hand tools, axes, bars, etc					3
12. Nails, splinters, etc				1	2
13. Electricity	1				
14. Other causes				3	
Total	2		6	23	29

SHAFT ACCIDENTS					
15. Falling down shaft			1	1	
16. Objects falling down shaft	2		2	5	
17. Breaking of cables				1	
18. Overwinding					
19. Cage, skip, or bucket		2	4	3	
20. Other causes			1	2	
Total	2	2	8	12	
SURFACE ACCIDENTS					
Yards, Shops, and Construction					
21. Mine cars or mine locomotives, gravity or aerial trams		1	8	3	
22. Flying and falling objects		1	10	23	
23. Lifting			4	4	
24. Falls of persons			22	9	
25. Nails and splinters				6	
26. Hand tools, axes, bars, etc.		2	4	13	
27. Falls or run of ore in or from bin			2	1	
28. Machinery		3	7	6	
29. Other causes			8	2	
Total		7	65	67	
Grand Total	11	35	461	518	

SMELTER ACCIDENTS					
15. Haulage (cars, motors, etc.)		1	1		
16. Machinery		2	1		
17. Cranes			1		
18. Lead colic					
19. Falls of persons			4	1	
20. Flying or falling objects (rocks, timbers, etc.)			6		
21. Hand tools, axes, bars, etc.			1		
22. Burns from matte, slag or molten metal (pouring or spilling)			3	1	
23. Other causes			2	2	
Total		3	19	3	
AUXILIARY WORKS ACCIDENTS					
Placers, Tramways and Dredges					
24. Falls of persons			2	1	
25. Flying and falling objects			2		
26. Nails and splinters					
27. Hand tools, axes, bars etc.			2	1	
28. Lifting			1		
29. Machinery			1		
30. Handling hot materials					
31. Other causes					
Total			8	2	
Grand Total	2	9	50	34	

July 18, Talache Mines Inc., Gold Hill mine; Boise County. Frank J. Kraus, age 35, single, electrician. Deceased was cutting over one end of a 3-wire, 440-volt power distribution line to change it from an exposed wire system to a lead-armored cable. He was working from a ladder, and a pair of pliers were the only tools used. The working place was alongside the shaft house, about 10 feet above the ground. The new lead-armored cable, extending from a pole to the shaft house, a distance of about 75 feet, had been installed and all that remained to be done was to cut over the old wires to the new cable, paralleling or shunting each old wire with a new one in the cable and then cutting down the old wires. It is presumed that deceased accidentally reached over and made contact with the sheet-iron building, but there is no way of determining how the accident occurred. It is possible also that he was suddenly taken ill and fell against the building while still holding to the wire. His end of the cable was found hanging loose after the accident, and it was later learned that he complained to one of his fellow workers of feeling dizzy at times. He was unconscious when picked up, showed no heart beat or respiration, and could not be revived.

July 19, Mackay Metals; Custer County. Sam Unyok, age unknown, single, miner. Deceased noticed that one hole from a previous round in the face of a tunnel had failed to explode. He started to drill a hole about three feet from it for the purpose of putting in a new charge of powder to explode it. After he had been drilling a short time, the missed hole discharged and instantly killed him.

July 23, Patterson Mines Corporation; Lemhi County. Thomas W. Shinderling, age 40, single, mill helper. While oiling or inspecting a bearing on a countershaft, deceased slipped or fell upon the revolving shaft, which entangled his clothing. He was whirled over, his head struck a timber, and his neck was broken. Death was instantaneous.

September 28, Auxer Gold Mines Co.; Bonner County. Leo G. Mintz, age 35, single, miner. One hole from a previous round in the face of a tunnel had failed to explode. Deceased was alone at the time, but as nearly as could be ascertained, he had started to dig the powder from the unexploded hole when it discharged and killed him instantly.

October 9, Bunker Hill & Sullivan M. & C. Co.; Shoshone County. Henry Clancy, age 43, married, shoveler. On the approach of a train of cars which was being pushed by an electric motor, deceased stepped to the side of the tunnel near a post. After the cars had passed him, he moved sufficiently to be caught by the motor and crushed to death between it and the post.

October 24, Sidney Leasing Co.; Shoshone County. Jerry Bland, age 57, single, shoveler. Deceased was drawing ore into an ore chute from the face of a stope about six feet in width. He undermined a large boulder on the hanging wall side of the stope so that it became dislodged and in falling crushed him to death against the footwall.

November 10, Federated Mines Co.; Boise County. Hampton B. Cooper, age 51, miner. Deceased and an assistant were engaged in widening a drift. The previous shift, which had blasted four hours earlier, reported that two holes had failed to explode. When the two men entered the drift the holes which had failed could not be located, so while waiting for the face to be cleared of broken rock, deceased set up the air drill on top of the rock and commenced drilling an upper hole in the face. While he was doing so, one of the holes in the bottom exploded and killed him instantly.

December 21, Idaho Lakeview Mines Co.; Bonner County. Peter Harrington, age unknown, married or single unknown, shaft miner. Deceased was engaged in retimbering a tunnel at the collar of a winze; before placing the new timbers he was barring down the loose ground overhead. This ground commenced to fall, and for reasons unknown the deceased jumped and was caught by the falling rock, which crushed him to death.



CONSTITUTION M. & M. CO.'S MILL

MEN EMPLOYED AND WAGES

The year closed with practically all the producing mines in the State in operation, and with the largest payroll that has been witnessed during the past 10 years. As a whole, 1928, from a labor standpoint, was one of the best years ever experienced. There was a surplus of labor throughout the year and the turnover was exceedingly small, thus assuring the companies a constant working force without the necessity of breaking in new men. However, competent and experienced miners and timbermen were continually in demand, and some of the large companies had a little difficulty in meeting their requirements.

It is practically impossible to obtain complete and accurate statistics of the number of men employed in the mines; a great many are employed by prospectors and small companies that do not report to the inspector of mines and that do not maintain continuous work throughout the year; and records furnished by the companies reporting vary as to the number of days. The average payroll reported was 5500, and 1000 has been added as an estimate to cover lessees, prospectors and small companies that did not report, thus giving a total of 6500 for the year, which is known to be a conservative estimate.

The table printed below gives the different wage scales that were in force in the State during 1928. Column No. 1 gives the average wage throughout the State for the year, and column No. 2 gives the wage scale in effect in the Coeur d'Alene district from March 1, 1927, to December 31, 1928.

Under an agreement adopted on November 16, 1925, the wages in the Coeur d'Alene district were to be adjusted each month in accordance with a bonus rate based on the selling price of lead in New York. This scale was based on a wage for miners of $3.75 per day when lead is selling under 5½c per pound; the bonus to be added was as follows:

When the price of lead is 5c	and under 6c	$0.25 per day
When the price of lead is 6c	and under 6½c	.50 per day
When the price of lead is 6½c	and under 7c	.75 per day
When the price of lead is 7c	and under 7½c	1.00 per day
When the price of lead is 7½c	and under 8c	1.25 per day
When the price of lead is 8c	and under 8½c	1.50 per day
When the price of lead is 8½c	and under 9c	1.75 per day
When the price of lead is 9c	and under 9½c	2.00 per day
When the price of lead is 9½c	and under 10c	2.25 per day
When the price of lead is 10c	and under 10½c	2.50 per day
When the price of lead is 10½c	and under 11c	2.75 per day

After March 1, 1927, the price of lead declined so rapidly that if the bonus scale had been adhered to the wages would have been cut to a point entirely out of proportion to wages in other parts of the State and too low under existing high living costs. So the signatories to the bonus scale waived their agreement and maintained the wages set forth in column No. 2:

	No. 1	No. 2
Miners	$5.00	$5.00
Shovelers	4.50	4.50
Timbermen	5.50	5.50
Timber helpers	4.75	4.50
Machinists	6.00	5.75
Machinists' helpers	5.00	5.00
Carmen	4.50	4.50
Motormen	5.00	5.00
Trainmen	4.50	4.50
Main hoistmen	5.75	5.75
Small hoistmen	5.25	5.25
Nippermen	4.50	4.75
Pump and compressormen	5.00	5.25
Surface laborers	4.50	4.50
Ore sorters	4.25	4.25
Cagers	5.25	5.25
Pipe and trackmen	5.25	5.25
Shift bosses	6.00	6.25
Blacksmiths	6.00	6.00
Blacksmith helpers	5.00	5.00
Electricians	5.50	5.25
Millmen	5.00	5.00
Mill repairmen	6.00	5.75
Mill swampers	4.50	4.50
Carpenters	6.00	6.00

The cost of board and room at company boarding houses, hotels, and at private homes averages from $1.25 to $1.50 per day. Many companies have built and are maintaining houses which are rented to their married employees, and some of the largest companies assist their employees in the construction of homes.

MINERAL RESOURCES

Idaho contains an area of 83,888 square miles; its maximum width at the southern end is approximately 312 miles, and its length from the southwest corner to the northwest corner is about 486 miles. The State is divided into 44 counties, 36 of which can be classed as having minerals of commercial importance. In 22 of these counties there are producing mines.

In the past practically all mining has been confined to the five principal metals: Lead, silver, gold, zinc, and copper, which are widely distributed throughout the State (see map, page 6). In addition to these a great variety of uncommon metals and minerals, many of which have been successfully exploited during the past few years, occur in sufficient extent to be of commercial importance.

This great diversity of mineral wealth, consisting of practically all the metals used in modern arts and many of the uncommon minerals for which a demand is continually being developed, establishes Idaho as one of the principal mining States in the Union. It also makes mining the second most important industry in the State.

The importance of Idaho's mineral wealth is well shown by statistical facts based on the production and exploitation of the five principal metals, lead, silver, gold, zinc, and copper:

Total metal production since 1860, over $1,100,000,000.
Average annual production for past 25 years, over $25,500,000.
Average annual mine payroll, over $9,000,000.
Average annual mine dividends from lead-silver mines, over $5,000,000.
Average annual expenditure on new mine development and prospecting, over $4,000,000.

METALS

Lead

Lead is the most important metal found in Idaho, and excepting in the years 1926 and 1927, this State has always ranked second in the United States in the production of lead, Missouri ranking first, and Utah third. During the two years aforementioned Utah held second place, although the production of the two States was almost on a parity. Idaho produces over one-fourth of the total amount of lead mined in the United States. Lead is widely distributed throughout the State, and occurs as galena (lead sulphide) and as the oxide and carbonate; silver is always associated with it, and occasionally zinc, gold, and copper.

The largest lead mine in the United States is in Idaho—the Bunker Hill & Sullivan M. & C. Co. at Kellogg. This is one of the few companies in the world that mine, mill, smelt, refine, manufacture, and market lead and lead products. Other important lead-producing mines in Idaho and their respective ranks in the United States are: Federal Mining and Smelting Co., third; Hecla Mining Co., fifth.

The principal lead mines in the State are those in Shoshone County, which produce 85 per cent of the State total. Blaine, Boundary, Bonner, Custer, Lemhi, Boise, Butte, Valley, and Camas counties are the other important lead-producing counties.

Silver

Idaho ranks third in the United States in the production of silver, the first three States in order of rank being Utah, Montana, Idaho. Idaho produces one-eighth of all the silver mined in the United States.

Silver is found associated with all of the lead, copper, zinc, and antimony ores of the State, and occasionally in associations in which it is the principal metal. It is one of the most widely distributed metals, and its occurrence is such that the mining of silver can hardly be separated from that of the other metals. Accordingly, the production of silver fluctuates with and parallels that of lead.

Shoshone County produces more silver than any other county in the State; the other important silver-producing counties are: Lemhi, Custer, Bonner, Boundary, Blaine, Butte, Owyhee, Boise, Camas, Valley, Washington, Idaho, Elmore, Adams, and Cassia.

Zinc

Zinc is found associated with lead in many of the lead mines of Idaho, although there are numerous deposits in Shoshone and Blaine counties in which it is the principal metal. In Shoshone County it occurs as sphalerite (zinc sulphide), and in Blaine County as sphalerite and smithsonite (zinc carbonate).

Selective flotation revolutionized the art of ore-dressing, and it is now possible to treat mixed lead-zinc ores which could not be separated by gravity concentration methods. As a consequence, the zinc content which was formerly lost is recovered and many mines which at one time could not be profitably operated are now being reopened in Blaine, Camas, and Shoshone counties. As a result of these modern ore-dressing methods, Idaho is one of the largest zinc-producing States in the Union.

The principal zinc-producing counties, in the order of prominence, are Shoshone, Blaine, Camas, Custer, Lemhi, Bonner, Boise, Boundary, and Butte.

Gold

Gold is found in practically all of the counties in the State, and is one of the most widely distributed metals. Prior to the World War Idaho was an important producer of this metal, but during the war period many of the mines of which the principal product was gold were closed down and have not been reopened, so at the present time the State ranks only tenth in the United States in gold production.

Gold occurs associated with almost all the lead, zinc, copper, and silver ores, and very commonly in a free-milling condition. A large amount of gold is obtained from placer deposits; at one time Idaho was among the principal placer-mining States in the Union. The greater part of the placer ground which could be hydraulicked has been exhausted, but many acres suitable for dredging still remain, and the gold lode-deposits offer greater opportunities than those of almost any other State.

The most important counties in which gold occurs are Boise, Idaho, Lemhi, Owyhee, Elmore, Shoshone, Custer, Blaine, Camas, Clearwater, Gem, and Valley.

Copper

Idaho is an important producer of copper and holds a high position among the ranking States of the Union. The many copper mines which are now under development and the numerous discovered but undeveloped veins indicate that the production of this metal will be greatly increased; the State will then be elevated to a rank higher than that of tenth, which it now holds.

Gold and silver are found associated with practically all the copper ores; and in some counties, notably in Custer and Bonner, the silver content is more valuable than the copper.

Custer, Lemhi, and Shoshone are the most important copper-producing counties; Adams and Washington counties may eventually become large producers. Bonner, Idaho, Blaine, Butte, Clearwater, Latah, and Lewis counties also contain copper mines of importance.

Antimony

Deposits of antimony, principally the sulphide (stibnite), are found in Shoshone, Valley, Boise, Blaine, Idaho, Owyhee, and Custer counties. Those in the Coeur d'Alene district of Shoshone County have been extensively developed; a number of mills for the concentration of the ore have been constructed; and in the past a large tonnage has been produced and marketed. The deposits in Blaine, Valley, and Owyhee counties contain a high-

grade ore, most of which can be shipped without preliminary treatment. During the war, when antimony commanded a high price, a large tonnage was produced and shipped from the mines in Valley County.

Antimony occurs as an accessory mineral in many lead-zinc ore bodies, also in stibnite-bearing veins in which it is the dominating metallic mineral. All of the antimony ores carry more or less silver, and many of them, particularly those of Blaine County, are more valuable for this mineral than for the antimony.

In all the above-mentioned counties there are many deposits containing a large available tonnage of commercial ore, which can be readily marketed when freight and market conditions will permit it to be produced at a profit.

Arsenic

Deposits of arsenic, principally the sulphide (arsenopyrite), occur in Blaine, Gem, and Boise counties. These deposits, although not fully developed, show a large available tonnage containing sufficient arsenic to be valuable for this metal, which can be readily marketed when the demand for it will permit profitable production. Arsenic occurs also as arsenopyrite in Ada, Elmore, and Kootenai counties, but the deposits in these counties have not been sufficiently developed to ascertain the possible tonnage.

Bismuth

Bismuth, occurring as a sulphide, has been found in Blaine County unassociated with other metals, as well as in association with many of the lead ores. It also occurs in the gold ores of the Gold Hill, Belshazzar, and Buckskin mines, Boise County, in association with lead, probably galenobismuthite or similar lead-bismuth minerals.

Cobalt

Cobalt is found in Lemhi County. During the World War, when this metal commanded a high price, the deposits were actively developed; a small mill was constructed, and concentrate with a high cobalt content was produced. These deposits are described by Frank L. Hess under "Cobalt" in U. S. Geological Survey: Mineral Resources of the United States, part I, 1917.

This metal is reported to have been found also in Kootenai and Latah counties.

Manganese

Manganese occurs in Bannock, Lemhi, Owyhee, Shoshone, Butte, and Washington counties. Some of the deposits are high in manganese content and others in manganese-iron. A substantial tonnage has been produced and marketed from the mines in Bannock County, and the deposits in Lemhi County constitute a large potential resource.

Describing the Bannock County deposits in "Manganese and Manganiferous Ores in 1926", U. S. Bureau of Mines: Mineral Resources of the United States, J. W. Furness said: "D. F. Hewett, of the United States Geological Survey, reports that the Idaho Manganese Co. has been exploiting since April, 1924, a manganese deposit on the McGregor ranch, 1 mile east of Cleveland, Bannock County, Idaho. The shipments in 1926 were 830 tons and during 1927 will probably be larger. The ore consists of nodules of the several oxides embedded in brown wad and forms a distinct bed in Pleistocene (Ice Age) sediments. In the explored area the bed will probably yield 3,000 tons per acre; the extent of the bed is assuredly several acres and may be more. Most of the shipments range from 42 to 48 per cent manganese. The ore is shipped by auto truck to Grace, 14 miles north, thence by rail to the Columbia Steel Co., Ironton, Utah."

Molybdenum

Molybdenum, occurring as the sulphide disseminated in intrusive rocks and as a molybdate of lead in fissure veins in limestone, is found in Elmore, Boundary, Custer, Idaho, and Lemhi counties.

Nickel

Nickel is found in Lemhi County. During the late war considerable development work was done on the veins in which it occurs. These deposits are described by Frank L. Hess under "Cobalt" in U. S. Geological Survey: Mineral Resources of the United States, Part I, 1917.

Quicksilver

Cinnabar, the sulphide of mercury, has been found in the placer deposits of Custer and Valley counties and in lode-deposits in Valley, Blaine, and Cassia counties. The quicksilver lode-deposits of Valley County are being extensively developed, and a little mercury has been produced from an experimental plant. The other deposits have never been opened.

Tin

Tin has been found in the placer mines in the Gravel Range mining district of Lemhi County. Its occurrence is described by Clyde P. Ross in Idaho Bureau of Mines and Geology Pamphlet No. 25, "Ore Deposits in Tertiary Lava in the Salmon River Mountains, Idaho". Mr. Ross includes in this a list of all published references relating to his subject.

Tungsten

Tungsten, in the form of scheelite and wolframite, occurs in commercial value in Shoshone, Idaho, Camas, Lemhi, Boundary, Bonner, Blaine, Valley, and Butte counties. The deposits in Shoshone County have been extensively exploited, and during the war period of high prices a large tonnage was produced and marketed; at the same time a small amount was obtained from Boundary and Camas counties. Sufficient work has been done on all these deposits to indicate that tungsten is one of the State's substantial mineral resources.

NON-METALLIC MINERALS

Asbestos

Commercial asbestos occurs in two forms: The chrysotile variety, which is adapted to spinning; and the amphibole variety, which is not adapted to spinning but is used extensively in shingles, insulation materials, paper stock, cements, and paints.

Amphibole asbestos occurs extensively in Idaho County, near Kamiah. There is a large demonstrated tonnage, but the demand is small, on account of markets and freight rates. Deposits containing chrysotile have been reported in Fremont, Teton, and Idaho counties.

Barytes

Barytes (barium sulphate) is used in the rubber, paper, linoleum, ink, and paint manufacturing industries. Its principal use is in the manufacture of lithopone, a white pigment consisting of about 70 per cent barium sulphate and 30 per cent zinc sulphide.

Some of the largest deposits of high-grade barytes found west of the Mississippi River occur in the Deer Creek and Muldoon sections of Blaine County. The deposits on Deer Creek vary in width from 50 to 100 feet, and one outcrop is over 1000 feet long; this was described by Arthur Lakes in the Mining Reporter for August 16, 1906, under the title, "A New and Large Deposit of Barite in Idaho", as follows:

"In visiting some mining prospects in the Wood River region of Idaho I came across an unusually large massive deposit of the mineral called barite.

"It forms a steep cliff on the crest of a hill and descends as a vein down the gulch. The thickness is apparently from 50 to over 100 feet. Its course passes very near some silver-lead prospects and not far from it on one side is a huge outcrop of iron oxide.



Deer Creek Barytes Deposit, Viewed from a Distance of 2000 Feet



Close-up View of Deer Creek Barytes Deposit

"The material is of a dull white color and resembles at a distance a vein of calcspar or a vein of white feldspar and quartz. It has not been opened up but there must be thousands of tons in sight."

Bentonite

Bentonite, a plastic clay, is valuable for its high absorbent qualities; it has the capacity for absorbing three times its weight or about seven times its volume of water. It is used in beauty clays; for refining oil; as a filler in paper and soaps; as an adulterant in drugs and candies; and as a packing for horses' hoofs.

Bentonite occurs in commercial extent in Clark and Custer counties, and has been reported found in Cassia County. The deposits in Clark and Custer counties are described by V. R. D. Kirkham in Pamphlet No. 19 Idaho Bureau of Mines and Geology, "A Geologic Reconnaissance of Clark and Jefferson and Parts of Butte, Custer, Fremont, Lemhi, and Madison counties, Idaho": "A commercial grade of bentonite, a peculiar type of clay with extraordinary absorptive qualities, was found at two localities in the area. One is near the railway in the vicinity of Mackay, the other is more remote and lies west of Dubois."

Building Stone

Sandstone exceptionally adapted to building purposes is found in Ada, Bear Lake, and Cassia counties. One of the principal enterprises in Ada County is that of the Boise Stone Company in quarrying and converting sandstone to building purposes. This enterprise is fully described, with illustrations, in the Twenty-sixth Annual Report of the Mining Industry of Idaho for the Year 1924. The most notable building in Idaho, the State Capitol, is constructed of this stone.

The sandstones in Bear Lake County are described in U. S. Geological Survey Professional Paper No. 152, "Geography, Geology, and Mineral Resources of Part of Southeastern Idaho", by George Rogers Mansfield; pages 336-338.

Coal

Bituminous coal of commercial importance occurs in Teton, Bonneville, Fremont, and Clark counties. No attempt has been made to exploit any of the deposits commercially except those of the Teton Coal Company in Horseshoe Basin, Teton County. In discussing the Horseshoe Basin coal in Pamphlet No. 10, Idaho Bureau of Mines and Geology, "The Horseshoe Basin Area of the Teton Coal Field in Southeastern Idaho", George Watkins Evans said:

"The chemical analysis of this coal indicates that the coal in this field is of as good quality as any mined in Utah or Wyoming. The principal question is whether or not this field can produce a sufficient percentage of lump coal to compete with the larger sizes from Utah and Wyoming.

"From the limited information at hand, it is impossible to make a reliable estimate of the minable tonnage in this field. In the first place, we do not know exactly the total area of the coal bearing strata, nor do we know the number of workable coal beds contained within this field. Any tonnage estimate made at this time must be based upon arbitrary figures and the quantity might be either much more or much less than the figures given.

"If we assume that the Horseshoe bed and the Brown Bear bed are two separate and distinct beds and that the Horseshoe bed will contain 9 feet of coal and that this bed can be mined for a distance of one-half mile on the dip, and that the bed will continue of fairly uniform character for a distance of 2 miles along the strike, there would be within the Horseshoe bed approximately 5,000,000 tons of coal, provided it will average 6 feet of minable coal and if we allow 1300 tons per foot acre. The Brown Bear bed has an average thickness of about 4 feet and on the same basis would contain a little over 3,000,000 tons of coal. The Boise bed, allowing an average thickness of 3½ feet of minable coal, contains nearly 3,000,000 tons—in all approximately 11,000,000 tons of coal.

"It is not improbable that with future investigations it will be found that the total tonnage of coal in this field is very much greater than the amount of tons suggested. On the other hand, it might be found that the coal contained within these beds is very friable and will not produce any considerable quantity of the larger sizes, and furthermore, it is probable that the market tributary to this field will be so exacting that only the larger sizes can be successfully marketed."

The Teton Coal Company has recently completed a 3600-foot crosscut with a 600-foot connecting raise to the surface, and a tipple for grading the

coal. The tunnel intersected three coal beds, two of which were not included in the above estimate; as yet the tunnel has not been completed to the Horseshoe and Boise beds, so it appears that the total tonnage, when this field is fully developed, may be in excess of the estimate.

Lignite is found in Cassia, Boise, Owyhee, Washington, Idaho, Lemhi, and Clearwater counties.

Diatomaceous Earth

Diatomaceous earth is more commonly known as infusorial earth, and is sometimes referred to by its German name of kieselguhr. It is composed of the siliceous remains of minute aquatic plants known as diatoms, which are of such proportions that they must be identified chiefly by the aid of the microscope.

The principal uses of diatomaceous earth are: Sawed brick for refractory and insulation purposes; filter material at sugar factories; light-weight filler in concrete; in polishing powders; absorbent in dynamite, and in thermal insulator compounds.

Extensive beds of this mineral, in which it can be measured by the acre, are found in Owyhee, Elmore, Camas, Payette, Washington, and Idaho counties. A small tonnage has been obtained from Elmore County for use in Idaho sugar factories.

Feldspar

Common feldspars are crystalline compounds of silica, alumina, and one or more of the bases: potash, soda, and lime. There are two principal classes of feldspar—the one including the potash and potash-soda varieties; the other including the soda, soda-lime, and lime varieties. Pure potash feldspars are orthoclase and microcline. The principal use of feldspar is in the manufacture of pottery, chinaware, porcelain, enamel-ware, and enamel brick and tile.

Deposits of high-grade feldspar, occurring as orthoclase, are found in Latah and Adams counties.

Garnet

Garnet is a common accessory mineral in a large variety of rocks, occurring abundantly in contact metamorphic zones and in metamorphosed crystalline limestones. Deposits of garnet possessing the necessary qualifications for ornamental or industrial use and so situated with regard to transportation and markets that they can be exploited commercially are relatively small and occur in only a few areas throughout the United States.

The principal uses of garnet are: As settings in jewelry; jewel bearings in watches; and as an abrasive. Abrasive garnet is utilized either in the form of a manufactured paper similar to sand-paper, or as loose grain or powder for grinding and polishing.

Extensive deposits of garnet adapted to abrasive purposes occur in Adams, Lemhi, Custer, and Cassia counties.

Graphite

Graphite is a soft, black, greasy form of carbon, sometimes referred to in trade as "plumbago" and "black lead". It occurs in nature in two forms, crystalline and amorphous, each having its own peculiar uses.

The physical properties of graphite—infusibility, chemical inertness, high conductivity, extreme softness, and low specific gravity—fit it for a large number of uses: The manufacture of crucibles and other refractory products; lubricants; "lead" pencils; paints; stove polish; foundry facings; and various types of electrical appliances.

Graphite of commercial importance is found in Blaine County, but, owing to the fact that at the ordinary price of graphite it is possible to mine only the most favorably situated deposits, the known deposits in Idaho have never received much attention.

Gypsum

Gypsum is a natural hydrated sulphate of lime. It is a soft, white, chalk-like material, found widely distributed in single crystals and in thick beds. The natural product is generally very pure.

The principal uses of gypsum are as structural material—wall plaster, gypsum boards, blocks and tile—and as an ingredient in Portland cement and plaster of Paris.

Extensive deposits of high-grade gypsum are found in Lemhi, Bear Lake, and Washington counties. These deposits have never been developed, as the low price of the crude product limits production to those States located near the centers of population.

Limestone

Limestone is mined in Butte, Teton, and Bonner counties; Bannock, Blaine, and Bear Lake counties also contain deposits of importance. The limestone mined in Bonner County is shipped to Spokane, Washington, where it is manufactured into Portland cement. The limestone mined in Butte and Teton counties is shipped to the sugar factories of Idaho and Utah, where it is used in the refining of sugar.

There are unlimited deposits which are suitable to the cement industries.

Marble

Marble is dense crystalline calcium carbonate, formed from limestone by the pressure of overlying sediments and the action of underground water. The value depends on the color, which may be white, gray, red, black, or veined, and the grain and structure. Its principal use is for building and monumental purposes.

Marble suitable to commercial purposes occurs in Nez Perce, Butte, and Cassia counties. The deposits in Nez Perce and Butte counties have been slightly exploited.

Mica

The principal physical properties which give value to mica are: Its cleavage, transparency, resistance to decomposition, and non-conduction of electricity and heat. The important uses of mica are: Short mica, in the electrical industries and as glazing for stoves, screens, goggles, and lantern projection; ground mica, in fancy paints, wallpaper, tiles, concrete, rubber goods, roofing materials, lubricants, and insulating compounds.

"Mica deposits of probable value have been found in about half the States of the United States. The principal producing States have been North Carolina, New Hampshire, South Dakota, Idaho, New Mexico, Colorado, Virginia, South Carolina, Alabama, and Georgia."—Schaller, W. T., Mica: U. S. Geological Survey Mineral Resources, pt. 2, p. 280; 1915. The production which gave Idaho this prominent rank was from the mica mines in Latah County.

Deposits of commercial importance occur in Adams and Idaho counties also, although they have never been prospected or developed in proportion to the possibilities which they offer.

Mineral Waters

Mineral springs of various types occur at a great many places throughout the State, the principal types being calcareous, chalybeate, sulphurated, and saline. The temperatures of the different types vary from "cold" to "hot", with some of the latter exceeding the boiling point. Hot springs are the more numerous, and at many of them sanitariums and bathing resorts have been erected.

The chalybeate springs of Caribou County are particularly efficacious from a therapeutic standpoint, although they have never been exploited.

Monazite

The mineral monazite consists chiefly of the phosphate of cerium and variable amounts of thoria, the value depending primarily upon the thoria content. It is a resinous golden-yellow mineral occurring as a placer sand in practically all of the gold placer mines in the State; the quantity varies, and in some of the deposits it is not sufficient to be of commercial importance. The placer deposits of Ada, Idaho, Lemhi, and Owyhee counties contain an appreciable amount of this mineral, and those of Boise and Clearwater counties contain sufficient to be of commercial importance.

The principal use of thorium is in the manufacture of incandescent mantles for gas lighting. Practically all of the monazite used in the United States is imported from Brazil and India.

Nitrates

The occurrence of nitrate in Camas, Elmore, and Owyhee counties has been reported.

Oil and Gas

The same formations which are oil-producing in Wyoming are present in structures highly favorable to the accumulation of oil and gas in Caribou, Bonneville, Teton, Bear Lake, and Bingham counties. A small amount of drilling has been done in Caribou and Teton counties, but the wells were never completed to a sufficient depth to determine the possibilities for the occurrence of oil.

Gas has been developed in Payette and Washington counties.

Phosphate Rock

The greatest potential mineral resource in Idaho is the immense phosphate rock deposits in Bear Lake, Caribou, Bannock, Bingham, and Bonneville counties. Conservative estimates by members of the U. S. Geological Survey accredit Idaho with over 85 per cent of the total phosphate resources of the United States in 268,299 acres out of a total of 396,612 acres which have been withdrawn from public entry. These deposits are fully described with maps, illustrations and analyses by G. R. Mansfield in U. S. Geological Survey Professional Paper No. 152, "Geography, Geology, and Mineral Resources of Part of Southeastern Idaho", from which the following is quoted:

"In Utah, Idaho, Wyoming, and Montana the great bulk of the phosphate rock is on public land, though some has passed into private ownership. The public lands are withdrawn from entry pending their examination and classification. No estimates of the acreage of phosphate land in private ownership are available, but the acreage of the outstanding withdrawals of public land in the States named is shown in Table 38.

TABLE 38—**Outstanding phosphate withdrawals, July 31, 1927**

	Acres
Utah	301,945
Idaho	**396,612**
Wyoming	996,539
Montana	279,944
Total	1,966,390

"In addition to the land embraced in the outstanding phosphate withdrawals, 268,299 acres in Idaho, 25,293 acres in Wyoming, 3,833 acres in Montana, and 160 acres in Utah—297,585 acres in all—have been examined in detail and formally classified as phosphate land. * * *

"Under the act of July 17, 1914, agricultural entries may be made upon withdrawn phosphate lands, but the mineral rights are reserved to the United States."

TABLE 74a—Estimate of phosphate rock in the United States available December 31, 1925, in long tons

FIELD	Estimated quantity available	FIELD	Estimated quantity available
Eastern field:		Western field:	
Arkansas	20,000,000	**Idaho**	**4,997,855,000**
Florida	291,000,000	Montana	391,323,000
Kentucky	878,000	Utah	326,745,000
South Carolina	8,788,000	Wyoming	115,754,000
Tennessee	83,500,000		5,831,677,000
	404,166,000	Less approximate quantity mined since 1906	350,000
			5,831,327,000
			404,166,000
			6,235,493,000

Pyrite

Pyrite of commercial importance is found in Washington County. The development work which has been done on these deposits indicates an immense available tonnage.

Rutile

The occurrence of rutile in Clearwater County has been reported. Rutile, the natural titanium oxide, is used in paints; arc-light electrodes; dyes; and in the manufacture of leather.

Salt

The pioneers evaporated the brine from the salt springs of Caribou County, and this salt was transported to all of the northwestern States before the building of the railroad. The salt obtained from these springs is above the average of the commercial salts of the United States in purity and compares favorably with some of the best salt produced. The salt springs and deposits are described by W. C. Phalen, who estimates 5,000,000 tons in sight, in U. S. Geological Survey Bulletin 669, "Salt Resources of the United States":

"Although the salt bodies or old alkali flats are thus meager in extent, especially in comparison with the other prominent salt-producing areas of the United States, the conservative estimate of 5,000,000 tons for the Crow Creek rock-salt body and the possibility of a larger salt body near the Tygee and Stump Creek forks indicate that the amount of salt apparently in sight in some of the present areas would be sufficient (if proper railroad connections existed) to yield returns on large workings for a long time. It also appears quite probable that all the areas, including the smaller brine springs, contain sufficient salt to return the sums that may be advisedly invested in their development."

Sulphur

Sulphur occurring in extensive deposits and as sulphur springs is found in Caribou County. During the World War a little attempt was made toward the commercial development of these deposits.

Talc

Talc suitable to the electrical and powdered-talc industries occurs in Idaho County in sufficient extent to be of commercial importance.

ADA COUNTY

Ada is one of the southwestern counties, adjoining and lying north and east of Owyhee and Canyon counties, and south of Boise County. It contains 1154 square miles and was accredited with a population of 35,213 in the 1920 census. Boise, the largest city in the State, is the State capital and county seat. The county is noted for its excellent irrigated farms, and its livestock, farming, and fruit-raising industries.

The State highway, Oregon Trail, extending from the southeast corner of the county to Boise, thence west to Nampa, and the excellent county highways and roads, give this county some of the best roads in the State as well as easy access to the mineralized areas.

Ada is not recognized as a mining county, yet its small mountainous area was once the scene of many active mining operations; and Boise was established as the principal distributing point for miners' supplies when the rich placer diggings of Boise County and adjacent areas were worked in the early days.

The early day mining was based on free gold operations and, as the sulphide zone was encountered at a shallow depth, the mines were soon closed and have remained dormant for many years. The principal ores are lead and zinc, carrying high values in silver and gold, occurring in fissure veins and as replacement deposits in granite. The ore occurrences are well defined and offer good opportunities to prospectors and small operators in search for these metals.

The chief mineral resources are building stone, gold, lead, silver, zinc, and arsenic. Building stone and its accompanying enterprise were fully described in the 26th annual report, for the year 1924.

During 1928 the mines and prospects in this county witnessed but little increase in attention and development over that of the previous year, in addition to which there was a decided activity coupled with publicity in the promotion of oil development enterprises.

The Boise Stone Company was active throughout the year and reports that a large quantity of stone was quarried and cut.

BERGDAHL OIL CO.

Office: 260-261 Sonna Bldg., Boise. **Officers:** A. F. Bergdahl, Pres.-Mgr.; C. M. Godfrey, Sec., both of Boise. **Inc.:** July 16, 1927. **Capital:** 1,000,000 shares; par value $1; 250,000 shares issued. **Property:** Leases on 2760 acres of patented land in Ada and Gem counties. **Development:** 2½-in. well 260 ft. deep. **Plant:** Small water well drilling equipment operated under contract. **Mineral sought:** Oil and gas. **Men employed:** None. **Remarks:** Active publicity campaign for purpose of selling stock maintained throughout the year.

GOLD KING MINES CO.

Office: 402 Empire Bldg., Boise. **Officers:** S. T. Schreiber, Mgr., Boise. **Inc.:** A copartnership. **Property:** Gold King group; 4 unpatented claims, Black Hornet dist.; Boise. **Development:** By one tunnel 50 ft. long. **Remarks:** Small amount of work during the year.

PIONEER IDAHO OIL CO.

Office: 322 Eastman Bldg., Boise. **Officers:** J. E. Nottingham, Pres.-Mgr.; P. M. Davis, Sec., both of Boise. **Inc.:** Apr. 4, 1927. **Capital:** 600,000 shares; par value $1; 1137 shares issued. **Property:** Leases and government prospecting permits on 10,000 acres in Ada and Gem counties; Eagle. **Mineral sought:** Oil and gas.

RED ROSE GOLD MINES CO.

Office: 605 Eastman Bldg., Boise. **Officers:** J. J. Oberbillig, Pres.-Mgr., Boise. **Inc.:** Jan. 27, 1921. **Capital:** 500,000 shares; par value 5c; all shares issued. **Property:** Red Rose group; 12 patented claims, Black Hornet dist.; Boise. **Development:** By 3 tunnels, the principal one of which is 685 ft. in length; total development, 1400 ft. **Ore:** Gold-silver. **Remarks:** Idle throughout the year.

RELIANCE GOLD MINES CO.

Office: 605 Eastman Bldg., Boise. **Officers:** J. J. Oberbillig, Pres.-Mgr., Boise; Louis A. Dumond, Sec., Chicago, Ill. **Inc.:** Feb. 4, 1924. **Capital:** 1,000,000 shares; par value 10c; 350,000 shares issued. **Property:** Star group; 8 unpatented claims, Black Hornet dist.; Boise. **Development:** Principally by one tunnel which is 1350 ft. long. **Ore:** Gold-silver-arsenic. **Remarks:** Annual labor only.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Big Foot Bar	Unorganized	Archie T. Winter	Mt. Home
Blue Grouse Ext.	Black Hornet	Goodwin & Thacker	Boise
Blue Grouse et al.	Black Hornet	A. G. Adelmann	622 Idaho St., Boise
Delhi	Black Hornet	S. T. Schreiber	Boise
Five Mile Gr.	Shaw Mountain	J. M. Roberts	110 E. Ban. St., Boise
Gold Eagle Gr.	Black Hornet	C. C. Anderson	Boise
Hidden Treasure	Black Hornet	W. P. Richards	Boise
Maynard Bros.	Highland	H. T. Maynard	Boise
Monitor Placer	Highland	W. E. Johnston	Boise
Sorrel Horse et al.	Black Hornet	N. R. C. Adelmann	221 Jeff. St., Boise
White Mineral	Black Hornet	H. J. Leppert	506 S. 3d St., Boise

BIBLIOGRAPHY

See pages 13-14 for publisher's address, meaning of reference marks, and abbreviations.

A geological reconnaissance across Idaho, by G. H. Eldridge: U. S. Geol. Survey, Sixteenth Ann. Rept., pt. 2, pp. 217-276, **1894-1895.***

Description of the Boise quadrangle, by Waldemar Lindgren: U. S. Geol. Survey Geol. Atlas, Folio No. 45, **1898.***

Mining districts of the Idaho Basin and the Boise Ridge, Idaho, by Waldemar Lindgren: U. S. Geol. Survey Eighteenth Ann. Rept., pt. 3, pp. 625-736, **1898.***

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey Twentieth Ann. Rept., pt. 3, pp. 75-256, **1900.***

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Preliminary report on artesian basins in southwestern Idaho and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Water Supply Paper 78, **1903.**‡

Notes on the geology of southwestern Idaho and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Bull. 217, **1903.**‡

Description of the Nampa quadrangle, by Waldemar Lindgren and N. F. Drake, U. S. Geol. Atlas, Folio No. 103, **1904.***

Description of the Silver City quadrangle, by Waldemar Lindgren and N. F. Drake, U. S. Geol. Survey Geol. Atlas, Folio No. 104, **1904.***

Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 60, art. 3, pp. 1-33, **1921.**‡

A preliminary reconnaissance of the gas and oil possibilities of southwestern and south-central Idaho, by J. P. Buwalda: Idaho Bureau of Mines and Geology Pamphlet 5, **1923.***

Idaho building stone: Twenty-sixth Ann. Rept., Mining Industry of Idaho, **1924.***

ADAMS COUNTY

Adams is one of the southwestern counties, adjoining and lying south of Idaho County, north of Washington County, and west of Valley County. The Snake River, which flows north, forms the entire western boundary. The county contains 1366 square miles and was accredited with a population of 2,966 in the 1920 census, or 2.2 inhabitants to the square mile. The larger part of the population is located in Weiser River and Little Salmon River valleys. The headwaters of the Weiser River, which flows south, and those of the Little Salmon River, which flows north, are located in this county. It is primarily an agricultural county and is noted for its high-quality apples and livestock industry.

The North and South Panoramic Highway extends from the southern to the northern boundaries and is situated in about the geographical center. Branch roads leading to all of the outlying settlements are maintained by the county and U. S. Forest Service. These are kept in good repair and are open to travel during the larger part of the year. In 1925 the Legislatures of Oregon and Idaho each appropriated $25,000 for the construction of a joint State wagon bridge across the Snake River at Ballard's Landing, about three miles north of Homestead, Oregon. It has proved to be an important connecting link between the Oregon highway at Baker and the Idaho highway at Council, which is the county seat and largest settlement of Adams County.

The county is served by two railroads: the Pacific and Idaho Northern, which extends from Weiser to New Meadows, and the Oregon Short Line branch from Huntington to Homestead, Oregon.

Over 90 per cent of the county is mountainous. The mountains are rough and rugged and the bold relief that many of them show on the skyline presents scenic views that are unsurpassed in grandeur, the principal one of which is the Seven Devils, seven serrated peaks which reach high into the skyline, and from which the Seven Devils mining district is named.

During the eighties and early nineties this district was an active mining center. Many mines were in operation, a railroad was projected into it and partly constructed, a smelter was in operation, and three towns of fair sized populations were established. The boom died down in the panic of 1893 and since then no large operations or shipments of any consequence have taken place. The latent mineral resources are practically undeveloped and unprospected. The bold relief permits cheap development work by tunnels and drifts and, as the mineral resources are diverse and varied, the county offers many excellent opportunities to prospectors and development companies. The ores of the Seven Devils district are principally copper carrying silver and gold, with an occasional deposit of lead-zinc ore. The ores of the Indian Creek section are those of silver-copper and lead-zinc-silver. In addition to the five principal metals—copper, silver, gold, lead, zinc—deposits of mica, feldspar, and garnet, of commercial importance, occur in this county. The mica deposits of Council Mountain have received a little attention, although they have never been prospected or developed in proportion to the possibilities which they offer. When the mineral resources of Adams County are properly exploited and developed this county may be recognized as one of the principal mining counties in the State.

This county witnessed but little mining activity during the year, and no new enterprises were started. The Idaho Copper Company, whose properties were placed under receivership in November, 1927, continued in receivership and no development work of any kind was performed. A small amount of development work was done on the old Peacock and Bluejacket properties near Helena, and a few prospectors in other parts of the county performed a small amount of new work. The mica deposits in the Council Mountain district received more attention than in previous years, and the work done during the year greatly enhanced the possibility of these deposits being of commercial importance.

AMERICAN MINING CO., LTD.

Office: 630 Monroe Ave., Helena, Mont. **Officers:** Amelia H. Kleinschmidt, Pres., Helena, Mont. **Inc.:** Sept. 11, 1911. **Capital:** 50,000 shares; par value $1; none issued. **Property:** Peacock and White Monument groups; 10 patented claims, Seven Devils dist.; Cuprum. **Ore:** Copper, silver. **Remarks:** Peacock group under lease and option to James Glass and associates, of Butte, Montana, who conducted a small amount of development work during the year.

IDAHO COPPER CO.

Office: 112 N. 6th St., Boise. **Officers:** O. H. Griggs, Pres., 643 Rowan Bldg., Los Angeles, Calif.; Carey H. Nixon, Sec.; Edwin Snow, Receiver, both of Boise. **Inc.:** Jan. 10, 1920, as Idaho Copper Co., Ltd. Name changed May 24, 1926. **Capital:** On Feb. 9, 1925, the capital was increased from 50,000 shares, par value $10, to 10,000,000 shares, par value $1; 9,646,600 shares issued. **Property:** Red Ledge group; 31 patented, 22 unpatented claims, Seven Devils dist.; R. R. and P. O., Homestead, Ore., 18 miles. **Development:** 3 tunnels on Deep Creek: No. 1, 950 ft. long; No. 2, 2400 ft. long; No. 3, 100 ft. long; tunnel No. 4 at Eagle Bar 700 ft. long. In addition to the tunnels, approximately 10,000 ft. of diamond drilling has been done on the property. **Plant:** 600-cu. ft. I. R. compressor, driven by 120 h. p. Diesel engine; complete mining equipment and camp at No. 4 tunnel. **Ore:** Copper. **Men employed:** None. **Remarks:** On Nov. 4, 1927, all mining operations were suspended, and on Nov. 25, 1927, the company was placed in receivership. The complaint for receivership was filed by the Boise Association of Credit Men, and alleged disagreements between the Cooley Butler faction (originally Idaho Copper Co., Ltd.) and the George Graham Rice faction (originally Idaho Copper Corporation).

IDAHO COPPER CORPORATION

Office: 112 N. 6th St., Boise. **Officers:** O. H. Griggs, Pres., 643 Rowan Bldg., Los Angeles, Calif.; Carey H. Nixon, Sec.; Edwin Snow, Receiver, both of Boise. **Inc.:** Incorporated in Delaware, Oct., 1924; filed in Idaho, April 4, 1925. **Capital:** 2,500,000 shares; par value $1; all shares issued. **Property:** South Peacock group; 3 patented, 5 unpatented claims; Seven Devils dist.; Cuprum. **Development:** 1 vertical shaft, 325 ft. deep; completed in 1901 by prior owners. Total development, approximately 1300 ft. **Plant:** Partly installed steam-driven hoist and compressor. **Ore:** Copper. **Men employed:** None. **Remarks:** On Nov. 4, 1927, all mining operations were suspended, and on Nov. 25, 1927, the company was placed in receivership. The complaint for receivership was filed by the Boise Association of Credit Men, and alleged disagreements between the Cooley Butler faction (originally Idaho Copper Co., Ltd.) and the George Graham Rice faction (originally Idaho Copper Corporation). On Dec. 14, 1928, George Graham Rice and the corporation were convicted of using the mails to defraud in a scheme for the promotion of this stock. (See Foreword.)

IDAHO MINES CO., LTD.

Office: Weiser. **Officers:** S. H. Travis, Pres., Chehalis, Wn.; B. S. Varian, Sec., Weiser. **Inc.:** Jan. 5, 1904. **Capital:** 5,000,000 shares; par value $1; 1,503,700 shares issued. **Property:** California group: 3 patented claims, Seven Devils dist.; Cuprum; R. R. Homestead, Ore., 30 miles. **Ore:** Copper. **Remarks:** Idle for many years.

INDIAN CREEK MINING & DEVELOPMENT CO.

Office: 610 Eastman Bldg., Boise. William J. Tait, Pres., Santa Paula, Calif.; George D. Reid, Sec.-Treas., Fillmore, Calif. **Inc.:** Oct. 22, 1909. **Capital:** 100,000 shares; par value $1; 82,553 shares issued. **Property:** 3 patented, 2 unpatented claims, Indian Creek, Seven Devils dist.; Cuprum. **Development:** Approximately 800 ft. of underground workings. **Ore:** Copper. **Remarks:** Idle for many years.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Alaska et al.	Seven Devils	Mrs. S. J. Stephens	Cuprum
Amadore et al.	Seven Devils	Mrs. Anna Dimick	San Antonio, Texas
American Flag et al.	Mountain View	Mary Z. Finney	Cleveland, Ohio
Andy O'Toole Gr.	Seven Devils	L. A. Aplington	Homestead, Ore.
Arkansaw	Seven Devils	E. C. Westervelt	11 Broadway, New York City
Azurite Gr.	Seven Devils	John Bottcher	Tacoma, Wash.
Bald Eagle	Seven Devils	Mrs. Mabel Sprouls	Cuprum
Big Indian et al.	Seven Devils	Loren Gogochea	Ontario, Ore.
Black Garnet	Seven Devils	Ellen Kleinschmidt	Berkeley, Calif.
Black Hawk Gr.	Seven Devils	E. C. Spicer	Homestead, Ore.
Black Horse Gr.	Unorganized	Jacob Stites	Portland, Ore.
Blue Bird Gr.	Seven Devils	Mose Fuchs	Baker, Ore.
Blue Bucket	Seven Devils	Irene Imhaus	Madison Park Apts. Portland, Ore.
Bryan et al.	Seven Devils	Mose Fuchs	Baker, Ore.
Camp Ground et al.	Seven Devils	Martin Bradley	Cuprum
Chameleon Gr.	Mountain View	Thos. G. Potter	Pollock
Chieftain et al.	Seven Devils	Jas. A. Stewart	Indian Valley
Cliff et al.	Seven Devils	P. L. Gaarden	Bear
Copper Belt Gr.	Seven Devils	G. W. McCarty	Homestead, Ore.
Copper Bottom	Seven Devils	Frank Shelton	Cuprum
Copper Queen et al.	Unorganized	Lynn Snow	Newburg, Ore.
Decorah	Seven Devils	R. E. Wilson	Cambridge
Decorah	Seven Devils	Mary Steele	1516 S. Negley Ave., Pittsburg, Pa.
Deep Creek Gr.	Seven Devils	Frank Lauzon	Cuprum
Faye L.	Seven Devils	Anna Adams	Cuprum
Glenn G.	Unorganized	J. F. Glenn et al.	Fruitvale
Gold Coin Gr.	Seven Devils	Adams County	Council
Golden Star Gr.	Mountain View	Jas. H. Hawley	Boise
Grandview Gr.	Seven Devils	Frank Shelton	Cuprum
Grant Gr.	Seven Devils	J. A. Walsh	Helena, Mont.
Greenhorn Gr.	Seven Devils	Collins Lynes	Cuprum
Green Horn Gr.	Unorganized	R. A. Weddle et al.	Council
Hollister Gr.	Seven Devils	L. A. Darland	Cuprum
Idaho Standard	Seven Devils	Owen Hill	Homestead, Ore.
Iowa & Josie	Seven Devils	E. D. Ford	Weiser
Kinney	Seven Devils	Chas. Warner	Bear
Last Chance Pl.	Seven Devils	Walter James	Cuprum
Last Chance	Seven Devils	I. R. Smith	Boise
Little Bill et al.	Seven Devils	Joseph M. Healey	Homestead, Ore.
Lockwood et al.	Seven Devils	J. C. Barton	Weiser
Lola Group	Seven Devils	A. J. Cole	Oakland, Ky.
Mammoth Gr.	Seven Devils	Chas. Anderson	Cuprum
Margaret Gr.	Seven Devils	Frank E. Smith	Weiser
Mayflower Gr.	Seven Devils	Mrs. F. Hildebrand	Council
Mica Champion Gr.	Unorganized	M. P. Gifford	Council
Mineral Hill Gr.	Seven Devils	Frank Shelton	Cuprum
Minnie H.	Seven Devils	S. M. French	Weiser
Mohawk et al.	Seven Devils	G. W. McCarty	Baker, Ore.
Monarch Mica Gr.	Unorganized	Gillman Rinehart	Council
Moonlight	Seven Devils	J. A. Reynolds	Weiser
Newton Hill Gr.	Seven Devils	Chas. R. Sowder	Homestead, Ore.
North Alaska	Seven Devils	A. O. Huntley	Myrtle Creek, Ore.
North Hornet Gr.	Unorganized	W. E. Freehafer	Council
North Peacock	Seven Devils	Mrs. O. H. Martin	Council
Paducah	Seven Devils	J. M. Dennis	Ashland, Ore.
Peacock Gr.	Seven Devils	James Glass	Cuprum
Pres. Wilson et al.	Seven Devils	L. A. Darland	Cuprum

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Rabbit's Foot et al.	Unorganized	Chas. A. Theobold	Idaho Springs, Colo
Red Mountain	Seven Devils	Collis Lynes	Cuprum
River Queen Gr.	Seven Devils	Bernard Haas	Weiser
Ruby Bell	Mountain View	Mary Z. Finney	Cleveland, Ohio
Schley et al.	Seven Devils	Geo. A. Jones	Boise
Silver 1 & 2	Seven Devils	F. Alers	Cuprum
Star Gr.	Mountain View	Thos. G. Potter	Pollock
Virginius	Seven Devils	Andrew Wilmot	Kendrick
Virginius	Seven Devils	Adams County	Council
Walker	Seven Devils	Orrill Lewis	Council
Whale	Seven Devils	Adams County	Council
Wild Horse Gr.	Seven Devils	Mrs. C. R. Braasch	Homestead, Ore.

BIBLIOGRAPHY

See pages 13-14 for publisher's address, meaning of reference marks, and abbreviations.

The copper deposits of the Seven Devils, Idaho, by Waldemar Lindgren: Min. and Sci. Press, vol. 78, p. 125, **1899.***

Seven Devils district, by Charles Kirchhoff: U. S. Geol. Survey Twentieth Ann. Rept., pt. 6, pp. 183-184, **1899.**‡

Copper deposits of the Seven Devils, Idaho, by Waldemar Lindgren: The gold and silver veins of Silver City, De Lamar and other mining districts in Idaho: U. S. Geol. Survey Twentieth Ann. Rept., pt. 3, pp. 88, 249-253, **1900.***

Copper deposits of Snake River, by Waldemar Lindgren: The gold belt of the Blue Mountains of Oregon: U. S. Geol. Survey Twenty-second Ann. Rept., vol. 2, pp. 562, 580, 595, 632, 747-762, **1901.***

The copper mines of the United States in 1905, by W. H. Weed: U. S. Geol. Survey Bull. 285, pp. 108-109, **1906.***

The Seven Devils and the Snake River district, by G. D. Reid: Eng. and Min. Jour., vol. 84, p. 401, Aug. 31, **1907.**§

The occurrence of ore on the limestone side of garnet zones, by J. B. Umpleby: University of California publications, Bull. Department of Geology, vol. 10, No. 3, pp. 25-37, Oct. 14, **1916.****

The I. X. L. copper prospect, by R. N. Bell: Eng. and Min. Jour., vol. 108, p. 400, Sept. 6, **1919.**§

Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, pp. 32-37, **1919.****

The copper deposits of the Seven Devils and adjacent districts, by D. C. Livingston and F. B. Laney: Idaho Bureau of Mines and Geology Bull. 1, **1920.***

Diamond drilling in the Seven Devils Mountains, by F. A. Kennedy: Eng. and Min. Journal-Press, vol. 113, pp. 521-523, April 1, **1922.**§

A geologic reconnaissance of the Mineral and Cuddy Mountain mining district, Washington and Adams counties, Idaho, by D. C. Livingston: Idaho Bureau of Mines and Geology Pamphlet 13, **1925.****

BANNOCK COUNTY

Bannock County is one of the largest and most important of the southeastern counties. It is bounded on the north by Bingham County, on the east by Caribou and Bear Lake counties, on the south by Franklin and Oneida counties, and on the west by Power County. It has an area of 1837 square miles and was accredited with a population of 27,532 in the 1920 census. Pocatello, the second largest city in the State, is the county seat and principal division point of the Oregon Short Line Railroad.

The county is served by two State highways, the Oregon Trail, and Yellowstone Park. The former is the main east and west trunk line, and the latter is the main north and south trunk line of the State system.

The principal mineral resources are phosphate rock, limestone, manganese, copper, silver, gold, and building stone. The limestone is suitable for Portland cement and, as the deposits are extensively distributed and adjacent to transportation, they will eventually add a new and important industry. The phosphate rock covers a large area and constitutes an important latent resource. Considerable prospecting has been done on the copper veins which are found in the Portneuf Mountains south of Pocatello. In 1909 a mill was constructed at one mine; but other than the necessary annual labor no work of importance has been conducted for a number of years. Reports on the manganese deposits near Cleveland and Lava Hot Springs, which were discovered during 1924, indicate that the ore is high grade and that there is a large tonnage available.

One of the most important new enterprises to be started in the State during the year was that of the Idaho Portland Cement Co., near Inkom, about 12 miles south of Pocatello. This company acquired a large deposit of limestone, constructed a new railroad siding, and commenced installation of a 1500-barrel cement plant. The manganese mines near Cleveland and Lava Hot Springs were active throughout the greater part of the year. A substantial tonnage of high-grade manganese ore was produced and marketed, and three new companies were actively engaged in developing their properties.

BANNOCK MANGANESE MINING CO., LTD.

Office: Box 502, Pocatello. **Officers:** M. E. Hooker, Pres.; L. E. Glennon, Sec.; Wm. Sharp, Mgr., all of Pocatello. **Inc.:** Dec. 17, 1928. **Capital:** 100,000 shares; par value $1; 75,000 shares issued. **Property:** Lava View group: 2 unpatented claims, Portneuf dist.; Lava Hot Springs. Held under lease and option. **Development:** By 1 tunnel 130 ft. long. **Ore:** Manganese. **Men employed:** Average, 4. **Remarks:** A small amount of development work during the closing months of the year.

CLEVELAND MINING CORPORATION

Office: Cleveland. **Officers:** A. K. Vandenakker, Pres., Grace; Clark Gray, Sec., Cleveland. **Inc.:** July 13, 1925. **Capital:** 400,000 shares, par value 10c; 320,000 shares issued. **Property:** Lease and option on 420 acres of patented farm land, unorganized dist.; Cleveland. **Development:** Principally by 2 tunnels: No. 1, 300 ft. long; No. 2, 200 ft. long. **Ore:** Manganese. **Remarks:** A small amount of development work during the summer months.

FORT HALL MINING & MILLING CO., LTD.

Office: Pocatello. **Officers:** H. M. Palmer, Pres.-Mgr., Pocatello. **Inc.:** Sept. 5, 1902. **Capital:** 1,000,000 shares; par value $1; 260,000 shares issued. **Property:** Fort Hall group; 10 unpatented claims, Fort Hall dist.; Portneuf. **Development:** Principal tunnel 4000 ft. long; total development approximately 8000 ft. **Plant:** MINE: Steam-driven compressor, complete mining equipment. MILL: 50-ton concentrator built 1909. **Ore:** Copper. **Remarks:** Annual labor.

IDAHO PORTLAND CEMENT CO.

Office: Carlson Bldg., Pocatello. **Officers:** E. J. Simons, Pres., Spokane, Wash.; J. B. Maxfield, Sec., Pocatello. **Inc.:** July 20, 1928. **Capital:** 6,000 shares common, no par value; 5,000 shares preferred, par value $100; 8,500 shares common issued. **Property:** 160 acres patented land, unorganized dist.; near Inkom. **Ore:** Limestone. **Remarks:** A railroad siding was constructed and work started on the installation of a 1,000-barrel Portland cement plant.

LAVA MANGANESE MINING CO.

Office: Lava Hot Springs. **Officers:** R. S. Turner, Pres.; H. R. Turner, Sec., both of Pocatello. **Inc.:** Aug. 10, 1926. **Capital:** 10,000 shares; par value $10; shares issued unknown. **Property:** 3 unpatented claims. **Pertinent dist.:** Lava Hot Springs. **Development:** 1 tunnel, 450 ft. long. **Ore:** Manganese. **Men employed:** Average, 8. **Remarks:** Property under lease to R. E. Wickham, who performed a small amount of development work and shipped a small tonnage of manganese ore during the year.

NORTON GAS & OIL CO.

Office: Pocatello. **Officers:** E. C. Norton, Pres.; Fred P. Brandt, Sec., both of Pocatello. **Inc.:** May 7, 1928. **Capital:** 250,000 shares, par value $1; 200,000 shares issued. **Property:** Oil and gas leases on 646 acres, Arimo. **Mineral sought:** Oil and gas. **Remarks:** Press reports were to the effect that this company installed equipment and commenced drilling operations.

WESTERN MANGANESE CO.

Office: 408 Carlson Bldg., Pocatello. **Officers:** J. S. Bussell, Pres.; E. G. Frawley, Sec., both of Pocatello; William McLean, Mgr., Grace. **Inc.:** Mar. 16, 1928. Charter forfeited Nov. 30, 1928. **Capital:** 120 shares, par value $100; all shares issued. **Property:** Lease on 120 acres patented farm land, unorganized dist.; Cleveland. **Development:** By 2 tunnels: No. 1, 250 ft. long; No. 2, 275 ft. long. **Ore:** Manganese. **Remarks:** Small amount of development work.

BIBLIOGRAPHY

See pages 13-14 for publisher's address, meaning of reference marks, and abbreviations.

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

The copper mines of the United States in 1905, by W. H. Weed: U. S. Geol. Survey Bull. 285, pp. 108-109, **1906.***

Notes on the Fort Hall mining district, Idaho, by F. B. Weeks and V. C. Heikes: U. S. Geol. Survey Bull. 340, pp. 175-183, **1908.***

Guidebook of the western United States, by W. T. Lee and others: U. S. Geol. Survey Bull. 612, pp. 114-147, **1915.**‡

Geography, geology, and mineral resources of the Fort Hall Indian Reservation, Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 713, **1920.**‡

The Wasatch and Salt Lake formations of southeastern Idaho, by G. R. Mansfield: Am. Jour. Sci., vol. 49, pp. 399-406, June, **1920.**§

Triassic and Jurassic formations in southeastern Idaho and neighboring regions, by G. R. Mansfield: Am. Jour. Sci., vol. 50, pp. 55-64, July **1920.**§

Geography, geology, and mineral resources of part of southeastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Prof. Paper 152, **1927.***

A manganese deposit of Pleistocene age in Bannock County, Idaho, by D. F. Hewett: U. S. Geol. Survey Bull. 795-B, pp. 211-221, **1928.****

Portland cement materials near Pocatello, Idaho, by A. L. Anderson: Idaho Bureau of Mines and Geology Pamphlet 28, **1928.***

BEAR LAKE COUNTY

Bear Lake is the extreme southeastern county of the State. It is bounded on the east by the State of Wyoming and on the south by the State of Utah. On the north and west it adjoins Caribou, Bannock, and Franklin counties. It has an area of 980 square miles and was accredited with a population of 8783 in the 1920 census. Montpelier, situated in the center of a rich agricultural valley, is the largest town; and Paris, located near the north end of Bear Lake, is the county seat.

The State highway, Oregon Trail, and the main line of the Oregon Short Line Railroad traverse the county east and west, thus giving it good transportation facilities.

The principal mineral resources are phosphate rock, gypsum, manganese, copper, lead, and silver. There are also excellent possibilities for petroleum. Estimates made by geologists of the U. S. Geological Survey credit the State with more than five billion tons of minable phosphate rock, over 85 per cent of the total known phosphate resources of the world. The largest and most accessible areas containing this rock are in Bear Lake County. Phosphate is a necessary soil constituent and it is through the existence of the Idaho deposits that the future of American agriculture is assured. These deposits are practically untouched, as present freight, market, and price conditions are preventing profitable production. They are the greatest potential mineral resources within the State and when properly developed the mining enterprises will dwarf many of the now famous mining districts in the United States. These deposits are fully described, with analyses and tonnage estimates included, in the numerous publications referred to in the bibliography of this county. Four mines are properly equipped with the necessary surface and mining plants, all have a large available tonnage, and production can be started without delay whenever conditions will warrant it.

One of the most outstanding publications issued by the U. S. Geological Survey in recent years is Professional Paper 152, by G. R. Mansfield: "Geography, Geology, and Mineral Resources of Part of Southeastern Idaho." This appeared during 1927; it is profusely illustrated with pictures, maps, and diagrams, and describes in detail the subjects mentioned in its title, dealing especially with the immense areas of phosphate rock found in this county.

Many structures favorable to the accumulation of gas and petroleum in commercial quantities are found in this county. As the formation is similar to those in Wyoming which are producing oil, it is reasonable to expect that the probabilities should be at least equal on the Idaho side of the State line.

The San Francisco Chemical Co. was the only phosphate mine in this county which was active during the year. A substantial tonnage of phosphate rock was produced and shipped to San Francisco, California, where the company manufactures it into a high-grade fertilizer. During the year four new mining enterprises, based on the development of the lead and copper properties, were organized and development work started. These were: Gold Star Mining Co.; Leadville Consolidated Mining Co.; Utah-Idaho M. & M. Co.; and Wasatch Mining & Development Co. In addition to these, the Sunset Mining Co. was active throughout the summer months, and produced and marketed one shipment of high-grade lead ore.

APEX MINING CO.

Office: Pegram. **Officers:** M. L. de Julien, Pres.-Mgr., Pegram; R. A. White, Sec., Laramie, Wyo. **Inc.:** May 5, 1921. **Capital:** 1,000,000 shares, value 1c; 400,000 shares issued. **Property:** Apex group; 10 unpatented claims, unorganized dist.: Pegram. **Development:** By 2 tunnels: No. 1, 120 ft. long; No. 2, 20 ft. long. **Ore:** Gold. **Remarks:** Annual labor only.

BLACKSTONE MINING & POWER CO.

Office: Hood River, Ore. **Officers:** E. B. Cloud, Pres.-Mgr., Hood River, Ore. **Inc.:** Jan. 28, 1907. **Capital:** 1,000,000 shares; par value $1; shares issued unknown. **Property:** Blackstone, 1 patented claim, unorganized dist.; St. Charles. **Remarks:** Idle for many years.

COLOSSUS MINING & MILLING CO.

Office: Montpelier. **Officers:** M. L. de Julien, Pres.-Mgr., Pegram; De-Meade Austin, Sec., Montpelier. **Inc.:** May 1, 1925. Charter forfeited Nov. 30, 1927. **Capital:** 1,000,000 shares; par value 1c; 612,000 shares issued. **Property:** Colossus group; 10 unpatented claims, unorganized dist.; Pegram. **Development:** By 2 tunnels: No. 1, 510 ft. long; No. 2, 100 ft. long. **Plant:** Partly constructed; building designed to house a 300-ton cyanide plant. Complete mine camp and buildings. **Ore:** Gold. **Remarks:** Annual labor only.

COPPER RESERVE MINING & REDUCTION CO.

Office: Care of Walker Brothers Bank, Salt Lake City, Utah. **Officers:** John M. Wallace, Acting Pres., Salt Lake City; Thomas Doolittle, Sec., Los Angeles, Calif. **Inc.:** Aug. 5, 1912. **Capital:** 500,000 shares; par value 10c; 400,000 shares issued. **Property:** Humming Bird group; 4 patented claims, Bear Lake dist.; Paris. **Remarks:** Inactive for nine years.

GOLD STAR MINING CO.

Office: Paris. **Officers:** L. W. Johnson, Pres.-Mgr.; C. S. Bean, Sec., both of Provo, Utah. **Inc.:** May 9, 1928. **Capital:** 1,000,000 shares; par value 2c; 605,000 shares issued. **Property:** 9 unpatented claims, unorganized dist.; Paris. **Development:** By 3 short entries. **Ore:** Lead-copper. **Remarks:** A small sum was expended in development work during the summer months.

KEYSTONE PHOSPHATE CO.

Office: Paris, Idaho. **Officers:** F. S. Irwin, Pres.-Mgr.; Harold F. Irwin, Sec., both of Nampa. **Inc.:** May 4, 1926. **Capital:** 75,000 shares; par value $10; 50,000 shares issued. **Property:** Sublease on 360 acres, government lease owned by Joseph Stucki, and sublease on 317 acres of patented land; Paris. **Development:** By 1 tunnel 960 ft. long. **Ore:** Phosphate rock. **Remarks:** Idle. Active attempt throughout the year on part of officers to finance.

LEADVILLE CONSOLIDATED MINING CO.

Office: 310 Eccles Bldg., Ogden, Utah. **Officers:** Frank Moore, Pres.; G. B. Roberts, Sec.; Walter B. Cole, Mgr., all of Ogden, Utah. **Inc.:** Filed in Idaho Dec. 3, 1927. **Capital:** 1,000,000 shares; par value 10c; 336,424 shares issued. **Property:** Paris group; 6 unpatented claims, unorganized dist.; Paris. **Development:** By an 80-ft. shaft, at the bottom of which is 75 ft. of drifting. **Ore:** Lead-silver. **Men employed:** Average, 4. **Remarks:** Entries listed under "Development" driven during the year.

SAN FRANCISCO CHEMICAL CO.

Office: 332 Pine St., San Francisco, Calif. **Officers:** William F. Kett, Pres., San Francisco, Calif.; Jos. J. Taylor, Mgr., Montpelier. **Inc.:** July 17, 1906. **Capital:** 2000 shares; par value $100; all shares issued. **Property:** Waterloo group; 10 patented claims; 505 acres; Montpelier. **Development:** 3 tunnels; total development, approximately 4000 ft. **Plant:** Gas-driven compressor and complete mining equipment. **Ore:** Phosphate rock. **Men employed:** Average, 15. **Remarks:** Production maintained for 3 months; a substantial tonnage of phosphate rock was produced and shipped to San Francisco, Calif., where it was converted into superphosphate in a plant owned by the company.

STOCKHOLDERS' SYNDICATE

Office: 1240 So. Main St., Los Angeles, Calif. **Officers:** F. W. Braun, Pres.; Roy V. Boswell, Sec., both of Los Angeles, Calif. **Inc.:** May 27, 1913. **Capital:** 500 shares, par value $100; all shares issued. **Property:** 16 patented claims; approximately 2400 acres; unorganized dist.; Georgetown; R. R., Georgetown, 8 miles. **Development:** 9 tunnels, 2 shafts, approximately 800 ft. **Ore:** Phosphate rock. **Remarks:** Idle. This company owns the property formerly owned by the Utah Fertilizer & Chemical Mfg. Co.

UTAH-IDAHO MINING & MILLING CO.

Office: Paris, Idaho. **Officers:** L. W. Johnson, Pres., Provo, Utah; H. H. Broomhead, Sec., Bloomington. **Inc.:** Aug. 23, 1926. **Capital:** 1,000,000 shares; par value 2c; 712,300 shares issued. **Property:** Old Boulder group, 18 unpatented claims, unorganized dist.; Paris. **Development:** By 3 tunnels: No. 1, 600 ft. long; No. 2, 150 ft. long; No. 3, 200 ft. long; and a vertical shaft 160 ft. deep. **Ore:** Copper. **Men employed:** Average, 4. **Remarks:** Shaft extended 100 ft. during the year under contract, the the equipment used consisting of gas-driven compressor and hoist which were furnished by the contractor. The funds for this work were derived from stock assessments.

WASATCH MINING & DEVELOPMENT CO.

Office: Preston. **Officers:** G. A. Ransom, Pres.-Mgr., Paris; Chas. Ransom, Sec., Cleveland. **Inc.:** Feb. 6, 1928. **Capital:** 500,000 shares; par value 10c; 260,000 shares issued. **Property:** Midway group; 5 unpatented claims held under lease and option; unorganized dist.; Bloomington. **Development:** By 2 tunnels: No. 1, 40 ft. long; No. 2, 70 ft. long. **Men employed:** Average, 3. **Remarks:** Principal tunnel extended 100 feet during the year.

BIBLIOGRAPHY

See pages 13-14 for publisher's address, meaning of reference marks, and abbreviations.

Fifth and Eleventh Ann. Repts. U. S. Geol. and Geog. Surveys of the Territories, by F. V. Hayden, **1872** and **1879.***

Report on work in the Great Basin, by G. K. Gilbert: U. S. Geol. Survey Second Ann. Rept. 1880-1881, pp. 169-200, **1882.***

Lake Bonneville, by G. K. Gilbert: U. S. Geol. Survey Mon. 1, **1890.***

Phosphate deposits in western United States, by F. B. Weeks and W. F. Ferrier: U. S. Geol. Survey Bull. 315, pp. 449-462, **1907.***

Phosphate rock in Utah, Idaho, and Wyoming, by C. C. Jones: Eng. and Min. Jour., vol. 83, pp. 953-955; May 18, **1907.**§

Phosphate deposits in the western United States, by F. B. Weeks: U. S. Geol. Survey Bull. 340, pp. 441-447, **1908.***

Geology of the copper deposits near Montpelier, Bear Lake County, Idaho, by H. S. Gale: U. S. Geol. Survey Bull. 430, pp. 112-121, **1909.***

Preliminary report on the phosphate deposits in southeastern Idaho and adjacent parts of Wyoming and Utah, by H. S. Gale and R. W. Richards: U. S. Geol. Survey Bull. 430, pp. 457-531, **1909.***

Gems and precious stones, by D. B. Sterrett: U. S. Geol. Survey Mineral Resources **1909,** pt. 2, p. 804.*

Notes on lead and copper deposits in the Bear River Range, Idaho and Utah, by R. W. Richards: U. S. Geol. Survey Bull. 470, pp. 177-137, **1910.***

Preliminary report on a portion of the Idaho phosphate reserve, by R. W. Richards and G. R. Mansfield, U. S. Geol. Survey Bull. 470, pp. 371-439, **1910.***

A geological reconnaissance in southeastern Idaho, by A. R. Schultz and R. W. Richards: U. S. Geol. Survey Bull. 530, pp. 267-284, **1911.***

Discovery and opening of a new phosphate field in the United States, by C. C. Jones: Trans. Am. Inst. Min. Eng., vol. 47, pp. 192-216, August, **1913.**§

Geology of the phosphate deposits northeast of Georgetown, Idaho, by R. W. Richards and G. R. Mansfield: U. S. Geol. Survey Bull. 577, **1914.**‡

Revision of the Beckwith and Bear River formations of southeastern Idaho by G. R. Mansfield and P. V. Roundy: U. S. Geol. Survey Prof. Paper 98, pp. 75-84, **1916.***

Phosphate deposits in Idaho, by R. N. Bell: Eng. and Min. Jour., vol. 104, pp. 293-294, Aug. 18, **1917.**§

Oil shale in western Montana, southeastern Idaho and adjacent parts of Wyoming and Utah, by D. D. Condit: U. S. Geol. Survey Bull. 711, pp. 15-40, **1920.**‡

Gypsum deposits of the United States, by R. W. Stone and others: U. S. Geol. Survey Bull. 697, pp. 99-100, **1920.**‡
The Wasatch and Salt Lake formations of southeastern Idaho, by G. R. Mansfield: Am. Jour. Sci., vol. 49, pp. 399-406, June, **1920.**§
Triassic and Jurassic formations in southeastern Idaho and neighboring regions, by G. R. Mansfield: Am. Jour. Sci., vol. 50, pp. 53-64, July, **1920.**§
Types of Rocky Mountain structure in southeastern Idaho, by G. R. Mansfield: Jour. Geology, vol. 29, No. 5, pp. 444-468, July-August, **1921.**§
Notes on the geology of eastern Bear Lake County, Idaho, with reference to oil possibilities, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 7, **1923.****
Geography, geology, and mineral resources of part of southeastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Prof. Paper 152, **1927.****
The Idaho phosphate field, by G. R. Mansfield: Mining and Metallurgy, vol. 9, pp. 19-20, January, **1928.**§

BENEWAH COUNTY

Benewah is one of the northern counties. It is bounded on the west by the State of Washington, on the north by Kootenai County, and on the east and south by Shoshone and Latah counties. It has an area of 786 square miles and was accredited with a population of 6997 in the 1920 census. St. Maries, the county seat, is the largest town in the county. Except a small area along the St. Joe and St. Maries Rivers, and the section adjacent to the town of Plummer, which is devoted to agriculture, the entire county is mountainous and heavily timbered. The county is noted for its timber and lumbering industries.

The county is served by lake-boat transportation from Coeur d'Alene to St. Maries, and by two railroads: The Tekoa, Wn.-Wallace, Idaho, branch of the O. W. R. & N. (Union Pacific System), and the main line of the Chicago, Milwaukee & St. Paul Railroad, with its branch line extending from St. Maries to Elk River (Clearwater County).

The principal mineral resources are gold, copper, silver, lead, zinc, iron, and clay. The deposits containing the principal metals have received a small amount of attention; and many of the clays are exceptionally adapted to the ceramic industry. The St. Joe district, which lies east of St. Maries, and the Hoodoo and Camas Cove districts, in the southeastern corner, are the principal mining districts.

During 1928 three mining companies performed a small amount of development work. This, with a slight increase in the number of prospectors, gave the county a little more than its usual mining activity.

BUTTE MINING CO.

Office: St. Maries, Idaho. **Officers:** John Martindes, Pres.-Mgr.; George E. Mitchell, Sec., both of St. Maries. **Inc.:** March 27, 1916. **Capital:** 500,000 shares; par value 50c; 399,736 shares issued. **Property:** 6 unpatented claims, St. Joe dist.; St. Maries. **Development:** 1 tunnel, 240 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Annual labor only, the funds for which were derived from a stock assessment.

RAINBOW MINING & MILLING CO., LTD.

Office: 303 Mohawk Bldg., Spokane, Wash. **Officers:** Geo. Austin, Pres.-Mgr., Spokane, Wash.; John F. Gearon, Sec., Wallace. **Inc.:** June 20, 1907. **Capital:** 2,000,000 shares; par value 25c; 1,335,000 shares issued. **Property:** 2 unpatented claims, St. Joe dist.; Medimont. **Development:** By 2 short tunnels. **Ore:** Lead-silver. **Remarks:** A small amount of diamond drilling was done during the summer months.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Alice Group	Camas Cove	S. R. Walker	St. Maries
Alice Gr.	Grass Mountain	Thos. Egan	St. Maries
Aurora	St. Joe	E. F. Montandon	St. Maries
Bonanza et al.	St. Joe	James M. Warren	St. Maries
Cabin et al.	St. Joe	Fulton Cook	St. Maries
Cedar Creek	Camas Cove	W. I. Hupp et al.	St. Maries
Connelly Bros.	Camas Cove	Connelly Bros.	Tyson
Copperhead	Camas Cove	Bert Whitehead	St. Maries
Donson-Woodard	St. Joe	L. B. Dunson	St. Maries
Flying Stone	Unorganized	William F. Schultz	Plummer
Gladiator Gr.	St. Joe	O. E. Hailey et al.	St. Maries
McLean Placer	Camas Cove	C. A. McLean	Santa
Red Boy	Camas Cove	J. E. Hemmerway	St. Maries
Seledoria	Camas Cove	Sadie Caverni	Clarkia
Tom et al.	Unorganized	William Russell	Chatcolet

BIBLIOGRAPHY

See pages 13-14 for publisher's address, meaning of reference marks, and abbreviations.

A geological reconnaissance in northern Idaho and northwestern Montana, by F. C. Calkins, with notes on the economic geology by D. F. MacDonald: U. S. Geol. Survey Bull. 384, **1909.***

Preliminary report on the clays of Idaho, by F. H. Skeels: Idaho Bureau of Mines and Geology Bull. 2, **1920.****

Coeur d'Alene Lake, Idaho, and the overflow lands, by R. W. Davenport: U. S. Geol. Survey Water-Supply Paper 500 A, **1921.***

Ground water for municipal supply at St. Maries, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 17, **1926.****

Some Miocene and Pleistocene drainage changes in northern Idaho, by A. L. Anderson: Idaho Bureau of Mines and Geology Pamphlet 18, **1927.****

A geological reconnoissance in the St. Maries region, Idaho, by A. L. Anderson: Idaho Bureau of Mines and Geology Pamphlet 30, **1928.****

BINGHAM COUNTY

Bingham, a southeastern county, is primarily an agricultural community. It occupies a large part of the Snake River Valley and is bounded by Butte, Blaine, Power, Bannock, Caribou, Bonneville, and Jefferson counties. It has an area of 2184 square miles and was accredited with a population of 18,310 in the census of 1920.

The extensive phosphate beds of southeastern Idaho are exposed in the Blackfoot Mountains which cover the eastern part of the county. Coal also has been found in these mountains, notably along Willow Creek, a small stream which flows in a northerly direction through the east end of the county. The coal beds have received a little attention from prospectors but no coal of commercial importance has been discovered. Structures that appear likely for the presence of petroleum are present also. The fine gold in the placer deposits along Snake River is the only metal resource of the county. In the past these deposits have received the attention of placer miners, but nothing of importance was reported during the year.

MARY LEE GOLD MINING CO.

Office: Gallipolis, Ohio. **Officers:** Harold Wolfe, Pres.; J. V. Lee, Sec.-Treas., both of Gallipolis, Ohio. **Inc.:** Jan. 29, 1919. **Capital:** 1,000,000 shares; par value $1; 500,000 shares issued. **Property:** 47½ acres unpatented land. **Ore:** Placer gold.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Eagle Bend Pl.	Snake River	Alma Clough	Pingree
Eldorado Placer	Snake River	Robert Wheeler	Sterling
Oborn & Coler Pl.	Snake River	John Oborn	Blackfoot
Parsons Placer	Snake River	W. G. Parsons	Aberdeen
Snake River Pl.	Snake River	G. E. Campbell	Blackfoot
Woodruff Bend Pl.	Snake River	James G. Walsh	Blackfoot

BIBLIOGRAPHY

See pages 13-14 for publisher's address, meaning of reference marks, and abbreviations.

Fifth, Sixth and Eleventh Ann. Repts. U. S. Geol. and Geog. Survey of the Territories, by F. V. Hayden, **1871, 1873 and 1879.***

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Notes on the Fort Hall mining district, Idaho, by F. B. Weeks and V. C. Heikes: U. S. Geol. Survey Bull. 340, pp. 175-183, **1908.***

A geological reconnaissance in southeastern Idaho, by A. R. Schultz and R. W. Richards: U. S. Geol. Survey Bull. 530, pp. 267-284, **1911.***

Guidebook of the western United States by W. T. Lee and others: U. S. Geol. Survey Bull. 612, pp. 114-147, **1915.**‡

Geology and ore deposits of the Mackay region, Idaho, by J. B. Umpleby: U. S. Geol. Survey Prof. Paper 97, **1917.**‡

Coal in eastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 716f, **1920.**‡

Geography, geology, and mineral resources of the Fort Hall Indian Reservation, Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 713, **1920.**‡

Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 60, art. 3, pp. 1-33, **1921.**‡

Geology and oil possibilities of Bingham, Bonneville, and Caribou counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Bull. 8, **1924.****

Geography, geology, and mineral resources of part of southeastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Prof. Paper 152, **1927.****

BLAINE COUNTY

Blaine County is bounded on the west by Camas County, on the north by Custer County, and on the east and south, in its greater extent, by Butte and Lincoln counties. Its principal area comprises the drainage basin of Big and Little Wood rivers, which flow in a southerly direction. Its total area is 2797 square miles. The 1920 census accredited the county with a population of 4473, or 1.6 persons to the square mile. In location it is one of the south-central counties and comprises part of the region known as "Central Idaho's Mineral Empire." The county is primarily recognized as a mining county, but it is also noted for its agricultural and stock raising industries; particularly sheep, as it is one of the largest sheep shipping points in the United States.

The county is served by the Wood River branch of the Oregon Short Line Railroad, which extends from Shoshone to Ketchum; by the Sawtooth Park State highway, and a well-kept system of county roads which extend into all of the various mining districts and sections. All roads are kept in good repair and are open to travel during the larger part of the year. Hailey is the largest town and county seat.

The first discovery of lead-silver ore in the State was made in Blaine County, which was then called Alturas County. The first ore was marketed in 1880 and since then this county has been a consistent producer of these metals. Most of the ores are of such high grade that they can be shipped direct to the smelter without preliminary treatment, thus assuring immediate returns from all discoveries. This fact and the possibilities of discovering and opening new ore bodies will continue to hold Blaine County, particularly the Wood River district, in popular esteem as a favorite section of the State for prospectors, development companies, and those seeking a worthy field for mining enterprises.

The high-grade ores of lead and silver are widely distributed throughout the county, as well as those of gold, zinc, and copper. In addition to the five principal metals—lead, silver, zinc, gold, and copper—deposits of arsenic,

antimony, bismuth, quicksilver, graphite, barytes and limestone are found in this county. These minerals occur in sufficient extent to be of commercial importance, and many of the deposits offer an excellent opportunity to development companies or to those in search of these minerals or metals. The barytes deposits are the largest that have ever been found west of the Mississippi River. One large deposit on Deer Creek has been purchased by the Bunker Hill & Sullivan Mining & Concentrating Co., presumably in anticipation of the construction of the company's zinc smelter at Kellogg, where it will be used in the manufacture of lithopone.

The principal operation in this county throughout the year was that of the Triumph Development Co. at the old Triumph mine, which adjoins the North Star of the Federal Mining & Smelting Co. A large tonnage of mixed ore was produced and sent to a milling plant in Utah for reduction. During the closing months of the year surveys and plans were completed for the construction of an aerial tramway, four miles long, and a mill at a point adjacent to the railroad. The Liberty Gem Mines, Inc., which was organized in 1927 to develop the new discovery made by the Mathewses in the early part of that year, maintained active development work throughout 1928. This work exposed a large amount of new ore, and at the close of the year arrangements had been completed to extend the shaft to a total depth of 150 feet. The Hailey Bonanza Mining Co., whose property is in Greenhorn Gulch north of Hailey, maintained work throughout the greater part of the year with a small crew and produced and marketed a small shipment of crude ore. The Crooked River Mining Co., operating in the Muldoon district, installed a gas-driven compressor and complete mining equipment, and actively developed its property by contract throughout the year. A new organization, the Pandora Mining Co., with property in the Lava Creek district adjacent to that of the Federal Mining & Smelting Co., in Butte County, installed a gas-driven compressor and complete mining equipment, constructed new camp buildings, and started active development work. The Vienna mine in the Sawtooth district was under operation by A. F. Peery; the Parker mine near Ketchum was actively developed throughout the year; and a few lessees produced and marketed a substantial tonnage of ore from the Independence and North Star mines owned by the Federal Mining & Smelting Co. What appears to be a substantial discovery of new ore was made by W. P. Fowler at the Jennie R. mine in the Rock Creek district. This new ore was uncovered during the closing months of the year, so at the present time its extent is not definitely known. The Wood River Mining Co. near Ketchum was active for eight months with a small crew, the funds for this work being derived from stock assessments. Peter L. Kent at the Lone Pine group on Deer Creek performed a small amount of work, and lessees at the Eureka and Idahoan groups in the Bullion district were also active.

ARGO MINING CORPORATION

Office: 3725 Kate Ave., Baltimore, Md. **Officers:** Henry Mencken, Pres.; F. H. Gettemuller, Sec., both of Baltimore, Md.; T. R. Bowlden, Mgr., Gannett. **Inc.:** Oct. 15, 1926. **Capital:** 500,000 shares; par value $1; 35,000 shares issued. **Property:** Cove group; 7 unpatented claims, Mineral Hill dist.; Gannett. **Development:** 4 tunnels, giving approximately 580 feet, vertical depth on vein; total development, 2533 ft. **Plant:** Steam-driven compressor on ground not installed; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Annual labor only.

ARGOSY MINING & MILLING CO., LTD.

Office: 1125 N. Garfield Ave., Pocatello, Idaho. **Officers:** W. E. Smith, Pres.; Priscilla K. Smith, Sec., both of Pocatello. **Inc.:** Feb. 24, 1904. **Capital:** 50,000 shares; par value $1; all shares issued. **Property:** Argosy group; 5 patented claims, Little Wood River dist.; Muldoon. **Development:** By 5 tunnels; total development approximately 800 ft. **Ore:** Lead-silver. **Remarks:** Idle for 16 years.

BALTIMORE & VICTORIA MINING CO.
Office: Care of Terre Haute Nat'l Bank & Trust Co., Terre Haute, Ind. **Officers:** William K. Hamilton, Pres., Terre Haute, Ind.; Eph Daft, Agent, Hailey. **Inc.:** July 3, 1903. **Capital:** 150,000 shares; par value 10c; all shares issued. **Property:** Ida Harland group; 5 patented, 8 unpatented claims, Warm Springs Creek dist.; Hailey. **Remarks:** Small amount of work by lessees.

BUNKER HILL & SULLIVAN MINING & CONCENTRATING CO.
(See Shoshone County)
Officers: F. W. Bradley, Pres., 1022 Crocker Bldg., San Francisco, Cal.; Stanly A. Easton, Mgr., Kellogg; James W. Gwinn, Local Mgr., Cascade. **Property:** 10 unpatented claims; Bullion, Mineral Hill dist.; Hailey. **Remarks:** Annual labor only.

CROOKED RIVER MINING CO.
Office: Box 158, Nampa. **Officers:** Melvin T. Rowland, Pres.-Mgr., Nampa; N. S. Talbott, Sec., Dayton, Ohio. **Inc.:** Oct. 5, 1927. **Capital:** 2000 shares, par value $100; 2000 shares, no par value; no shares issued. **Property:** Smuggler and Jupiter groups; 6 unpatented claims held under lease and option, Little Wood River dist.; Muldoon. **Development:** 6 tunnels, totaling over 2,000 ft. **Plant:** Gas-driven C-P compressor; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 4. **Remarks:** Equipment installed and 400 feet of development work performed during the year.

DAISY MINING & MILLING CO., LTD.
Office: Hailey. **Officers:** A. E. Larsen, Pres., Yakima, Wash.; L. A. Devine, Sec., Hailey. **Inc.:** July 6, 1920. **Capital:** 500,000 shares; par value $1; all shares issued. **Property:** Camas group; 18 patented claims held under lease and option; Mineral Hill dist.; Hailey. **Development:** Principally by 1 tunnel 800 ft. long. **Plant:** MINE: Electrically-driven compressor and complete mining equipment. MILL: Small concentrator, including flotation. **Ore:** Lead-silver-gold. **Remarks:** Idle.

ERVINE MINING CO.
Office: Ketchum. **Officers:** M. A. Costello, Sec., 40 Court St., Boston, Mass.; C. Fred Howe, Mgr., Ketchum. **Inc.:** March 14, 1922. **Capital:** 1,000,000 shares; par value $1; 357,550 shares issued. **Property:** Boyle Mtn. group; 7 patented, 13 unpatented claims, 350 acres, Warm Springs Creek dist.; Ketchum. **Ore:** Silver-lead. **Remarks:** Annual labor only.

EUREKA DEVELOPMENT CO., LTD.
Office: 319 Dooly Blk., Salt Lake City, Utah. **Officers:** W. A. Wilson, Pres.-Mgr., Salt Lake City, Utah. **Inc.:** June 28, 1905. **Capital:** 200,000 shares; par value 50c; all shares issued. **Property:** Eureka group; 12 patented, 5 unpatented claims, Mineral Hill dist.; Hailey, 7 miles. **Development:** Total development approximately 12,900 ft., the length of the principal workings being: Bay State, 1000 ft.; Chicagoan, 300 ft.; Whale, 1400 ft.; Eureka, 3920 ft.; Idahoan, 5000 ft. One inclined shaft 700 ft. long; 1 inclined shaft 435 ft. long. **Plant:** MINE: 8x10 Lidgerwood hoist; 40 h. p. C-P oil-driven compressor. MILL: 25-ton concentrator. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** The mine was operated by lessees, who produced and marketed a small tonnage of high-grade hand-sorted ore.

FEDERAL MINING & SMELTING CO. (See Shoshone County)
Office: Wallace. **Officers:** F. H. Brownell, Pres.; J. L. Martin, Sec., both of 120 Broadway, New York City; Frederick Burbidge, Mgr., Wallace. **Property:** Independence, North Star, Koeninger and Malta groups; 36 patented, 13 unpatented claims, 762 acres, Warm Springs Creek dist.; Hailey, 12 miles. **Development:** Approximately 7 miles of underground workings, the principal of which is the Plummer, or main haulage tunnel, which is over 6000 ft. long and connects the North Star and Independence groups. **Plant:** MINE: 1 English Iron Works 202 single drum 25 h. p. electric hoist; 1 Lidgerwood 8x10 air hoist; 1 I-R 420 cu. ft. com-

pressor; 1 C-P 765 cu. ft. compressor. All electrically driven. Electric haulage through Plummer tunnel. One Waugh drill sharpener and complete mine equipment; 4400 ft. Riblet aerial tram from Plummer tunnel to mill, capacity 20 tons an hour. Shops, timber sheds and bunk houses. MILL: 350-ton concentrator; jaw and gyratory crushers; rolls; Marcy ball mills; Hancock jigs; drag classifiers; Wilfley tables; Dorr thickeners; Oliver filters; electric power. **Ore:** Lead-silver. **Remarks:** Active mining operations were suspended on August 1, 1923, after which various parts of the Indepencence and North Star mines have been operated by lessees. A substantial tonnage was produced and marketed during the year.

FIELDS MUTUAL DEVELOPMENT CO.

Office: Hailey. **Officers:** Al. W. Field, Pres.-Mgr., Hailey; V. F. Rodgers, Sec., Portland, Ore. **Inc.:** Nov. 6, 1926. Formerly known as Field Mutual Mining Co. **Capital:** 500,000 shares; par value $1; 195,000 shares issued. **Property:** 14 unpatented claims, Kelly Mountain, Mineral Hill dist.; Hailey. **Development:** Approximately 3000 ft. of underground work, principally 1 tunnel 1000 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** A small amount of development work during the summer months.

HAILEY BONANZA MINING CO.

Office: Hailey. **Officers:** Carl Reisig, Pres.-Mgr.; Alfred Wolff, Sec.-Treas., both of Hailey. **Inc.:** Aug. 9, 1919. **Capital:** 500,000 shares; par value $1; all shares issued. **Property:** Imperial group; 1 patented, 24 unpatented claims, Greenhorn Gulch, Warm Springs Creek dist.; Hailey. **Development:** Approximately 3000 ft. of underground workings, the principal of which is 1 tunnel 1200 ft. long. **Plant:** MINE: Electrically-driven compressor and complete mining equipment. MILL: 100-ton concentrator consisting of tables and jigs. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** During the year a small tonnage of hand-sorted ore was produced and marketed.

HOMESTAKE MINES CORPORATION

Office: Bellevue. **Officers:** F. D. Kaufman, Sec., Bellevue. **Inc.:** July 27, 1927. **Capital:** 1000 shares; par value $100; all shares issued. **Property:** Homestake group; 13 unpatented claims, Warm Springs Creek dist.; Ketchum. **Development:** Approximately 3500 ft. of workings, the principal being: No. 3 tunnel, 550 ft. long; No. 4 tunnel, 1000 ft. long; No. 5 tunnel, 1900 ft. long. **Plant:** Gas-driven C-P compressor; complete mining equipment. **Ore:** Lead-silver-zinc. **Remarks:** Annual labor only.

IDAHO DEMOCRAT MINE, INC.

Office: 207 Glencoe Bldg., Duluth, Minn. **Officers:** A. Hagberg, Pres.; E. O. Olund, Sec., both of Duluth. **Inc.:** Jan. 30, 1924. **Capital:** 300,000 shares; par value $1; 249,671 shares issued. **Property:** Badger group; 3 unpatented claims held under lease and option, Mineral Hill dist.; Hailey. **Plant:** Portable gas-driven compressor and complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** A small amount of prospecting work by churn drilling was performed.

IDAHO MASCOT MINES COALITION

Office: 407 Newhouse Bldg., Salt Lake City, Utah. **Officers:** Charles Peter, Pres.-Mgr.; August Glissmeyer, Sec., both of Salt Lake City. **Inc.:** Jan. 8, 1926. **Capital:** 2,000,000 shares; par value $1; 1,400,000 shares issued. **Property:** Mascot group; 41 patented, 28 unpatented claims, Warm Springs Creek dist.; Hailey. Held under lease and bond from F. C. Richmond Machinery Co., Salt Lake City. **Development:** Principally by 4 tunnels; total development, approximately 11,000 ft., of which the principal tunnels are; Silver Fortune, 50 ft. long; Oregonian, 300 ft. long; Lyda, 6000 ft. long; and West Side, 2250 ft. long. **Plant:** 1 15x9x10 and 1 12x8x12 C-P gas-driven compressor; 1 160 h. p. and 1 40 h. p. C-P semi Deisel engine driving electric generators; sawmill and complete mine equipment and camp. **Ore:** Lead-silver. **Remarks:** Idle.

IDAHO MINERAL PRODUCTS CO., LTD.

Office: Hailey. **Officers:** J. F. McClure, Pres., Montpelier; J. G. Hedrick, Sec., Hailey. **Inc.:** July 6, 1920. **Capital:** 100,000 shares; par value $1; shares issued, none. **Remarks:** Company owns no property.

IDAHO SILVER KING MINING CO.

Office: Huntington Beach, Calif. **Officers:** A. B. Watson, Pres., Santa Ana, Calif.; E. E. Wilson, Sec., Huntington Beach, Calif. **Inc.:** July 17, 1926. **Capital:** 500,000 shares; no par value; 270,005 shares issued. **Property:** Silver King group; 2 patented, 1 unpatented claim, Sawtooth dist.; Ketchum. **Development:** By an inclined shaft 600 ft. long, with 3 intermediate levels; total development, approximately 3000 ft. **Plant:** Steam-driven hoist. **Ore:** Silver, antimony. **Remarks:** Idle.

IVANHOE MINING CO.

Office: 485 California St., San Francisco, Calif. **Officers:** Harry L. Tevis, Pres.; William Letson, Sec., both of San Francisco, Calif. **Inc.:** July 28, 1909. **Capital:** 2500 shares; par value $1; all shares issued. **Property:** Durango group, 16 patented claims; Iris group, 5 patented claims; Mineral Hill dist.; Triumph group, 7 patented claims; Warm Springs Creek dist.

LIBERTY GEM MINES, INC.

Office: 610 Eastman Bldg., Boise. **Officers:** Guy E. Mathews, Pres.; G. Arlon Mathews, Sec., both of Hailey. **Inc.:** Sept. 13, 1927. **Capital:** 250 shares; no par value; all shares issued. **Property:** Liberty group; 11 unpatented claims, Mineral Hill dist.; Hailey. **Development:** Numerous open cuts and 4 small vertical shafts, the deepest of which is 75 ft. Total development, 450 ft. **Plant:** Gas-driven compressor; air-driven hoist; complete mining equipment and camp. **Ore:** Lead-silver-zinc. **Men employed:** Average, 7. **Remarks:** This enterprise is based on the development of the new ore disclosures made by the Mathewses during the early part of 1927. The development work has proved that this property may be classified as one of importance. Active throughout the year.

MIDVALE MINING CO.

Office: Ketchum. **Officers:** M. A. Costello, Sec., 40 Court St., Boston, Mass.; C. Fred Howe, Mgr., Ketchum. **Inc.:** March 14, 1922. **Capital:** 1,000,000 shares; par value $1; 400,000 shares issued. **Property:** Pay group; 8 unpatented claims, Warm Springs Creek dist.; Ketchum. **Ore:** Zinc. **Remarks:** Annual labor only.

PANDORA MINING CO.

Office: Miller Bldg., Yakima, Wash. **Officers:** Charles A. Mayo, Pres.-Mgr., Carey; R. Strobach, Sec., Yakima, Wash. **Inc.:** Unknown. **Capital:** 500,000 shares; par value 10c; 250,000 shares issued. **Property:** Pandora group; 15 unpatented claims held under lease and option, Lava Creek dist.; Blaine and Butte counties; Carey. **Plant:** Portable I-R gas-driven compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 4. **Remarks:** A new organization which acquired its property, constructed camp buildings, installed equipment, and commenced active development work during the closing months of the year, the work being confined to the Blaine County side.

QUINCY JUNIOR MINING CO.

Office: 319 Dooly Block, Salt Lake City, Utah. **Officers:** George L. Erwin, Pres.; Geo. T. Peterson, Sec.; W. A. Wilson, Mgr., all of Salt Lake City. **Inc.:** Dec. 20, 1903. **Capital:** 150,000 shares; par value $1; 139,658 shares issued. **Property:** Red Elephant group; 10 patented claims, Mineral Hill dist.; Hailey. **Development:** Approximately 15,000 ft. underground workings. **Remarks:** Annual labor only.

RED ELEPHANT CONSOLIDATED MINES CO.

Office: 319 Dooly Blk., Salt Lake City, Utah. **Officers:** John Rapalji, Pres., Beacon, N. Y.; Edwin J. Webb, Sec., Beacon, N. Y. **Inc.:** June 16, 1916. **Capital:** 1,500,000 shares; par value $1; 957,167 shares issued. **Property:** Red Elephant Extension group; 1 patented, 16 unpatented claims, Mineral Hill dist.; Hailey. **Remarks:** Idle throughout the year.

SILVER SPAR MINING CO.

Office: Idaho Falls. **Officers:** B. M. Rogers, Pres.; Dr. Dwight Lenzi, Sec., both of Idaho Falls. **Inc.:** April 14, 1916, as Falls Mining Co.; name changed April 28, 1917. **Capital:** 200,000 shares; par value $1; 100,000 shares issued. **Property:** Silver Spar group; 18 patented, 7 unpatented claims, Little Wood River dist.; Muldoon. **Development:** By 5 tunnels totaling approximately 1000 ft. in length, and an inclined shaft 200 ft. long. **Plant:** Steam-driven hoist and compressor, complete mining equipment and camp. **Ore:** Silver. **Remarks:** Annual labor only.

SUNBEAM MINING CO.

Office: 655 S. Hayes St., Pocatello. **Officers:** W. H. Hall, Pres.-Mgr.; Geo. H. Spongberg, Sec., both of Pocatello. **Inc.:** Sept. 28, 1926. **Capital:** 1,000,000 shares; par value 10c; 500,001 shares issued. **Property:** 2 unpatented claims, Sawtooth dist.; Ketchum. Held under lease and option from C. H. Furey, Pocatello. **Development:** Total development of approximately 300 ft. **Ore:** Silver, antimony. **Men employed:** Average, 2. **Remarks:** Active for 3 months.

TORBANEHILL MINING CO.

Office: 608 Deseret Bank Bldg., Salt Lake City, Utah. **Officers:** W. F. Armstrong, Pres.; Oscar W. Moyle, Sec., both of Salt Lake City, Utah. **Inc.:** Sept. 14, 1906. **Capital:** 500,000 shares; par value 1c; all shares issued. **Property:** 7 patented claims, Lava Creek dist.; Carey. **Remarks:** Idle for many years.

TRIUMPH DEVELOPMENT CO.

Office: 218 Felt Bldg., Salt Lake City, Utah. **Officers:** J. C. Jensen, Pres.-Mgr.; Geo. W. Snyder, Sec., both of Salt Lake City. **Inc.:** Mar. 28, 1928. Charter forfeited Nov. 30, 1928. **Capital:** 1,000,000 shares; par value 10c; all shares issued. **Property:** Lease on Triumph mine, owned by Ivanhoe Mining Co.; Warm Springs Creek dist.; Hailey. **Development:** Principally by a vertical shaft 300 ft. deep in which there are 3 levels, and an inclined winze in No. 3 level 100 ft. long. Total development approximately 13,000 ft. **Plant:** Electrically-driven double-drum hoist and 700 cu. ft. compressor; steel sharpener; complete mining equipment. **Ore:** Lead-zinc-silver. **Men employed:** Average, 65. **Remarks:** Production at the rate of 75 tons per day was maintained until September, at which time it was suspended, pending sinking the winze to a greater depth, installing a tramway from the mine to a point adjacent to the railroad, and constructing a mill near the railroad siding.

UNITED MINES CO.

Office: 1st and Washington St., Portland, Ore. **Officers:** Thomas H. Hurlburt, Pres.; A. Pearson, Sec., both of Portland, Ore. **Inc.:** April 7, 1922. **Capital:** 1200 shares; par value $50; all shares issued. **Property:** 5 unpatented claims, Garfield Gulch, Little Wood River dist.; Muldoon. **Development:** Approximately 1140 ft. of underground workings, consisting principally of 3 tunnels: No. 1, 850 ft. long; No. 2, 280 ft. long; No. 3, 90 ft. long. **Plant:** 7x6 I-R compressor, driven by 34 in. Pelton water wheel, and complete equipment. **Ore:** Lead-silver. **Men employed:** Average, 4. **Remarks:** During the summer months an additional camp building was constructed and a small amount of development work performed.

UTAH-BELLEVUE MINES CO.

Office: Box 1975, Salt Lake City, Utah. **Officers:** E. W. Totten, Pres.; O. R. Totten, Sec.; A. W. Kelley, Mgr.; all of Salt Lake City. **Inc.:** Filed in Idaho Dec. 19, 1914. **Capital:** 500,000 shares; par value 10c; 203,455 shares issued. **Property:** Kelley group; 6 unpatented claims, Mineral Hill dist.; Bellevue. **Development:** Principally by 1 tunnel 600 ft. long and a vertical shaft 125 ft. deep. **Plant:** Small gas-driven compressor and air-driven hoist. **Ore:** Lead-silver. **Remarks:** Annual labor only.

WAR DANCE MINING CO., LTD.

Office: P. O. Box 397, E. Auburn, Calif. **Officers:** James W. Burns, Pres., Auburn, Calif. **Inc.:** Sept. 17, 1910. **Capital:** 500,000 shares; par value $1; no shares issued. **Property:** War Dance group; 23 unpatented claims, Mineral Hill dist.; Hailey. **Development:** Over 10,000 ft. of underground workings. **Remarks:** One of Blaine County's old producers. Annual labor only.

WAVA MINING & MILLING CO.

Office: Hailey. **Officers:** C. E. Gordon, Pres., Detroit, Mich.; J. G. Hedrick, Sec., Hailey. **Inc.:** Sept. 18, 1919. **Capital:** 15,000 shares preferred; 35,000 shares common; par value $1; 4282 preferred, 24,282 common issued. **Remarks:** Owns no property.

WOOD RIVER MINING CO.

Office: Thorsen Bldg., Blackfoot. **Officers:** H. H. Scarborough, Pres., Idaho Falls; B. J. Coumerilh, Sec., Blackfoot. **Inc.:** July 30, 1923. **Capital:** 1,000,000 shares; par value 10c; 491,240 shares issued. **Property:** 8 unpatented claims, Warm Springs Creek dist.; Ketchum. **Ore:** Silver and lead. **Men employed:** Average, 4. **Remarks:** A small amount of development work was performed during the summer months. Stock assessments were levied during 1928 as follows: Apr. 10, 1c; Nov. 3, 1c.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Ajax	Mineral Hill	Leo Barrett	Hailey
Aetna	Mineral Hill	Neil Campbell Est.	Bellevue
Alabama	Little Wood R.	Joe Longono	Muldoon
Alexander	Warm Spgs. Cr.	Oscar Griffith	Ketchum
Alturas & Scotia	Sawtooth	Frank Becker	Hailey
Amazon	Mineral Hill	Chas. R. Walters	Hailey
Anabelle	Mineral Hill	Sibbie Tandy	Hailey
Anna	Mineral Hill	Mrs. P. McMonigle	Hailey
Anna et al.	Warm Spgs. Cr.	Frank Langell	Hailey
Bald Eagle	Mineral Hill	Cecelia J. Thomas	Hailey
Barbara	Mineral Hill	John Utsch	Hailey
Battling Jack Gr.	Sawtooth	John F. Garrett	Obsidian
Bavarian	Mineral Hill	H. J. Vorberg	Hailey
B B B	Mineral Hill	Beck Bros.	Bellevue
Beaver Gr.	Sawtooth	Thos. Mizer, Sr.	Hailey
Belmont Gr.	Mineral Hill	Jos. Siker	Hailey
Big Mint	Mineral Hill	H. R. Plughoff Est.	Hailey
Black Barb	Mineral Hill	E. B. Williams	Boise
Black Diamond	Warm Spgs. Cr.	Magnolia Gutches	Hailey
Black Horse	Mineral Hill	Mrs. Cecilia Roark	Bellevue
Black Jack et al.	Mineral Hill	K. G. Arkoosh	Gooding
Blue Bell	Warm Spgs. Cr.	Augustine Johnson	Hailey
Bob Tail	Mineral Hill	Rodney Brown	Hailey
Bonanza	Mineral Hill	J. L. Van Over	Bellevue
Boulder Gr.	Warm Spgs. Cr.	M. W. Wood	Boise
Boyle Mt. Gr.	Warm Spgs. Cr.	C. Fred Howe	Ketchum
Broadway	Warm Spgs. Cr.	Fred Vancil	Hailey
Bromide et al.	Mineral Hill	Ella Bresnahan	Hailey
Bull Whacker	Mineral Hill	G. G. Brown	Hailey
California	Mineral Hill	W. J. Sowden Est.	Hailey
Carboniferous	Mineral Hill	Mrs. Frank Campbell	Bellevue
Chloride Point	Warm Spgs. Cr.	Frank H. Morris	Hailey
Climax	Mineral Hill	Raymond Guyer	Spokane, Wash.
Climax Frac.	Mineral Hill	Geo. Choate	Hailey
Comet Gr.	Mineral Hill	Davidson Groc.	Boise
Compensation Gr.	Mineral Hill	L. A. Ditmer Est.	Hailey
Con Virginia	Mineral Hill	Mark Aukema	Hailey
Cotton Wood et al.	Mineral Hill	Rodney Brown	Hailey

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Croesus Gr.	Mineral Hill	Fred C. Robertson	405 Hyde Bldg., Spokane, Wash.
Daisy	Warm Spgs. Cr.	Clarence Bonning	Ketchum
Daisy	Mineral Hill	W. J. Oliver	Hailey
Delsie et al.	Unknown	W. H. Uhrig	Gannett
Dewey Gr.	Mineral Hill	Fred W. Smith	Hailey
Double J Gr.	Mineral Hill	J. J. Connor	Heyburn
Easter	Resurrection	Guy U. Lee	Butte, Mont.
Edris	Mineral Hill	R. B. French et al.	Hailey
Elkhorn	Warm Spgs. Cr.	Mrs. Horace Lewis	Ketchum
Ellen Stilts	Mineral Hill	W. A. Holland Est.	Hailey
Elmo	Mineral Hill	Beck Bros.	Rupert
E. Pluribus Unum	Mineral Hill	Geo. W. Hunter	Bellevue
Evelyn	Warm Spgs. Cr.	Hampton & Griffith	Ketchum
Extension	Warm Spgs. Cr.	L. P. McPheters	Ketchum
Flag Staff Gr.	Mineral Hill	E. F. Spooner	Hailey
Free Coinage	Warm Spgs. Cr.	Jas. Bonning Est.	Ketchum
Galena Gr.	Sawtooth	A. C. Martin	Minneapolis, Minn.
Garfield Gulch	Little Wood R.	Chas. Norris	Hailey
Gate City	Mineral Hill	A. M. Glahn, Agt.	Bellevue
Gem	Mineral Hill	Elmer Brown	Hailey
Gilt Edge	Mineral Hill	Sarah Campbell	Bellevue
Glendale Queen	Mineral Hill	W. D. Schraff Est.	Bellevue
Gold King	Mineral Hill	Mark J. King	Hailey
Grayhound et al.	Warm Spgs. Cr.	H. D. Jones et al.	Hailey
Hardscrabble	Mineral Hill	A. M. Singer	Gooding
Hard Times	Mineral Hill	Jos. Werry, Jr.	Bellevue
High Ore et al.	Little Wood R.	A. M. Glahn	Bellevue
Hill Side	Mineral Hill	Sam Carpenter et al.	Bellevue
Hispanolia	Sawtooth	Chas. H. Furey	Pocatello
Homestake Gr.	Warm Spgs. Cr.	J. A. Nelson	Hailey
Hyndman Gr.	Warm Spgs. Cr.	Andrew Johnson	Hailey
Imperial Gr.	Warm Spgs. Cr.	Leo Snider	Hailey
Independence Ext.	Warm Spgs. Cr.	John M. Price	Nampa
Jack Dempsey	Mineral Hill	Joseph Teuscher	Bellevue
Jennie R.	Mineral Hill	W. P. Fowler	Hailey
Jupiter	Little Wood R.	E. M. James Est.	Compton, Calif.
Kelton et al.	Mineral Hill	Walter B. Cole	Ogden
Keystone	Warm Spgs. Cr.	James McKelvey	Mackay
Kitty	Mineral Hill	Thos. Povey	Hailey
La Grande	Mineral Hill	Floyd W. Wilson	Hailey
Lake Creek	Warm Spgs. Cr.	Robt. Koeninger	Ketchum
Lark	Mineral Hill	Mrs. A. I. Harris	Bellevue
Last Chance	Warm Spgs. Cr.	P. M. Gray	Ketchum
Lawrence Gr.	Sawtooth	Geo. H. Spongberg et al.	Pocatello
Lead King Gr.	Mineral Hill	Joe Siker	Hailey
Leinster et al.	Mineral Hill	W. H. MacFarlane et al.	Hailey
Les Despencer	Mineral Hill	Edw. Flannery Est.	Hailey
Lone Jack	Sawtooth	John T. Garrett	Obsidian
Lone Pine Gr.	Little Wood R.	J. H. Glahn	Bellevue
Lone Pine Gr.	Warm Spgs. Cr.	Gus Anderson et al.	Ketchum
Lone Pine Tree	Mineral Hill	Peter Lorillard Kent	Union Club, N.Y.C.
Lottie	Warm Spgs. Cr.	Victor Stolle	Olympia Hotel, Seattle, Wash.
Lucky Boy	Sawtooth	H. D. Jones	Hailey
Lucky Boy Gr.	Warm Spgs. Cr.	C. Fred Howe	Ketchum
Lucky Coin	Warm Spgs. Cr.	Robert Harrison	Bellevue
Lucky Shot Gr.	Mineral Hill	P. S. Locke et al.	Hailey

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Mae	Warm Spgs. Cr.	L. L. Brown	Hailey
Majestic Gr.	Mineral Hill	Guy U. Lee	Butte, Mont.
Majestic et al.	Warm Spgs. Cr.	Leo P. Snider	Hailey
Mammoth	Mineral Hill	Ralph Edmiston	Gannett
Mary M.	Warm Spgs. Cr.	Gus Anderson	Ketchum
Maybe	Mineral Hill	Chas. Sonneleitner	Hailey
Maybelle	Mineral Hill	Wayne Beck	Bellevue
Minnesota	Warm Spgs. Cr.	Duquette Bros.	Idaho City
Mohawk	Warm Springs	Clint Allen	Hailey
Moonlight	Mineral Hill	Sam Carpenter	Bellevue
Moonshine	Warm Spgs. Cr.	Thos. J. Mizer et al.	Hailey
Morning Glory	Warm Spgs. Cr.	Eugene Sorenson	Ketchum
Mountain Lion	Little Wood R.	C. L. Swan	Pocatello
Myrtie	Sawtooth	M. O. Duffy Est.	Hailey
Narrow Gauge	Mineral Hill	Eph Daft	Hailey
Nay Aug	Mineral Hill	J. J. Baker	Hailey
New Hope	Warm Spgs. Cr.	W. H. Warfield	Ketchum
New Year	Mineral Hill	Alex Fischer	Bellevue
New York	Mineral Hill	J. W. Redding	Bellevue
O'Neil-Clark Gr.	Mineral Hill	Geo. Westlake	Hailey
Ontario	Mineral Hill	D. F. Dowd	Idaho Falls
Oriental	Mineral Hill	S. M. Friedman Est.	Hailey
Oriole	Mineral Hill	Wm. McWade	Bellevue
Overland	Mineral Hill	R. B. French	Hailey
Owl	Mineral Hill	Arthur Cloughton	Bellevue
Parnell	Mineral Hill	P. McMonigle Est.	Hailey
Paymaster	Lava Creek	Chas. Stone	Ketchum
Portland Gr.	Mineral Hill	D. F. Dowd	Idaho Falls
Porto Rico Gr.	Little Wood R.	Wm. O'Connor Est.	Hailey
Prize Taker	Mineral Hill	F. E. Grenfell, Agt.	Bellevue
Queen Bee et al.	Mineral Hill	Antone Peterlin	Bellevue
Queen Bess	Mineral Hill	J. J. Baker	Hailey
Queen Extension	Mineral Hill	Neil Campbell Est.	Bellevue
Radio	Sawtooth	Frank Croner	Fairfield
Rattler	Mineral Hill	Alex McKibben	Hailey
Red Bird	Mineral Hill	W. R. Edmiston	Gannett
Red Cloud	Mineral Hill	M. J. Smith, Agt.	Hailey
Red Leaf	Mineral Hill	Jos. Siker	Hailey
Richmond Gr.	Mineral Hill	Jos. Werry	Bellevue
Riverside Gr.	Mineral Hill	J. J. Rowley	Hailey
Roadside	Mineral Hill	J. S. Shotwell	Gooding
Rob Roy	Little Wood R.	Gus Johnson	Hailey
Rockcricker	Mineral Hill	Arthur D. Davis	Hailey
Ruth	Mineral Hill	Victor Haupt	Hailey
Saint Idloes	Mineral Hill	Chas. Sheehan	Boise
Saint Joseph et al.	Mineral Hill	Geo. W. Westlake	Hailey
Silver Bell Gr.	Warm Spgs. Cr.	Arvid Johnson et al.	Hailey
Silver Cord Gr.	Warm Spgs. Cr.	Chas. Swanson Est.	Ketchum
Silver Crown	Warm Spgs. Cr.	S. L. Schwartz	Hailey
Silver King	Mineral Hill	A. D. Hunter	Bellevue
Silver King	Sawtooth	F. E. Riddle	Tulsa, Okla.
Silver Knob	Mineral Hill	W. A. Sullivan	Hailey
Silver Pick	Mineral Hill	T. A. Blakeley	San Bernardino, Calif.
Sitting Bull et al.	Mineral Hill	Joe Day	Hailey
Slab Sides	Warm Spgs. Cr.	H. M. Young	Hailey
Smuggler	Little Wood R.	H. L. Watkins	Muldoon
Snowbound	Mineral Hill	Matt McFall	Shoshone
Standard	Warm Spgs. Cr.	Richard Hays Est.	Hailey
Star	Mineral Hill	Leo J. Falk	Boise

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Stockholder	Mineral Hill	Ira L. Kilgore	Hailey
Sunrise Gr.	Warm Spgs. Cr.	R. J. Blakeley	Hailey
Surprise	Little Wood R.	F. J. Long	Wendell
Susie S.	Mineral Hill	John Hailey Est.	Boise
Telluride	Mineral Hill	Harry Gordon	Bellevue
Tenbrook et al.	Warm Spgs. Cr.	Alonzo Price, Agt.	Ketchum
Tiger	Mineral Hill	Guy U. Lee	Butte, Mont.
Tiger Frac.	Mineral Hill	Fred Reinhard	Hailey
Tom Cat	Mineral Hill	Chas. Sonneleitner	Hailey
Triumph et al.	Warm Spgs. Cr.	M. M. Wood	Boise
Tungad	Mineral Hill	Peter L. Kent	Hailey
Vindicator Gr.	Warm Spgs. Cr.	Archie Bell	Hailey
Wheelbarrow	Warm Spgs. Cr.	A. T. Farnlund	Ketchum
White Elephant	Warm Springs	Jas. Obenchain	Ketchum
White Wing	Unorganized	C. C. Starcher	Carey
Wichita	Warm Spgs. Cr.	J. W. Gailey	Boise
Wolftone	Mineral Hill	W. T. Riley	Hailey
Wonder Gr.	Mineral Hill	Robert Justus	Hailey
Wood River Pride	Mineral Hill	Alice Holland	St. Louis, Mo.
Woodrow Gr.	Mineral Hill	V. T. Clark	Bellevue
Woodrow Wilson	Warm Spgs. Cr.	M. A. Morris	Ketchum

BIBLIOGRAPHY

See pages 13-14 for publisher's address, meaning of reference marks, and abbreviations.

Graphitic anthracite in the Parker mine, Wood River, Idaho, by W. P. Jenny: Columbia School of Mines Quart., vol. 10, pp. 313-315, **1889.***

A geological reconnaissance across Idaho, by G. H. Eldridge: U. S. Geol. Survey Sixteenth Ann. Rept., pt. 2, pp. 217-276, **1895.***

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey, Twentieth Ann. Rept., pt. 3, pp. 65-256, **1900.***

Some Idaho mining districts, by Arthur Lakes: Mines and Minerals, vol. 22, pp. 203-206, December, **1901.***

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

The Bellevue mining district, by Arthur Lakes: Mines and Minerals, vol. 23, pp. 271-272, January, **1903.***

Some of the veins and ore deposits of the Wood River district, by Arthur Lakes: Min. World, vol. 23, pp. 696-697, Dec. 23, **1905.***

A new and large deposit of barite in Idaho, by Arthur Lakes: Min. Reporter, vol. 54, p. 162, Aug. 16, **1906.***

The Bullwhacker mine, near Hailey, Idaho, by Arthur Lakes: Min. Reporter, vol. 53, pp. 168-169, Feb. 15, **1906.***

Faulting in the Red Cloud mine, by H. W. Turner: Min. and Sci. Press, vol. 95, pp. 747-748, Dec. 14, **1907.***

Wood River mining district of Idaho, by Arthur Lakes: Min. World, vol. 34, pp. 307-308, Feb. 4, **1911.***

Barytes and strontium: Idaho, by J. M. Hill: U. S. Geol. Survey Mineral Resources, **1915,** pt. 2, p. 172.‡

Ore deposits in the Sawtooth quadrangle, Blaine and Custer counties, Idaho, by J. B. Umpleby: U. S. Geol. Survey Bull. 580, pp. 221-249, **1915.**‡

Geology and ore deposits of the Mackay region, Idaho, by J. B. Umpleby: U. S. Geol. Survey Prof. Paper 97, **1917.**‡

Geology and ore deposits of Alturas quadrangle, by S. M. Ballard: Idaho Bureau of Mines and Geology Bull. 5, **1922.***

Arsenical ore deposits in the United States, by R. H. Sayre: Eng. and Min. Jour.-Press, vol. 118, pp. 929-932, Dec. 13, **1924.**§

The Vienna district, Blaine County, Idaho, by C. P. Ross: Idaho Bureau of Mines and Geology Pamphlet 21, **1927.****

A lead ore consisting of native lead, leadhillite and lethargite, by E. V. Shannon: Econ. Geology, vol. 22, pp. 826-829, December, **1927.****

A geologic error regarding the Wood River district, by Stewart Campbell: Eng. and Min. Jour., vol. 126, pp. 287-289, Aug. 25, **1928.§**

Craters of the Moon National Monument, Idaho, by H. T. Stearns: Idaho Bureau of Mines and Geology Bull. 13, **1928.****

BOISE COUNTY

Boise is one of the principal mining counties in the southwestern part of the State. It is bounded by Ada, Gem, Valley, Custer, Blaine and Elmore counties. Included within its area are a part of the drainage basin of the Payette River, practically all of the drainage basin of the South Fork of the Payette River, and all of the drainage basins of Grimes Creek and Moore Creek. The last two comprise the area generally known as the Boise Basin. The county has a total area of 1840 square miles, and was accredited with a population of 1822 in the 1920 census, or one person to the square mile. The principal industries are mining, stock raising, timber and lumbering.

Different sections of the county are served by Federal and State highways, which are supplemented by well-maintained county roads. These roads extend into all the various mining districts and are open to automobile travel during the larger part of the year. The western part of the county is traversed by the Nampa-McCall branch of the Oregon Short Line Railroad; the central part, or Boise Basin, is served by the Intermountain Railroad, which extends from Barber, near Boise, to Centerville. Idaho City, the county seat, and one of the oldest towns in the State, dates its existence from 1863, the time of the original gold rush to the Basin. It once boasted of a population as high as seven to ten thousand.

The history of Boise County dates back to the formation of the State in 1860, when placer gold was first discovered near Pierce City (Clearwater County). The overflow from this stampede resulted in the discoveries of Elk City, Florence, and Boise Basin, in quick succession; and by 1863 Boise Basin was one of the most thriving communities in the western part of the United States. In July, 1864, more than 9000 20-acre placer claims had been recorded in the three principal mining districts.

During the first few years after the discovery of gold all mining was confined to the placers which were susceptible to hand methods. After these became less profitable, numerous ditches 5 to 30 miles in length were constructed, and hydraulic mining of the higher bench gravels was started. These operations were conducted for many years, and a few have survived to the present day.

Shortly after the placer rush had subsided, attention was given to quartz mining; many discoveries soon were made, mills were constructed, and deep mining started. The principal discovery was the Gold Hill mine at Quartzburg. In 1863 the vein was exposed by placer mining, and by 1867 a mill had been built and was in operation. Except at brief periods when it was being repaired, the mill was operated continuously for 12 years. The mine has been in almost continuous operation since the day of discovery and is credited with a production of six to eight million dollars. This record gives it the distinction of being the oldest and largest producing gold mine in the State. The vein has been opened to a vertical depth of 600 feet only; at this point the ore is still persistent both in grade and extent, and there appears to be no reason why it should not continue deeper.

In addition to the Gold Hill, many other gold mines have a large production record. This production, combined with that derived from placer mining, both hydraulic and dredging, held Boise County in first place in gold production in the State until the year 1923, and it regained this position in 1928. The opening of the ore bodies on the 700-ft. level of the Gold Hill mine, the production from the Belshazzar mine, and the new ore disclosures made during 1928 were instrumental in attracting much attention to the district, as well as proving the permanence of the ore bodies.

As the early-day miner was interested only in the precious metals, gold and silver, which could be recovered by the methods then in use, he disregarded all veins containing the sulphide, or base, ores. Before these ores became valuable prospecting had practically ceased, so the result is that this county offers one of the best fields in the State to prospectors or small development companies in search of lead-zinc-silver ores. Deposits of these metals are widely distributed throughout the county; and a few have been partially developed. When properly exploited and intelligently managed, they will become an important factor in the future prosperity of Boise County and the City of Boise, and will give the State an additional lead-zinc producing district. Although Boise County has always been known as a gold producing county, there are numerous widely distributed deposits of lead, silver, zinc, copper, bismuth, and antimony; in addition to these, monazite is found in the placer deposits in sufficient quantity to be of commercial importance.

During 1928 this county witnessed a larger increase in new mine plant installation, new development work, new enterprises, and new discoveries than at any period during the past ten years, all of which greatly stimulated prospecting, new locations and investigations by those seeking gold mines. The most important discoveries and opening up of new ore were: That of the Talache Mines Inc., at its Gold Hill & Iowa mine, where a substantial showing of high-grade gold ore was opened up on the 700-foot level; the high-grade gold ore opened by the Idawa Gold Mining Co. at the Belshazzar mine; and the opening up of gold ore of importance which was reported at the Mountain Chief mine. The most important construction work was the rebuilding of the mine surface plant and the installation of a new mill at the Gold Hill & Iowa mine by the Talache Mines Inc., the remodeling of its mill by the Idawa Gold Mining Co., and the remodeling of the mill at the Mountain Chief Mine, which is being operated by the Federated Mines Co., a new organization. Others who developed their mines throughout the year were: The American Mines Development Co., a new organization which is operating the Brunnell group near Grimes Pass; the Missouri Mining Co., Ltd.; the Penn Mining Co. at the Coin Bond group; and Jarvis Bros. at the Hay Fork. The Idaho Gold Dredging Corporation and the Boise Placer Co., both producers of placer gold, were active throughout the summer months and each increased its production over that of the previous year. The Crooked River Mining Co. reconstructed its new dredge, which sank on being put into operation in 1927.

AMERICAN MINES DEVELOPMENT CO.

Office: Room 11, Shaw Bldg., Boise. **Officers:** L. S. Honstead, Pres.-Mgr.; C. R. Hanan, Sec., both of Boise. **Inc.:** Mar. 15, 1928. **Capital:** 1,000,000 shares; par value $1; 130,000 shares issued. **Property:** Grandview group; 6 unpatented claims held under lease and option, Pioneerville dist.; Grimes Pass. **Development:** By 2 tunnels: No. 1, 210 ft. long; No. 2, 200 ft. long. **Ore:** Gold. **Men employed:** Average, 3. **Remarks:** Active development work in extending No. 2 tunnel was maintained throughout the year after date of organization.

BIG ENTERPRISE MINING CO.

Office: Pioneerville. **Officers:** S. D. Whaley, Pres., Portland, Ore.; E. Lightfoot, Sec.-Mgr., Pioneerville. **Inc.:** June 24, 1915. **Capital:** 8000 shares; par value $100; 4000 shares issued. **Property:** Noble placer; 4 unpatented claims, Pioneerville dist.; Pioneerville.

BOISE PLACER CO.

Office: Idaho City. **Officers:** Fleming Howell, Pres., Buckhannon, W. Va.; W. Guy Tetrick, Sec., Clarksburg, W. Va.; E. F. Blain, Mgr., Boise. **Inc.:** Dec. 11, 1922. **Capital:** 750,000 shares; par value $1; 203,530 shares issued. **Property:** Plowman and Woodburn groups; 300 acres, Idaho City dist.; Idaho City. **Plant:** An oil-driven 10x7 compressor, and complete mining equipment. This equipment is used for the blasting of the big boulders in the hydraulic pits; complete hydraulic mining equipment. **Ore:** Placer gold. **Men employed:** Average, 24, for period of 120 days. **Remarks:** This company is the largest producer of placer gold in Boise County, and conducts the largest hydraulic mining operation in the State. Its mining operations can be conducted during the high-water season only.

CONSOLIDATED MINES SYNDICATE

Office: 615 Empire Bldg., Boise. **Officers:** Frank E. Johnesse, Pres.; William MacLeod, Sec., both of Boise. **Inc.:** May 6, 1924. **Capital:** 10,000 shares; no par value. On August 15, 1924, the capitalization was changed to 10,000,000 shares, $2.50 par value; and on May 2, 1925, the capitalization was decreased to 10,000,000 shares, par value $1; 2,075,796 shares issued. **Property:** Washington and Subrosa groups; 4 patented, 14 unpatented claims, Gambrinus dist.; Idaho City. **Development:** Total development, approximately 12,000 ft., the principal part of which is the main crosscut tunnel 3700 ft. long, which intersects the bottom of a vertical shaft 414 ft. deep, near the bottom of which is a winze 150 ft. deep. **Plant:** MINE: Diesel oil engine driving a 480-cu.-ft. compressor, and complete mining equipment. Saw mill, modern boarding and bunk houses, change house, and complete camp. **Ore:** Silver-gold. **Remarks:** Idle since 1926.

CROOKED RIVER MINING CO.

Office: Dayton, Ohio. **Officers:** Melvin T. Rowland, Pres.-Mgr., Nampa; N. S. Talbott, Sec., Dayton, Ohio. **Inc.:** Oct. 5, 1927. **Capital:** 2000 shares common, no par value; 2000 shares preferred, par value $100; shares issued, unknown. **Property:** Kempner Ranch placer; 1 patented, 60 unpatented claims, 1960 acres, Banner dist.; Idaho City. **Plant:** Flume-type dredge, 3-cu.-ft. buckets; this dredge is driven by two 60-h. p. Diesel engines. **Ore:** Placer gold. **Men employed:** Average, 20. **Remarks:** During 1927 this company constructed its dredge at a cost of $92,000; when completed, it proved to be so improperly designed and faultily constructed that its operation was impossible and it sank. During 1928 approximately $60,000 was expended in wholly reconstructing it.

CURRY DITCH GOLD PLACER MINES ASSOCIATION

Office: Pioneerville. **Officers:** P. E. Hall, Jr., Pres.-Mgr., 2712 Kingsland Ave., Oakland, Calif.; A. N. Clark, Sec., Everett, Wash. **Inc.:** An association. **Capital:** 500,000 shares; par value unfixed; 48,693 shares issued. **Property:** 3 patented, 2 unpatented placer claims, Pioneerville dist.; Pioneerville. **Remarks:** Idle.

DIAMOND L MINING CO., LTD., OF IDAHO

Office: Pioneerville. **Officers:** Lottie Morehead, Pres.-Sec.-Mgr., Idanha Hotel, Boise. **Inc.:** July 1, 1918. **Capital:** 500,000 shares; par value 1 mill; 282,220 shares issued. **Property:** Buckskin group; 13 unpatented claims, Pioneerville dist.; Pioneerville. **Development:** Approximately 2700 ft. of underground workings, the most important of which are 2 tunnels, 1 900 ft. long, and the other 500 ft. long. **Ore:** Lead-silver-gold. **Men employed:** Average, 2. **Remarks:** Development work was maintained throughout the year.

EDNA MINES CO.

Office: Idaho City. **Officers:** D. J. Atkins, Pres., 124 Front St., New York City. **Inc.:** Aug. 9, 1926. **Capital:** 200 shares; par value $100; all shares issued. **Property:** Edna group; 1 patented, 8 unpatented claims, Banner dist.; Idaho City. **Development:** Principally by 1 tunnel 1100 ft. long, and a vertical shaft 350 ft. deep with 3 intermediate levels. **Ore:** Silver-gold. **Men employed:** Average, 3. **Remarks:** Active development work throughout the year.

FEDERATED MINES CO.
Office: Room 206, Idanha Hotel, Boise. **Officers:** Wm. W. Dey, Pres., New York City; Edward L. Morgan, Sec.; Frank T. Day, Mgr., both of Boise. **Inc.:** June 26, 1928. **Capital:** 5,000,000 shares; par value $1; 3,000,000 shares issued. **Property:** Mountain Chief group, 12 unpatented claims; Canyon Creek group, 9 unpatented claims; Hanley group, 6 unpatented claims; all held under lease and option; Quartzburg dist.; Placerville. **Development:** By 5 tunnels, the principal one of which is over 2,000 ft. long. **Plant:** 2,000-ft. aerial tramway connecting mill building and No. 4 tunnel. **Ore:** Gold. **Men employed:** Average, 40. **Remarks:** This company acquired its property in August and immediately commenced the rehabilitation of the mine and reconstruction of the old mill, including installation of new equipment.

FRANKLIN PLACER CO.
Office: Placerville. **Officers:** W. W. Miller, Pres.; Paul C. Moore, Sec., both of Franklin, Pa.; E. F. Blain, Mgr., Boise. **Inc.:** July 21, 1928. **Capital:** 300,000 shares; par value $1; 115,000 shares issued. **Property:** Leary and Brogan group, Placerville dist.; Placerville. **Ore:** Placer gold. **Remarks:** During the summer months the Leary and Brogan ditch was cleaned out and enlarged and many of the old flumes were replaced, preparatory to conducting operations.

GOLDEN AGE JR. MINING CO.
Office: 508 Capital Nat'l Bank Bldg., Lansing, Mich. **Officers:** F. M. Siebley, Pres., Los Angeles, Calif.; F. W. Griswold, Sec., Lansing, Mich. **Inc.:** Apr. 19, 1915. **Capital:** 1,000,000 shares; par value $1; 992,096 shares issued. **Property:** Golden Age group; 19 patented claims, Pioneerville dist.; Pioneerville. **Remarks:** Idle for about 4 years.

GOLDEN SEAL MINING & MILLING CO.
Office: 919 Idaho St., Boise. **Officers:** Harry S. Kessler, Pres.; Geo. L. Fleharty, Sec.; E. K. Lorimer, Mgr., all of Boise. **Inc.:** Oct. 28, 1924. **Capital:** 1,000,000 shares; par value 25c; 898,088 shares issued. **Property:** 12 unpatented claims, unorganized dist.; Dry Creek; Boise. **Development:** By 3 tunnels: No. 1, 385 ft. long; No. 2, 100 ft. long; No. 3, 140 ft. long. **Ore:** Lead-zinc-silver. **Men employed:** Average, 5. **Remarks:** A small amount of work was done during the summer months.

GOLD HILL & IOWA MINES CO.
Office: 605 Eastman Bldg., Boise. **Officers:** Jess Hawley, Pres., Boise; Wendell H. Marden, Sec., Boston, Mass.; James H. Hawley, Jr., Mgr., Boise. **Inc.:** June 10, 1908. **Capital:** 200,000 shares; par value $10; 194,622 shares issued. **Property:** Gold Hill & Iowa groups; 19 patented, 26 unpatented claims, Quartzburg dist.; Quartzburg. **Remarks:** Under option to Talache Mines, Inc., which see.

HALLEY PLACER CO.
Office: Placerville. **Officers:** E. F. Blain, Mgr., 1601 N. 12th St., Boise. **Inc.:** An association. **Property:** Halley Placers; 7 unpatented placer claims, Placerville dist.; Placerville. **Remarks:** Annual labor only.

IDAHO DEVELOPMENT CO.
Office: 605 Eastman Bldg., Boise. **Officers:** Wendell H. Marden, Pres., Boston; James H. Hawley, Jr., Mgr., Boise. **Inc.:** Dec. 16, 1920. **Capital:** 1000 shares; par value $10; all shares issued. **Property:** 4 unpatented claims, Placerville dist.; Placerville.

IDAHO GOLD DREDGING CORPORATION
Office: 615 Empire Bldg., Boise. **Officers:** S. K. Atkinson, Pres.-Mgr.; W. A. Buis, Sec., both of Boise. **Inc.:** Apr. 9, 1928. **Capital:** 4,000,000 shares; par value 25c; 1,000,000 shares issued. **Property:** 142 patented, 20 unpatented claims, Placerville dist.; Centerville. **Plant:** Electrically driven Risdon dredge, 2½-cu.-ft. buckets close connected, wood hull. **Ore:** Placer gold. **Men employed:** Average, 12. **Remarks:** A reorganization of the Gold Dredging & Power Corporation. Active operations throughout the summer months, consisting principally of the dredge digging its way through a narrow channel of Grimes Creek in order to reach a large dredgeable area on the upper end.

IDAWA GOLD MINING CO.

Office: 521 Idaho Bldg., Boise. **Officers:** S. A. Zimmerman, Pres., Valley City, N. D.; E. A. Nordquist, Sec., Boise; S. M. Ballard, Mgr., Quartzburg. **Inc.:** Jan. 3, 1919. **Capital:** 2,000,000 shares; par value 25c; 1,228,000 shares issued. **Property:** Belshazzar group, 22 unpatented claims, Quartzburg dist.; Quartzburg. **Development:** By 5 tunnels, the principal of which are No. 4, 1200 ft. long, and No. 5, 3000 ft. long. Total development, approximately 7000 ft. **Plant:** MINE: Electrically-driven compressor; complete mining equipment and camp. MILL: 25-ton amalgamation and table-concentration. **Ore:** Gold. **Men employed:** Average, 26. **Remarks:** Active throughout the year. This is one of the principal gold-producing mines in the State, all operations being conducted through No. 4 tunnel, which is connected with the mill by an aerial tramway. An initial dividend of $50,000 was paid in December. This company's mill is fully described in our 1927 report of the mining industry of Idaho.

IDEAL MINING CO.

Office: 212 Boise City Natl. Bank Bldg., Boise. **Officers:** H. W. Dorman, Pres.; W. E. Sullivan, Sec.; H. P. Taylor, Mgr., all of Boise. **Inc.:** Sept. 17, 1927. **Capital:** 200,000 shares; par value $1; 150,000 shares issued. **Property:** Osborne group; 5 unpatented claims, Westview dist.; Horseshoe Bend. **Development:** Principally by 1 inclined shaft. **Plant:** Electrically-driven I-R compressor; complete mining equipment. **Ore:** Gold-silver-lead. **Men employed:** Average, 9. **Remarks:** In September, 1927, this company commenced unwatering the shaft and rehabilitating the property. This work was continued to the 300-ft. level, at which point a large amount of drifting on the vein was done. Operations were temporarily suspended in October, 1928.

INDEPENDENT MINES SYNDICATE

Office: Owyhee Hotel, Boise. **Officers:** Geo. H. Cochran, Pres., New York; Stanley G. Smith, Mgr., Owyhee Hotel, Boise. **Inc.:** Common Law Trust. **Capital:** 1000 shares; par value $100; 780 shares issued. **Property:** Independent group; 14 unpatented claims, Pioneerville dist.; Pioneerville. **Development:** By 3 tunnels and 2 short shafts: No. 1, 200 ft. long; No. 2, 300 ft. long; No. 3, 720 ft. long. **Ore:** Gold, lead-silver-zinc. **Men employed:** Average, 1. **Remarks:** Maintenance work only throughout the year.

IRON DYKE MINES CO.

Office: 402 Empire Bldg., Boise. **Officers:** S. T. Schreiber, Pres.-Mgr., Boise. **Inc.:** April 16, 1923. **Capital:** 150,000 shares; par value $1; 100 shares issued. **Property:** Iron Dyke group; 2 patented, 18 unpatented claims, unorganized dist.; Holcomb. **Development:** By 2 tunnels: No. 1, 25 ft. long; No. 2, 20 ft. long. **Ore:** Gold, silver-lead.

MEADOW CREEK GOLD PLACER CO.

Office: Boise. **Officers:** S. O. Kerley, Pres.; Fred E. Lukens, Sec., both of Boise. **Inc.:** Sept. 13, 1924. **Capital:** 500,000 shares; par value 5c; 450,000 shares issued. **Property:** Meadow Creek group; 4 unpatented placer claims, Idaho City dist.; Idaho City.

MINERAL MINING CO.

Office: Placerville. **Officers:** A. C. Gallupe, Pres.-Mgr., Placerville; C. C. Fairchild, Sec., Idaho City. **Inc.:** Feb. 6, 1920. **Capital:** 2,500,000 shares; par value 6c; 2,392,000 shares issued. **Property:** Enterprise and Smuggler groups; 12 patented, 21 unpatented claims; Enterprise group held under lease and bond from Exta Lightfoot, Pioneerville; Pioneerville dist.; Pioneerville. **Development:** Approximately 8000 ft. of underground workings. **Plant:** MINE: 25-h. p. steam-driven hoist on Smuggler group; complete mining equipment and camp. MILL: 100-ton concentrator, partly dismantled. **Ore:** Lead-silver-zinc. **Men employed:** Average, 4. **Remarks:** The mill was completed and operations started in October, 1926. As originally designed, it was impractical, so during 1927 almost all the equipment was removed preparatory to changing the flow sheet

to fine grinding and flotation; in addition to these changes in the mill, a small hydroelectric power plant was constructed. Annual labor only during 1928.

MISSOURI MINING CO., LTD.

Office: Pioneerville. **Officers:** Homer E. Howard, Pres.; Ezra E. Howard, Sec., both of Pioneerville. **Inc.:** Feb. 4, 1914. **Capital:** 50,000 shares; par value $1; on June 1, 1925, capitalization was increased to 1,000,000 shares, par value $1; 50,000 shares issued. **Property:** 10 unpatented claims, Pioneerville dist.; Pioneerville. **Development:** Approximately 450 ft. of underground workings. **Ore:** Lead-silver-zinc. **Men employed:** Average, 2. **Remarks:** A small amount of work was done throughout the year and plans were perfected for the installation of a small concentrating mill.

NATIONAL HYDRAULIC MINES CO.

Office: 708 Washington St., Boise. **Officers:** Albert E. Small, Pres.; Dora Small, Sec., both of Boise. **Inc.:** Sept. 7, 1921. **Capital:** 1,000,000 shares; par value $1; 354,648 shares issued. **Property:** 11 unpatented placer claims, 1414 acres on Moore's Creek, Idaho City dist.; Idaho City. **Plant:** Three No. 2 and No. 1 giants; 3000 ft. of pipe line, and complete hydraulic equipment. **Remarks:** Annual labor only.

NATIONAL MINING & DEVELOPMENT CO.

Office: Placerville. **Officers:** A. C. Gallupe, Pres.; E. A. Gallupe, Sec., both of Placerville. **Inc.:** Sept. 23, 1911. **Capital:** 1,000,000 shares; par value $1; 236,540 shares issued. **Property:** Mountain Chief group; 11 unpatented claims, Quartzburg dist.; Placerville. **Ore:** Gold. **Remarks:** Property under option to Federated Mines Co.

OX-BOW MINING CO., LTD.

Office: 411 State Tower Bldg., Syracuse, N. Y. **Officers:** P. R. Dishaw, Pres.; J. D. Crimmins, Sec., both of Syracuse. **Inc.:** July 10, 1925. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Ox-Bow placer group, 7 unpatented claims, Summit Flat dist.; Lowman. **Ore:** Placer gold. **Remarks:** Idle throughout the year. The secretary of the company stated: "This project has for its object the recovery of the placer gold contained in about 12,000 feet of the river bed, which is laid bare by diverting the entire river through a tunnel 1200 feet long which cuts through the mountains at a point where the river forms a hairpin curve."

PAYETTE COAL MINING CO.

Office: P. O. Box 104, Payette. **Officers:** F. A. Wilbur, Pres.; J. C. Anderson, Sec., both of Payette. **Inc.:** Oct. 6, 1928. **Capital:** 500 shares; no par value; all shares issued. **Property:** 320 acres of patented land; Horse Shoe Bend. **Mineral sought:** Coal.

PENN MINING CO.

Office: Boise. **Officers:** W. W. Miller, Pres.; Paul C. Moore, Sec., both of Franklin, Pa.; E. F. Blain, Mgr., Boise. **Inc.:** Jan. 8, 1929. **Capital:** 200,000 shares preferred, 750,000 shares common; par value $1; 72,500 shares preferred, all shares common issued. **Property:** Coin Bond group; 34 unpatented claims, Placerville dist.; Placerville. **Development:** Principally by 1 long tunnel, 875 ft. of which is opened. **Ore:** Gold, lead-silver. **Men employed:** Average, 4. **Remarks:** Active development work throughout the year by the owners, previous to incorporation of the company.

TALACHE MINES, INC.

Office: Quartzburg. **Officers:** A. H. Burroughs, Jr., Pres.-Mgr.; J. M. Hector, Sec., both of Quartzburg. **Inc.:** Apr. 21, 1917, as Armstead Mines, Inc.; name changed June 8, 1922. **Capital:** 1,000,000 shares common, 600,000 shares preferred; par value $1; 983,000 shares common, 579,233 shares preferred issued. **Property:** Lease and option on property owned by Gold Hill & Iowa Mines Co., which see. **Development:** Principally by a 600-ft., 3-compartment, vertical shaft and a 100-ft. vertical winze on the 600-ft. level. Total development, over 35,000 ft. in Gold Hill mine.

Plant: MINE: 52-h.p. hoist and 452-cu.-ft. compressor, both electrically driven. MILL: 150-ton, including crusher, rolls, Hardinge ball mill, amalgamating plates and concentrating tables. **Ore:** Gold. **Men employed:** Average, 50. **Remarks:** In March, 1927, property was acquired and operations started, the principal part of which was the unwatering of underground workings. This was completed early in the year, after which a 100-ft. vertical winze was sunk from the 600-ft. level on the ore body. This winze and the drifts at the bottom of it proved the extension of the ore to this level, at which point it was more extensive and of higher grade than on the 600-ft. level. During the closing months of the year work was started on rebuilding and rehabilitating the mine surface plant and completely reconstructing the mill. This property was first located in 1865, since which time it has been in practically continuous operation, with a production record of approximately $8,000,000, half of which was produced during the last 15 years prior to 1926, at which time the mine was closed down and permitted to fill with water. Its reopening, rehabilitation, and new ore disclosures indicate a future productive period, the length of which can not yet be determined.

WASHOE MINING CO.

Office: 605 Eastman Bldg., Boise. **Officers:** Jess Hawley, Pres.; C. W. Mack, Sec,. both of Boise; Vivian Thorn, Mgr., Banner. **Inc.:** Dec. 16, 1911. **Capital:** 100,000 shares; par value $1; all shares issued. **Property:** Banner group; 7 patented, 15 unpatented claims, Banner dist.; Idaho City. **Development:** 2 tunnels, the principal one of which is 4000 ft. long. **Plant:** 30-ton mill, tables and flotation. **Ore:** Silver. **Remarks:** Idle.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Adonis	Unknown	Herman Schultz	Boise
Alameda	Unknown	Wm. S. Bella	Boise
Alpine Gr.	Alpine	J. T. C. Harrington	Nampa
American Girl Gr.	Gambrinus	Louise D. Stewart	Boise
Annie Lee	West View	Chas. Smith	Horseshoe Bend
Argonne	Granite Creek	Fred C. Brown	Boise
Argonne Forest	Gambrinus	H. Mauernhamer	Boise
Ashcroft Pl.	Placerville	H. Ashcroft	Placerville
Banner	Banner	V. A. Thorn	Idaho City
Atlast	Unknown	J. F. Thompson	Horseshoe Bend
Beaver Cr. Pl.	Banner	J. D. Demming	Idaho City
Belmont Gr.	Quartzburg	Murty Driscol & F. Daly	Quartzburg
Big Ben	Centerville	Frank H. Cooper	Boise
Blackbird	Pioneerville	Exta Lightfoot	Pioneerville
Blackbird et al.	Cold Springs	Anderson & Newbrand	Idaho City
Black Crook Gr.	West View	Bincord Realty Co.	Denver, Colo.
Black Jack	Summit Flat	Jerry Dowling	Idaho City
Bluebird et al.	Banner	G. R. Moland	Boise
Blue Jet Pl.	Centerville	Archie R. Koppes	Centerville
Blue Grouse	Unknown	Thos. C. Mayne	Idaho City
Blue Ribbon Gr.	Dry Buck	Lee Davis	Horseshoe Bend
Blue Rock	Quartzburg	Allen B. Eaton	Boise
Blue Stone	Idaho City	Henry Holsmeier	Idaho City
Boston Girl	Placerville	Wm. W. Thorn	Centerville
Boulder Gr.	Elk Horn	Patrick Moriarty	Idaho City
Boundary	Dry Buck	Lee Davis	Horseshoe Bend
Buffalo Gr.	Elk Creek	Frank Cooper	Boise
Bull Durham Pl.	Boise River	I. I. Youngblood	Boise
Bummer Hill	Quartzburg	H. C. Granger	Centerville
Calumet	West View	G. Faull	Horseshoe Bend
Cash Register	Placerville	Frank H. Cooper	Centerville
Catherine	Placerville	Pat H. Quirk	Boise

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Chance Gr.	Pioneerville	W. H. Van Meter	Elks' Club, Boise
Claude Marsh	Summit Flat	Edward Brisbin	616 S. 17th St., Boise
Clay Gulch	Placerville	J. T. Blair	Centerville
Clear Cr. Pl.	Pioneerville	J. A. Adams	Pioneerville
Cleopatra et al.	Pioneerville	Skidmore & McDonald	Pioneerville
Climax	Banner	Chris Smith	Idaho City
Cold Springs	Idaho City	O. F. Sibley	Boise
Coon Dog	Pioneerville	C. C. Fairchild	Idaho City
Deer Horn Pl.	Gambrinus	Joe Elliott	Idaho City
Dew Drop	Centerville	Warren J. Cooper	Centerville
Dog Tooth	Quartzburg	Allen B. Eaton	Boise
Edna	Banner	F. A. Willson	Idaho City
Eldorado Gr. Pl.	Banner	Harold Rowland	Nampa
Elkhorn	Gambrinus	Lippincott & Warner	Idaho City
Elkmeat	Idaho City	Chas. E. Clark	Soldiers' Home Boise
Etta B. Gr.	Placerville	Robt. S. Bunch	Centerville
Eureka Gr.	Gambrinus	Mrs. P. J. Hall	Boise
Fall Creek	Placerville	Albert Elster	Placerville
Franklin	Idaho City	H. A. Schlosser	Idaho City
Gambrinus	Gambrinus	V. A. Thorn	Idaho City
Gem of the Mts.	Placerville	C. C. Fairchild	Idaho City
Golconda	Idaho City	B. F. Kloppenburg	Idaho City
Gold Coin	Gambrinus	M. L. Phelps	Idaho City
Gold Dollar	Summit Flat	James H. Hawley	Boise
Gold Lodge Pl.	Idaho City	Henry Holsmeier	Idaho City
Golden Seal	Unorganized	Jas. Curtin	905 Idaho St., Boise
Goodenough Pl.	Idaho City	Jas. King	Idaho City
Gornick Pl.	Pioneerville	Joe Gornick	Pioneerville
Grant Gr.	Idaho City	John Jamieson	Idaho City
Great Western	Gambrinus	J. W. Duquette	Idaho City
Grooms Pl.	Payette River	James L. Tyson	Banks
Hamilton Pl.	Pioneerville	Ezra E. Howard	Pioneerville
Hard Times	Unorganized	C. M. Hunt	Twin Springs
Hay Fork	Moore Creek	H. R. Jarvis	Idaho City
Hidden Treasure	Pioneerville	J. D. Branson	Pioneerville
Highland Valley	Barber	P. J. Smith	Barber
Hilltop	Quartzburg	Louis Klein	Grand Hotel, Boise
Hilltop	West View	L. C. Hall	Horseshoe Bend
Homestake	Summit Flat	Joe Labbee	Idaho City
Honey Bee	Shaw Mountain	Elmer Gettys	Boise
Hooch Can Gr.	Pioneerville	J. O. McDonald	Pioneerville
Hoodoo Pl.	Pioneerville	C. R. Poncia	Pioneerville
Idaho Pl.	Idaho City	James Farrell	Idaho City
Illinois	Idaho City	Abraham Duquette	Idaho City
I. X. L. Pl.	Pioneerville	P. J. Shaughnessy	Pioneerville
J. S. Gr.	Pioneerville	A. E. Anderson	Garden Valley
K. C. Fraction	Pioneerville	Damien Ader	Pioneerville
Kentuck	Placerville	John Golden	Centerville
King Lead Gr.	Pioneerville	A. E. Yoder	Pioneerville
Kirkham	Banner	Ira R. Cromwell	Idaho City
K. M. Gr.	Cold Springs	M. Marchmonte	Idaho City
Last Chance et al.	Quartzburg	Frank Daly	Quartzburg
Leary & Brogan	Placerville	Michael Leary	Placerville
Long Chance	Shaffer Creek	R. C. Hall	Horseshoe Bend
Lucky Boy Gr.	Gambrinus	Lucky Boy Mining Assoc.	Idaho City
McKinley	Idaho City	Thos. Hardin	Boise
Mamie Pl.	Summit Flat	S. Frank Smith et al.	Idaho City

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Mammoth	Pioneerville	Nelson Bottcher	Idaho City
Mary Lou	Elk Horn	Garrecht & Campbell	Idaho City
Mascot	Pioneerville	Mrs. Cora Banwell	Pioneerville
May Flour	Gambrinus	John McCarthy	Idaho City
Mayflower	Quartzburg	Stephen Mackin	Placerville
Nally Placers	Pioneerville	Stephen Nally	Pioneerville
New Era Gr.	Pioneerville	Jos. Gornick	Pioneerville
New York	Gambrinus	D. R. Morgan	Idaho City
Nighthawk	Pioneerville	John Miller	Pioneerville
Olympia	Summit Flat	Mary Berry	701 E. Jefferson St., Boise
Ophir & Ophir 2	Pioneerville	Peter Reichert	Pioneerville
Orofino	Elkhorn	Janette Jordan	San Francisco, Cal.
Oxbow Gr. Pl.	Grimes Pass	Mary L. Bunch et al.	Boise
Paul's Gulch et al.	Pioneerville	Andrew Hansen	Pioneerville
Pioneer	Quartzburg	P. J. Evans	Quartzburg
Poor Man	Willow Creek	J. J. Shanahan	Idaho City
Pot Latch	Pioneerville	Sherman O. Barker	Grimes Pass
Printer	Idaho City	Amelia Garrecht	Idaho City
Queen of the Mts.	Rock Creek	James E. Fox	Boise
Riley & Farren	Placerville	J. J. Brogan	Placerville
Riverside	South View	Robt. W. Clarke	Horseshoe Bend
Rough & Ready	Unorganized	P. S. Smith	Barber
St. Clair Gr.	Pioneerville	Damien Ader	Placerville
Saunders	Placerville	W. F. Hiatt	Placerville
Seventeen Pl.	Placerville	Lee Bunch	Boise
Seventy-four	Pioneerville	C. R. Poncia	Pioneerville
Shamrock	Summit Flat	Mrs. E. W. Barry	Boise
Silver Bell	Placerville	W. F. Hiatt	Placerville
Sniveley Pl.	Centerville	H. C. Granger	Centerville
Sourdough	Summit Flat	J. D. Smith	Idaho City
Standby Pl.	Placerville	August Michelson	Beaverton, Ore.
Stanton Gulch	Placerville	John Stanton	Placerville
Sunny Day Gr.	Alpine	E. R. Swindler	Banks
Sunrise Pl.	Placerville	Nellie T. Wood et al.	Boise
Swede Gulch et al.	Pioneerville	Carlo Poncia	Centerville
Terry Gr.	Willow Creek	J. T. Blair	Centerville
Trader	Idaho City	J. H. Eggars	Idaho City
Tuxedo Pl.	Boise River	C. J. Schooler et al.	Boise
Venture	Unorganized	John Benzer	Hailey
Windfall	Pioneerville	Robt. D. Aikens	Boise

BIBLIOGRAPHY

See pages 13-14 for publisher's address, meaning of reference marks, and abbreviations.

The Boise basin in Idaho, by J. B. Hastings: Sci. Am. Suppl., vol. 38, Aug. 18, 1894; Eng. and Min. Jour., vol. 58, p. 56, July 21, **1894.**§

A geological reconnaissance across Idaho, by G. H. Eldridge: U. S. Geol. Survey, Sixteenth Ann. Rept., pt. 2, pp. 211-276, **1895.***

Monazite in Idaho, by Waldemar Lindgren: Am. Jour. Sci., 4th ser., vol. 64, p. 63, July, 1897; Eng. and Min. Jour., vol. 64, pp. 63-67, July 17, **1897.**§

Description of the Boise quadrangle, by Waldemar Lindgren, U. S. Geol. Survey Geol. Atlas, Folio No. 45, **1898.***

Mining districts of the Idaho Basin and the Boise Ridge, Idaho, by Waldemar Lindgren: U. S. Geol. Survey, Eighteenth Ann. Rept., pt. 3, pp. 625-736, **1898.***

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey, Twentieth Ann. Rept., pt. 3, pp. 65-256, **1900.***

The Boise Basin mining district, by Robert Nye: Min. and Sci. Press, vol. 81, p. 400, Oct. 6, **1900.***
Preliminary report on artesian basins in southwestern Idaho and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Water-Supply Paper 78, pp. 29-30, **1903.**‡
Boise Basin, Idaho, by W. A. Scott: Min. and Sci. Press, vol. 101, pp. 76-78, July 16, **1910.***
Coal at Horseshoe Bend and Jerusalem Valley, Boise County, Idaho, by C. F. Bowen: U. S. Geol. Survey Bull. 531, pp. 245-251, **1911.***
Boise Basin, Idaho, by W. L. Brown: Pacific Miner, vol. 18, February, **1911.***
Gold dredging in the Boise Basin of Idaho, by J. H. Miles: Min. and Sci. Press, vol. 105, pp. 330-332, Sept. 14, **1912.***
Winter dredging in Idaho, by J. H. Miles: Min. and Sci. Press, vol. 108, p. 455, March 14, **1914.***
Lode mining in the Quartzburg and Grimes Pass porphyry belt, Boise Basin, Idaho, by E. L. Jones, Jr.: U. S. Geol. Survey Bull. 640, pp. 83-111, **1916.**‡
The Boise Basin district in Idaho, by S. M. Ballard: Eng. and Min. Jour., vol. 109, pp. 881-882, Apr. 10, **1920.**§
Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 60, art. 3, pp. 1-33, **1921.**‡
Ore deposits of Gold Hill mine, at Quartzburg, Idaho, by A. J. McDermid: Eng. and Min. Jour.-Press, vol. 114, pp. 537-540, Sept. 23, **1922.**§
Geology and gold resources of Boise Basin, Boise County, Idaho, by S. M. Ballard: Idaho Bureau of Mines and Geology Bull. 9, **1924.****
A disseminated lead prospect in northern Boise County, Idaho, by C. P. Ross: Idaho Bureau of Mines and Geology Pamphlet 20, **1926.****
Idawa Gold Mining Co.: Belshazzar mill, by S. M. Ballard: Twenty-ninth Ann. Rept. Min. Industry of Idaho, **1927.***

BONNER COUNTY

Bonner constitutes an important part of the Idaho Panhandle and is one of the extreme northern counties. It is bounded on the east by the State of Montana, and on the west by the State of Washington; Boundary County adjoins it on the north, and Kootenai and Shoshone counties on the south. It contains an area of 1748 square miles and was accredited with a population of 12,957 in the 1920 census. The principal industries are lumbering, mining, stock raising, and agriculture. Although the county is recognized as one of the important mining counties of the State, the proportion of the population that is interested in mining is very small.

The county is exceptionally fortunate with respect to transportation facilities; as it is served by two State highways, lake boats, and three transcontinental railroads. Boats that can reach any point on Lake Pend d'Oreille give connection with the railroads at Sandpoint and Bayview.

Practically all the mining has been devoted to the areas adjacent to Pend d'Oreille and Priest lakes and the Clark Fork River. However, mining locations are numerous and widely scattered throughout the county. The mining history of the county dates back to the discovery of silver ores near Lakeview in 1888, which resulted in a stampede from the Coeur d'Alene district. Since that time there has always been a small amount of mining, but the county did not attract attention in recent years until the Talache mine was a proved and successful operation. The Talache has been a big factor in drawing attention to the mineral possibilities and prospecting opportunities of the county, resulting in a large increase in mining activities during the past few years.

The principal minerals are those of silver, lead, copper, zinc, and gold. These metals, and the limestone quarried near Lakeview, constitute the chief mineral resources. Silver is the most widely distributed metal and constitutes the most important part of the ores.

This county witnessed a greater substantial improvement in the development of new ore by old companies, new mine plant and mill plant installation, discoveries of new ore, development work by prospectors and new organizations than it had witnessed in many years. The Whitedelf Mining & Development Co. and the Hope Mining Co. both proved their properties and the continuation of ore at a greater depth, and both produced and marketed a greater tonnage of ore than for any previous year. The Whitedelf completed plans for and commenced the construction of a 75-ton flotation concentrator during the closing months of the year. Other new discoveries of importance were: That of the Boyer Bros. at the property now known as the Boyer Bros. Mining Co.; that at the Catherine group near Talache, by H. L. Thomason and James Evans; and that at the old Minerva, which was operated by lessees. The Hewer Mining Co. was reorganized as the Idaho Lakeview Mines Co., the mine reopened and active development work started. The International Portland Cement Co., with quarries at Bayview, mined the largest tonnage of limestone that it has ever produced in any one year. This limestone is ferried across the lake and then sent by rail to Spokane, where it is manufactured into cement.

Prospectors and small development companies in the Priest Lake district were active throughout the year, the principal ones being the Kaniksu Mining Co.; P. F. Vandever and C. W. Beardmore at the Grey Goose; Joseph Saccomanno at the Silver King; and Andrew Coolin at the Diggins. Many others increased their usual yearly work, and there continues to be an active search for new mines.

AMERICAN EAGLE MINING CO.

Office: Sandpoint. **Officers:** R. A. Martin, Pres., Martinsdale, Mont.; H. L. Thomason, Sec.; James A. Evans, Mgr., both of Sandpoint. **Inc.:** May 28, 1919. **Capital:** 10,000 shares; par value $100; 608 shares issued. **Property:** American Eagle group; 7 unpatented claims, Pend d'Oreille dist., Sandpoint. **Development:** 1 tunnel 1790 ft. long, which is principally a drift on the vein. **Ore:** Lead-silver. **Remarks:** A small amount of development work during the year.

ARGUS MINING CO.

Office: Cleveland, Ohio. **Officers:** Daniel Myers, Pres., Athletic Club, Cleveland, Ohio. **Inc.:** April 20, 1917. **Capital:** 800,000 shares, par value $1; 500,000 shares issued. **Property:** Argus group; 5 unpatented claims, Lakeview dist.; Lakeview. **Development:** 4 tunnels, totaling approximately 800 ft. in length. **Ore:** Lead-silver. **Remarks:** Commencing in August, a small amount of development work was performed by lessees.

AUXER GOLD MINES CO.

Office: Hope. **Officers:** James Campbell, Pres.-Mgr., Hope. **Inc.:** June 24, 1920. **Capital:** 500,000 shares; par value $1; 335,000 shares issued. **Property:** Boston group; 9 unpatented claims, Pend d'Oreille dist.; Hope. **Development:** Approximately 1300 ft. of underground workings, the principal one of which is a tunnel 865 ft. long. **Plant:** Gas-driven compressor and complete mining equipment. **Ore:** Gold. **Men employed:** Average, 4. **Remarks:** Principal tunnel was extended 140 ft. during the year.

BARD MINING & MILLING CO.

Office: 517 Ziegler Bldg., Spokane, Wash. **Officers:** Mrs. R. M. B. Mobbs, Pres.; Fred C. Daeufer, Sec.-Mgr., both of Spokane. **Inc.:** Nov. 23, 1927. **Capital:** 2,000,000 shares; par value $1; 686,670 shares issued. **Property:** Bard group; 8 patented, 25 unpatented claims in Bonner, Shoshone, and Kootenai counties, unorganized dist.; Lakeview. **Development:** By 3 short tunnels. **Ore:** Lead-silver-copper. **Remarks:** A small amount of development work done during the summer months.

BIG FIVE MINING CO.

Officers: Earl Eagan, Sec., Hope. **Inc.:** June 10, 1910. **Capital:** 1,500,000 shares; par value $1; 1,079,852 shares issued. **Development:** 1 tunnel 640 ft. long. **Plant:** Steam-driven Sullivan compressor; complete mining equipment. **Ore:** Lead-silver. **Remarks:** Annual labor only.

BRITANNIA MINING CO.

Office: Priest River. **Officers:** M. Young, Pres., Spokane, Wash.; M. W. McLean, Sec.-Mgr., Priest River. **Inc.:** Nov. 8, 1912. **Capital:** 1,000,000 shares; par value $1; 930,000 shares issued. **Property:** Britannia group: 8 unpatented claims, Priest Lake dist.; Priest River. **Development:** Approximately 900 ft. of underground workings. **Ore:** Gold. **Remarks:** Annual labor only, performed by the officers of the company.

CAMPBIRD MINING & DEVELOPMENT CO.

Office: Sandpoint. **Officers:** J. W. Lloyd, Pres., Spokane, Wash.; E. E. Boies, Sec.; E. W. Dreisbach, Mgr., both of Sandpoint. **Inc.:** Aug. 21, 1911. **Capital:** 1,500,000 shares; par value $1; 1,375,000 shares issued. **Property:** Campbird group; 5 patented, 2 unpatented claims, Priest Lake dist.; Priest River. **Development:** By 3 tunnels: No. 1, 750 ft. long; No. 2, 150 ft. long; No. 3, 700 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

CARPIE MINING CO.

Office: Cabinet, Idaho. **Officers:** J. W. Powell, Pres.-Mgr.; Cabinet. **Inc.:** An association. **Capital:** 750,000 shares; par value $1; 400,000 shares issued. **Property:** Carpie group; 4 unpatented claims, Pend d'Oreille dist.; Cabinet. **Development:** By a vertical shaft 300 ft. deep, in which are 5 levels. **Plant:** Steam-driven hoist and small Sullivan compressor. **Ore:** Copper. **Remarks:** Annual labor only since April, 1921.

CLARINDA COPPER MINING CO.

Office: 50 Broad St., New York City. **Officers:** John P. Delaney, Pres., New York City; Compton I. White, Sec.-Mgr., Clark Fork. **Inc.:** July 30, 1920. **Capital:** 1,500,000 shares; par value $1; 335,527 shares issued. **Property:** 9 unpatented claims, Pend d'Oreille dist.; Clark Fork. **Development:** By 5 tunnels, the longest of which is No. 5, totaling 2100 ft. in length. **Plant:** Electrically-driven compressor and complete mining equipment. **Ore:** Copper. **Remarks:** Annual labor only. Involved in litigation.

COPPER GIANT MINING CO.

Office: Clark Fork. **Officers:** J. B. Whitcomb, Pres.; Miss H. F. Thibadeau, Sec.-Treas., both of Clark Fork. **Inc.:** Oct. 10, 1908. **Capital:** 1,500,000 shares; par value $1; 1,200,000 shares issued. **Property:** Copper Giant group; 5 patented claims, Pend d'Oreille dist.; Clark Fork. **Development:** Approximately 1300 ft. of underground workings. **Plant:** 10x10 electrically-driven I-R compressor. **Ore:** Copper-gold. **Remarks:** Idle throughout the year. Involved in litigation.

EMPIRE TUNGSTEN MINING CO.

Office: 526 Greenwood Blvd., Evanston, Ill. **Officers:** Frank G. Forbes, Pres.; George S. Smith, Sec., both of Evanston, Ill. **Inc.:** March 20, 1914. **Capital:** 1,500,000 shares; par value 1c; all shares issued. **Property:** Rainbow; 1 patented claim, Lakeview dist.; Lakeview.

GOAT MOUNTAIN MINING CO.

Office: Clark Fork. **Officers:** E. C. Aschenbrenner, Pres., Endicott, Wash.; Chas. Jans, Sec., Edwall, Wash.; J. Teague, Mgr., Clark Fork. **Inc.:** April 26, 1926. **Capital:** 1,500,000 shares; par value 10c; 387,250 shares issued. **Property:** Goat Mountain group, 11 unpatented claims, Pend d'Oreille dist.; Clark Fork. **Development:** By 2 tunnels: No. 1, 200 ft. long; No. 2, 814 ft. long. **Ore:** Lead-silver. **Remarks:** Buildings repaired and annual labor performed.

HAYO MINING & MILLING CO.

Office: Priest River. **Officers:** John Hamberg, Pres.-Mgr.; W. R. Hamberg, Sec., both of Priest River. **Inc.:** June 21, 1923. Charter forfeited Nov. 30, 1928. **Capital:** 3,000,000 shares; par value 10c; no shares issued. **Property:** 6 unpatented claims, Priest Lake dist.; Priest River. **Development:** By 2 tunnels, with a total development of 90 ft. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Active for 4 months.

HOPE MINING CO.

Office: Clark Fork. **Officers:** O. A. Holte, Pres., Coeur d'Alene; C. C. Jensen, Sec.; S. W. Purdy, Mgr., both of Clark Fork. **Inc.:** Nov. 19, 1927. **Capital:** 1,500,000 shares; par value 10c; 1,320,000 shares issued. **Property:** Elsie K. group; 2 unpatented claims and 320 acres patented farm land, Pend d'Oreille dist.; Clark Fork. **Development:** By 5 tunnels, the principal one of which is No. 4, 600 ft. long. Total development about 2000 ft. **Plant:** Gas-driven 6x6 compressor, complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 8. **Remarks:** No. 4 tunnel, which is 150 ft. below No. 3, intersected the ore at this additional depth. In addition to the driving of No. 4 tunnel, a substantial tonnage of ore was produced and marketed by company and lessee operations. This property appears to be developing into one of the substantial mines of the Clark Fork district.

IDAHO GOOD HOPE MINING CO., LTD.

Office: Grand Forks, N. D. **Officers:** G. L. Elkin, Pres., Mayville, N. D.; Samuel Torgerson, Sec., Grand Forks, N. D. **Inc.:** April 21, 1910. **Capital:** 2,500,000 shares; par value $1; 1,671,190 shares issued. **Property:** 9 patented claims; Pend d'Oreille dist.; Hope. **Remarks:** Idle for 14 years.

IDAHO HEWER MINES, INC.

Office: 502 Columbia Bldg., Spokane, Wash. **Officers:** D. M. Drumheller, Pres.-Mgr.; H. O. Kent., Sec., both of Spokane. **Inc.:** May 26, 1923, as Hewer Mining Co.; reorganized on April 10, 1926. **Capital:** 2,000,000 shares; par value 1c; 1,529,578 shares issued. **Property:** Venzwela group; 4 patented, 11 unpatented claims; 8 of which are held under lease and option. **Development:** Total development approximately 10,000 ft.; principally by 1 tunnel 2200 ft. long, in which is an inclined shaft 900 ft long. **Plant:** MINE: I-R gas-driven compressor; 8½x10 Ottumwa hoist and complete mining equipment. MILL: 100-ton concentrator, fine grinding and flotation; driven by a semi-Deisel oil engine. **Ore:** Silver-lead-zinc. **Remarks:** Reorganized as Idaho Lakeview Mines Co. Unwatering of shaft and rehabilitation of mine started in October.

INTERNATIONAL PORTLAND CEMENT CO., LTD.

Office: 1124 Old National Bank Bldg., Spokane, Wash. **Officers:** R. K. Neill, Pres.; J. B. Maxfield, Sec., both of Spokane, Wash. **Inc.:** Filed in Idaho, September 9, 1911. **Capital:** 30,000 shares; par value $100; 27,233 shares issued. **Property:** 8 patented, 1 unpatented claim, 790 acres, near Bayview. **Development:** Open quarry. **Plant:** 100 cu. ft. compressor, driven by Deisel engine; steam-shovel; gas-driven shovel; crushing plant; complete mining equipment; machine shops, buildings, and mine camp. **Ore:** Limestone. **Men employed:** Average, 48. **Remarks:** This company mines all of the limestone used in its cement-manufacturing plant near Spokane, Wash. The quarry was operated throughout the year and a large tonnage of rock was mined. It is the largest operation of its kind in the State.

KANIKSU MINING CO.

Office: 302 Paulsen Bldg., Spokane, Wash. **Officers:** J. W. Lloyd, Pres.; Dr. Earl H. Current, Sec., both of Spokane, Wash. **Inc.:** Sept. 16, 1922. **Capital:** 100,000 shares; par value $1; 120,837 shares issued. **Property:** Wood Rat group; 11 unpatented claims, Priest Lake dist.; Priest River. **Development:** By a vertical shaft 350 ft. deep. **Plant:** Steam-driven hoist and complete hand-mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 5. **Remarks:** Active development work throughout the year.

KEEP COOL MINING CO.

Office: P. O. Box 2181, Spokane, Wash. **Officers:** T. S. Griffith, Pres.; R. Insinger, Sec., both of Spokane, Wash. **Inc.:** June 16, 1922. **Capital:** 1,500,000 shares; par value 5c; 1,018,167 shares issued. **Property:** Keep Cool group; 4 patented claims, Lakeview dist.; Lakeview. **Ore:** Lead-silver.

LAWRENCE CONSOLIDATED MINING CO.

Office: Clark Fork. **Officers:** Rees Bungay, Pres., Spokane, Wash.; L. J. Reed, Sec.; Joseph Reed, Mgr., both of Clark Fork. **Inc.:** March 3, 1923. **Capital:** 1,500,000 shares; par value 1c; 980,200 shares issued.

Property: Lawrence group; 12 unpatented claims, Pend d'Oreille dist.; Clark Fork. **Development:** 5 tunnels, the principal one being 1240 ft. long; approximate total development 4800 ft. **Plant:** MINE: Water-driven compressor; complete mining equipment. MILL: 50-ton concentrator; crushers, 2 sets rolls, 2 jigs, 3 tables. **Ore:** Lead-silver. **Men employed:** Average, 3 for 6 months. **Remarks:** Practically idle throughout the year, pending sale of property. Small tonnage of concentrate was produced and marketed.

LUCKY ABE MINING CO.

Office: Priest River. **Officers:** Abe Johnson, Pres., Opportunity, Wash.; F. F. Nelson, Sec., Priest River. **Inc.:** March 1, 1916. **Capital:** 1,000,000 shares; par value 10c; approximately 77,000 shares issued. **Property:** Lucky Abe group; 6 unpatented claims, Priest Lake dist.; Coolin. **Development:** By 2 tunnels, each of which is approximately 175 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

LUCKY STRIKE MINING CO.

Office: Clark Fork. **Officers:** W. W. Webb, Pres.-Mgr., Clark Fork. **Inc.:** Oct. 25, 1913. **Capital:** 1,000,000 shares; par value $1; 731,673 shares issued. **Property:** Lucky Strike group; 7 unpatented claims, Pend d'Oreille dist.; Clark Fork. **Development:** 2 tunnels: No. 1, 55 ft. long; No. 2, 250 ft. long. **Plant:** Gardner-Ricks gas-driven compressor. **Men employed:** Average, 2. **Remarks:** Lower tunnel extended a short distance during the year.

MAJOR LODE MINING CO.

Office: Priest River. **Officers:** Philip Naccarato, Sec., Priest River. **Inc.:** An association. **Property:** Major Lode group, 6 unpatented claims, Priest Lake dist.; Priest River. **Development:** By 4 short tunnels. **Ore:** Lead-silver. **Remarks:** Annual labor.

MILWAUKEE MINES

Office: 501 City Hall Bldg., Spokane, Wash. **Officers:** J. W. Lloyd, Pres.; Arthur L. Hooper, Sec.-Mgr., both of Spokane, Wash. **Inc.:** Apr. 6, 1928. **Capital:** 2,000,000 shares; par value 25c; 640,000 shares issued. **Property:** Milwaukee group; 64 unpatented claims, Priest Lake dist.; Nordman.

OPPORTUNITY MINING CO.

Office: Sagle. **Officers:** Peter Moinzer, Pres.; A. A. Heskestad, Sec., both of Sagle. **Inc.:** Aug. 18, 1919. **Capital:** 1,500,000 shares; par value 5c 533,610 shares issued. **Property:** 8 unpatented claims, Pend d'Oreille dist.; Sagle. **Development:** Approximately 1700 ft. of underground workings, consisting of 6 tunnels and 5 shafts, the principal tunnel being 650 ft. long. **Plant:** Steam-driven compressor, complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Active development work throughout the year, the funds for which were derived from stock assessments.

PONDERA MINING & POWER CO.

Office: Grand Forks, N. D. **Officers:** P. Bilden, Pres., Northwood, N. D.; H. H. Aaker, Sec., Grand Forks, N. D. **Inc.:** July 2, 1912. **Capital:** 2,000,000 shares; par value $1; 240,384 shares issued. **Property:** 3 unpatented claims, Pend d'Oreille dist.; Sandpoint.

PONDOROSA MINING CO.

Office: Clark Fork. **Officers:** J. P. Delaney, Pres., New York City; Compton I. White, Sec., Clark Fork. **Inc.:** Jan. 18, 1927. **Capital:** 1,500,000 shares; par value $1; shares issued, unknown. **Property:** Pondorosa group; 6 unpatented claims, Pend d'Oreille dist.; Clark Fork.

REGAL MINING CORPORATION

Office: 50 Broad St., New York City. **Officers:** J. P. Delaney, Pres., W. M. Thompson, Sec., both of New York City; Compton I. White, Mgr., Clark Fork. **Inc.:** Feb. 10, 1928. **Capital:** 1,000,000 shares; par value $1; 900,000 shares issued. **Property:** 8 unpatented claims, Pend d'Oreille dist.; Clark Fork. **Development:** By 2 short tunnels. **Remarks:** Press reports stated that this company installed a gas-driven compressor and commenced developing its property during the summer months.

R. J. PRICE MINING CO.

Office: Pasco, Wash. **Officers:** J. W. Blanton, Pres.; Tom Summers, Sec., both of Pasco, Wash. **Inc.:** Sept. 20, 1923. **Capital:** 500,000 shares; par value $1. On June 5, 1928, increased to 1,000,000 shares; par value $1; 609,335 shares issued. **Property:** 3 unpatented claims, Pend d'Oreille dist.; Cabinet. **Development:** By one tunnel 150 ft. long.

SILVER MOUNTAIN MINING CO.

Office: Sandpoint. **Officers:** John T. Elsasser, Mgr., Sandpoint. **Inc.:** July 24, 1909. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Silver Mountain group; 6 unpatented claims, Priest Lake dist.; Priest River. **Development:** 2 tunnels: No. 1, 400 ft. long; No. 2, 625 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

SILVER STAR MINING CO., LTD.

Officers: N. M. Sholz, Pres.-Mgr.; Ray Dahlberg, Sec., both of Route 1; Sagle. **Inc.:** Jan. 19, 1927. **Capital:** 2500 shares; par value $10; 886 shares issued. **Property:** Silver Star mine; 1 unpatented claim and 140 acres patented land, Pend d'Oreille dist.; Cocolalla. **Development:** By 1 tunnel 100 ft. long. **Ore:** Lead-silver-zinc.

SYRINGA MINING CO.

Office: Sandpoint. **Officers:** Ralph M. Mellor, Pres.; B. I. Hunt, Sec., both of Sandpoint. **Inc.:** Dec. 17, 1928. **Capital:** 300 shares; par value $100; 232 shares issued. **Property:** 328 acres patented land, Pend d'Oreille dist.; Sandpoint. **Development:** One tunnel 140 ft. long. **Plant:** Small gas-driven compressor. **Ore:** Gold.

TALACHE MINES, INC.

Office: Talache. **Officers:** A. H. Burroughs, Jr., Pres.-Mgr.; J. M. Hector, Sec.; both of Quartzburg. **Inc.:** April 21, 1917, as Armstead Mines, Inc.; name changed June 8, 1922. **Capital:** 1,000,000 shares common, 600,000 shares preferred; par value $1; 983,000 shares common, 579,233 shares preferred issued. **Property:** Armstead mine; 18 patented, 44 unpatented claims, Pend d'Oreille dist.; Talache. **Development:** Approximately 34,591 ft. of underground workings, the principal of which are a main haulage tunnel, 3900 ft. long, the main inclined raise 916 ft. long and an inclined shaft 200 ft. long. **Plant:** MINE: 9x10 Hendre-Bolthoff electrically-driven geared hoist; 1574 cu. ft., 2 stage I-R type Pre-2 compressor, electrically driven; haulage, G. E. 4-ton storage battery locomotive; buildings, 44 room hotel, 24 residences, compressor house, blacksmith shop, warehouse, cook house, store, dry room and office. MILL: 150-ton flotation, 2 stage crushing to ½ in. fine grinding to 80 mesh, electrically driven. **Ore:** Silver. **Remarks:** Operations were suspended in October, 1926. In March, 1927, the famous Gold Hill & Iowa mine at Quartzburg, Boise County, was acquired and operations were transferred to that mine, which see.

WHITEDELF MINING & DEVELOPMENT CO.

Officers: John P. Delaney, Pres., 50 Broad St., New York; Compton I. White, Mgr., Clark Fork. **Inc.:** March 17, 1926. **Capital:** 100,000 shares, par value $1; 65,000 shares issued. **Property:** 160 acres of patented land, Pend d'Oreille dist.; Clark Fork. **Development:** Principally by 3 tunnels, with a total of over 2500 feet, and an inclined shaft 300 ft. long. **Plant:** Electrically-driven Sullivan compressor and hoist, complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 20. **Remarks:** In addition to the work performed by the company, part of the mine was under operation by lessees. A large tonnage of high-grade lead-silver ore was produced and marketed. The development work consisted principally of extending the shaft an additional 150 ft. and of lateral work, on the 200 and 300-ft. levels. This work opened a substantial tonnage of ore and during the closing months of the year plans were perfected and work was started on a 75-ton flotation concentrator. The success with which this enterprise is meeting has been instrumental in attracting a large amount of attention to the Clark Fork district.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Aberdeen et al.	Pend d'Oreille	King Solomon Mines Co.	Sandpoint
Alamo Gr.	Pend d'Oreille	Sam Owen	Hope
Alpine	Priest Lake	E. W. Butts et al.	Priest River
American Eagle	Clark Fork	Edward Hanson et al.	Clark Fork
American Legion et al.	Priest Lake	Chas. Hagenson	Sandpoint
Anna et al.	Priest Lake	A. W. Eynon	Priest River
Antlers et al.	Pend d'Oreille	T. W. Whalen Est.	Juliaetta
Apex Lode Gr.	Lakeview	E. D. Faust	Lakeview
Badger et al.	Priest Lake	Clyde Smith	Priest River
Bank Roll	Priest Lake	J. A. Adam	Sandpoint
Basaltic et al.	Priest Lake	N. Y. Mt. Chief Cons. M. Co.	Priest River
Bellvill et al.	Lakeview	Chas Wiberg	Lakeview
Bernice et al.	Lakeview	Fount Perry Jr.	Lakeview
Big Four et al.	Priest Lake	Stewart Coolin et al.	Coolin
Big View et al.	Priest Lake	Leo Gwinn	Priest River
BiMetallic et al.	Pend d'Oreille	Marie E. Root	Hope
Black Angel et al.	Priest Lake	James Elsasser et al.	Elmira
Black Bear et al.	Priest Lake	H. B. Gumaer et al.	Priest River
Black Hornet et al.	Lakeview	John & Louis Weissenberger	Hope
Black Jack et al.	Priest Lake	John Elsasser et al	Sandpoint
Black Prince et al.	Priest Lake	Joseph Saccomanno	Priest River
Black Slate et al.	Pend d'Oreille	E. B. Clark	Clark Fork
Blanket Ledge Gr.	Lakeview	O. L. McNall	Lakeview
Blowout et al.	Priest Lake	John Hamberg	Priest River
Bluebird	Lakeview	Walter Street	Lakeview
Bluebird Gr.	Pend d'Oreille	Ernest E. Ward	Sagle
B & M et al.	Priest Lake	J. E. Peterkin et al.	Newport, Wash.
Bob Cat	Priest Lake	Katherine L. Brown	Priest River
Boulder et al	Priest Lake	J. W. and C. Butts	Priest River
Buck Horn et al.	Pend d'Oreille	Arthur E. Smith	Talache
Cabinet	Priest Lake	G. A. Naccarato et al.	Priest River
Catherine	Pend d'Oreille	Helmer Foss et al.	Sandpoint
Clagg	Pend d'Oreille	J. Reed & E. Clagg	Clark Fork
Copper Butte	Priest Lake	I. Daugherty	Priest River
Copper Coin	Pend d'Oreille	Dyrskog Bros.	Midas
Cuban et al.	Priest Lake	Cuban Mt. Mng. Co.	Priest River
Dad's Dream	Pend d'Oreille	E. E. Ralph	Clark Fork
Deer Park et al.	Pend d'Oreille	G. M. Walker et al.	Sandpoint
Deer Track	Priest Lake	O. E. Burquist	Sandpoint
Dirty Deuce	Priest Lake	Wm. Moscript et al.	Priest River
Easter Sunday	Lakeview	Frank Drummond	Lakeview
E & C Gr.	Pend d'Oreille	J. R. Coleman et al.	Sagle
Ella et al.	Lakeview	John W. Sheer	Lakeview
Felice et al.	Pend d'Oreille	C. I. White	Clark Fork
Frances B	Clark Fork	J. O. Peterson et al.	Clark Fork
Garfield Gr.	Pend d'Oreille	Gotlib Baker	Ponderay
General Pershing et al.	Pend d'Oreille	H. F. Rau et al.	R. 3, Tacoma, Wash.
Glasgow	Lakeview	R. C. Henry	Lakeview
Gray Goose	Priest Lake	C. W. Beardmore	Priest River
Hog Eye et al.	Lakeview	W. F. Sharai	Lakeview
Honest John et al.	Lakeview	J. Flewelling et al.	Sandpoint
Horseshoe	Priest Lake	S. S. Beldon et al.	Priest River
Imogene et al.	Lakeview	Wm. Shannon	Lakeview
Joker et al.	Priest Lake	W. B. Quinn	Molson, Wash.
Jumbo Gr.	Pend d'Oreille	E. H. Becker	Clark Fork

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Keno et al.	Lakeview	Dr. H. C. Meyers	Lakeview
Last Chance	Priest Lake	Bert Fry et al.	Priest River
Lincoln	Pend d'Oreille	Harry Churchill et al.	Spokane, Wash.
Little Bench	Pend d'Oreille	C. A. Johnson	Clark Fork
Little Geraldine Fr.	Priest Lake	Alex Judge	Box 1734, Spokane, Wash.
Little Three	Priest Lake	L. G. Brown et al.	Priest River
Lookout	Pend d'Oreille	W. W. Derr et al.	Clark Fork
Lucky Strike et al.	Priest Lake	F. C. Fredericks et al.	Spangle, Wash.
Morning Star	Pend d'Oreille	F. S. Hayes	Hope
Nest Egg	Pend d'Oreille	J. O. Derr	Clark Fork
North Star Pl.	Lakeview	S. R. Catlow	Clark Fork
Ontario et al.	Lakeview	Robt. Rennie	Lakeview
Rainbow et al.	Pend d'Oreille	Goat Mt. Mng. Co.	Clark Fork
Ready Cash	Lakeview	Bruyere & Hanchett	Bayview
Red Horse	Pend d'Oreille	Ed Hammon	Sandpoint
Scotchman	Pend d'Oreille	Dr. C. P. Stackhouse	Sandpoint
Silver Fox Gr.	Priest Lake	J. A. Adams	Sandpoint
Silver Star	Pend d'Oreille	C. O. Olsen	Sandpoint
Snowbird	Pend d'Oreille	Walter Blossom	Lindelle Bldg., Spokane, Wash.
T. Bone	Lakeview	Frank Brown	Lakeview
Triangle	Lakeview	Ralph Henrichs et al.	Hope
True Fisher	Pend d'Oreille	Fred Vogel	Clark Fork
Twilight et al.	Pend d'Oreille	C. B. Stuart	Sandpoint
West Point	Pend d'Oreille	Henry F. Phillips	Clark Fork

BIBLIOGRAPHY

See pages 13-14 for publisher's address, meaning of reference marks, and abbreviations.

Survey of the boundary line between Idaho and Montana from the international boundary to the crest of the Bitterroot Mountains, by R. U. Goode: U. S. Geol. Survey Bull. 170, **1900.**‡

Geology of the region adjoining the western part of the international boundary, by R. A. Daly: Canada Geol. Survey Ann. Rept., vol. 14, pp. 39-51a, **1901.**§

Economic features of northern Idaho and northwestern Montana, by D. F. MacDonald: U. S. Geol. Survey Bull. 285, pp. 41-52, **1905.***

Priest Lake mining district, Idaho, by W. M. Curtis: Eng. and Min. Jour., vol. 82, p. 866, Nov. 10, **1906.**§

A geological reconnaissance in northern Idaho and northwestern Montana, by F. C. Calkins, with notes on the economic geology, by D. F. MacDonald: U. S. Geol. Survey Bull. 384, **1909.***

Lawrence mine and mill in Kootenai County (Bonner), Idaho, by A. L. Flagg: Min. and Eng. World, vol. 38, p. 340, Feb. 15, **1913.***

Guidebook of the Western United States, by M. R. Campbell, and others: U. S. Geol. Survey Bull. 611, pp. 150-156, 160, **1915.**‡

The mining districts of northern Idaho, by E. K. Soper: Min. & Sci. Press, vol. 116, pp. 125-126, **1918.***

Silver mining and milling at Talache, Idaho, by F. E. Wormser: Eng. and Min. Jour.-Press, vol. 114, pp. 581-585, Sept. 30, **1922.**§

Some Miocene and Pleistocene drainage changes in northern Idaho, by A. L. Anderson: Idaho Bureau of Mines and Geology Pamphlet 18, **1927.****

Geology and silver ore deposits of the Pend d'Oreille district, Idaho, by Edward Sampson: Idaho Bureau of Mines and Geology Pamphlet 31, **1928.****

BONNEVILLE COUNTY

Bonneville County is bounded on the south by Caribou and Bingham counties, on the west by Bingham County, on the north by Jefferson, Madison and Teton counties, and on the east by the State of Wyoming. It is one of the principal, as well as one of the largest, southeastern counties; and has an area of 1904 square miles, and population of 17,501 at the time of the 1920 census. The larger part of the population is in the Snake River valley, which occupies all of the western part of the county. The southeastern part, which is occupied by the Caribou Range of the Snake River Mountains, is drained by the South Fork of the Snake River and its tributaries. It is primarily an agricultural county and is noted for its potato and sugar-beet industries, particularly potatoes, as it is one of the largest potato shipping points in the United States. Idaho Falls, the largest town, and civic center of the Upper Snake River valley, is the county seat.

Although recognized only as an agricultural community, this county was once the scene of many active mining operations. This was during the gold rush in the Mt. Pisgah, or Caribou, district at the time placer gold was discovered on McCoy and Gray's creeks. These placers produced a creditable amount of gold, and subsequently a few lode deposits were discovered and exploited. In late years a small dredge was constructed, but this and the deep mines are now idle and the only gold produced is from a few small placer operations.

The principal mineral resources of Bonneville County are gold, phosphate rock, copper, silver, and coal. Many structures favorable to the accumulation of petroleum in commercial quantity are found throughout the southern and eastern parts of the county.

The extensive phosphate beds of southeastern Idaho are exposed over a large area. These, and possibly petroleum, will eventually add to the county's prosperity and put it into the list of important mining counties.

One of the most important new enterprises to start during the year was that of The California Co., a subsidiary of the Standard Oil Co. of California, which acquired a large acreage on the Meadow Creek structure in Bonneville County, installed a drilling rig and equipment capable of drilling to a depth of 6000 feet, and began drilling operation, the well being 14 inches in diameter. This company's activities were instrumental in the starting of other drilling operations by small companies and the investigation of petroleum possibilities in eastern Idaho by two large oil companies.

THE CALIFORNIA CO.

Office: 225 Bush St., San Francisco, Calif. **Officers:** K. R. Kingsbury, Pres.; J. H. Tuttle, Sec., both of San Francisco; D. G. Lawson, Mgr., Kemmerer, Wyo. **Inc.:** Filed in Idaho Mar. 19, 1928. **Capital:** 5,000 shares; par value $100; 1,000 shares issued. **Property:** 920 acres held under oil and gas lease. **Plant:** 90-ft. steel derrick; complete drilling equipment, gas-driven; complete and modern camp. **Mineral sought:** Oil and gas. **Men employed:** Average, 12. **Remarks:** This company is a subsidiary of the Standard Oil Co. of California. The rig was installed in May, and active well-drilling operations were commenced on June 10 and continued without interruption throughout the year. The well, which has a diameter of 14 inches, was sunk to a depth of approximately 1800 ft.

GOLD PAN PLACER MINING CO.

Office: Templeton Bldg., Salt Lake City, Utah. **Officers:** D. J. Davis, Pres.; Hawley Bagley, Sec., both of Salt Lake City, Utah; Almorean Bagley, Mgr., Dingle. **Inc.:** Mar. 29, 1928. Charter forfeited Nov. 30, 1928. **Capital:** 250,000 shares; par value $1; 110,460 shares issued. **Property:** 4 unpatented placer claims, unorganized dist.; Alpine. **Plant:** 30-ton Ainlay gold centrifugal separator. **Ore:** Placer gold. **Men employed:** Average, 3. **Remarks:** Active prospecting and experimental work throughout the summer months.

IDAHO GOLD MINING CO.

Office: 319 Dooly Block, Salt Lake City, Utah. **Officers:** Chas. C. Dey, Pres.; W. A. Wilson, Sec.-Mgr., both of Salt Lake City, Utah. **Inc.:** April 19, 1917. **Capital:** 150,000 shares; par value 10c; 130,026 shares issued. **Property:** Robinson group; 2 patented claims, Mt. Pisgah dist.; Gray. **Ore:** Gold. **Remarks:** Idle for many years.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
American Placer	Mt. Pisgah	W. H. Stocks	Gray
Anderson Bar et al.	Mt. Pisgah	Helmer Ronback, Agt.	Gray
Barnes Gr.	Mt. Pisgah	W. K. Lynch, Agt.	Gray
Idaho Gr.	Mt. Pisgah	W. K. Lynch, Agt.	Gray
Oneida Gr.	Mt. Pisgah	Fred Brenzinger, Agt.	Gray
Oneida South	Mt. Pisgah	Miles Schneider, Agt.	Gray
Pisgah Gr.	Mt. Pisgah	Fred Brenzinger, Agt.	Gray
Silver Bell Gr.	Mt. Pisgah	Fred Brenzinger, Agt.	Gray
Timber Line	Mt. Pisgah	Leroy Layland	Gray
Toway	Mt. Pisgah	J. C. Beatty	Soda Springs
Wolfe Bar	Mt. Pisgah	Amos S. Clark	Unknown

BIBLIOGRAPHY

See pages 13-14 for publisher's address, meaning of reference marks, and abbreviations.

Fifth, Sixth and Eleventh Ann. Repts., U. S. Geol. and Geog. Survey of the Territories, by F. V. Hayden, **1871, 1873** and **1879.***

The gold ore deposits of Mount Caribou, Idaho, by E. B. Kirby: Colorado Sci. Soc. Proc., vol. 5, pp. 72-75, **1898.***

Mount Caribou gold deposits, by Arthur Lakes: Mines and Minerals, vol. 19, pp. 55-56, September, **1898.***

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

A geological reconnaissance in southeastern Idaho, by A. R. Schultz and R. W. Richards: U. S. Geol. Survey Bull. 530, pp. 267-284, **1911.***

Guidebook of the western United States, by W. T. Lee and others: U. S. Geol. Survey Bull. 612, pp. 114-147, **1915.**‡

A geologic reconnaissance for phosphate and coal in southeastern Idaho and western Wyoming, by A. R. Schultz: U. S. Geol. Survey Bull. 680, **1918.**‡

Coal in eastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 716f, **1920.**‡

Oil shale in western Montana, southeastern Idaho, and adjacent parts of Wyoming and Utah, by D. D. Condit: U. S. Geol. Survey Bull. 711, pp. 15-40, **1920.**‡

The Wasatch and Salt Lake formations of southeastern Idaho, by G. R. Mansfield: Am. Jour. Sci., vol. 49, pp. 399-406, June, **1920.**§

Triassic and Jurassic formations in southeastern Idaho and neighboring regions, by G. R. Mansfield: Am. Jour. Sci., vol. 50, pp. 53-64, July, **1920.**§

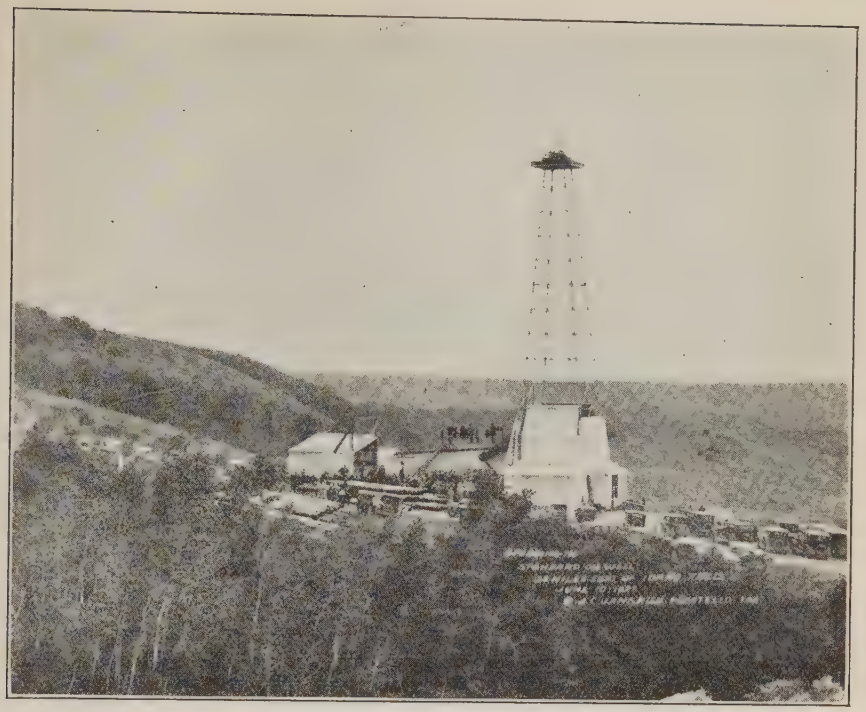
Types of Rocky Mountain structure in southeastern Idaho, by G. R. Mansfield: Jour. Geology, vol. 29, No. 5, pp. 444-468, July-August, **1921.**§

Geology and oil possibilities of Bingham, Bonneville, and Caribou counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Bull. 8, **1924.****

Oil possibilities of southeastern Idaho, by V. R. D. Kirkham: Mining and Metallurgy, vol. 6, No. 218, Feb., **1925.**§

Ground water for municipal supply at Idaho Falls, Idaho, by A. M. Piper and V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 16, **1926.****

Geography, geology, and mineral resources of part of southeastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Prof. Paper 152, **1927.****



THE CALIFORNIA COMPANY'S DERRICK

BOUNDARY COUNTY

Boundary County is bounded on the north by the Dominion of Canada, on the east by the State of Montana, on the west by the State of Washington, and on the south by Bonner County. Its principal area comprises the drainage basins of the Moyie River, which flows in a southerly direction, and the Kootenai River, which flows northerly from Bonners Ferry, the county seat and principal town. It has a total area of 1276 square miles, and was accredited with a population of 4474 in the 1920 census. The principal industries are lumbering, farming, and mining.

The county is served by two transcontinental railroads, the Great Northern, with its branch line from Bonners Ferry to Porthill, on the Canadian border, and the Spokane International; by the North and South Highway, with an easterly outlet from Bonners Ferry; and by a system of county roads which extend into the different sections along the main stream valleys.

The principal mineral resources are lead, silver, gold, copper, zinc, tungsten, and molybdenum. These metals are widely distributed, and a few of the deposits have been partially developed. Heavy overburden, dense overgrowth, and limited accessibility have retarded prospecting, discovery, and development. The many favorable areas and wide diversity of mineralization make this county an exceptionally favorable field for the prospector and the small development company.

The year 1928 witnessed but little improvement in this county. One new ore discovery was made and two new enterprises were started. The Continental mine at Porthill, owned by the Idaho Continental Mining Co., was operated by the Idaho Continental Co. until February, at which time production was suspended.

The Leonia Gold Mining Co. was reorganized as the Idamont Lead-Zinc Mines Co., in order to place its stock on an assessable basis.

The Moyie Gold-Copper M. & M. Co., Ltd., and the International Molybdenum Co. expanded their operations over those of the previous year. During the closing months of the year considerable interest was shown in the molybdenum deposits of the county.

BORDER MINING CO.

Office: Bonners Ferry. **Officers:** C. L. Wickstrom, Pres.-Mgr., Bonners Ferry. **Inc.:** Not incorporated. **Property:** Two Tails group; 5 unpatented claims held under lease and option, Moyie-Yaak dist.; Bonners Ferry. **Development:** By 2 tunnels: No. 1, 360 ft. long; No. 2, 550 ft. long; and an inclined shaft 375 ft. long. **Plant:** Gas-driven Sullivan compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 7. **Remarks:** Active throughout the year in extending No. 2 tunnel.

BOUNDARY CONSOLIDATED MINING CO.

Office: 748 Peyton Bldg., Spokane, Wash. **Officers:** A. S. Stacy, Pres., Lewiston; E. C. Outlaw, Sec.-Mgr., Spokane, Wash. **Inc.:** Feb. 4, 1928. **Capital:** 20,000,000 shares; par value 5c; 1,430,050 shares issued. Sale of 9,800,000 shares optioned for financing purposes. **Property:** 15 claims, 9 of which are held under lease and option; Moyie-Yaak dist.; Addie. **Development:** By 2 tunnels: No. 1, 160 ft. long; No. 2, 14 ft. long. **Plant:** Small gas-driven compressor. **Ore:** Lead-silver.

BRUSH LAKE MINES CO.

Office: 412 Ziegler Block, Spokane, Wash. **Officers:** J. W. Reid, Pres., Bonners Ferry; David Emley, Sec., Coolin. **Inc.:** Aug. 6, 1921. **Capital:** 2,000,000 shares; par value 10c; 1,386,682 shares issued. **Property:** Bethlehem group; 7 unpatented claims, Moyie Yaak dist.; Bonners Ferry. **Development:** Approximately 1200 ft. of underground workings. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Property under development during part of the year.

COPPER FALLS MINING CO.

Office: Eastport. **Officers:** Gus Kallman, Pres.-Mgr., Gem; Spencer Lewis, Sec.-Treas., Eastport. **Inc.:** March 30, 1911. **Capital:** 1,000,000 shares; par value $1; 669,772 shares issued. **Property:** Copper Falls group; 5 unpatented claims, Moyie Yaak dist.; Addie. **Development:** 2 tunnels: No. 1, 240 ft. long; No. 2, 600 ft. long; 1 vertical shaft, 45 ft. deep. Total development, approximately 1185 ft. **Ore:** Lead-silver. **Remarks:** Annual labor.

CYNIDE GOLD MINING CO.

Office: Bonners Ferry. **Officers:** H. S. Robinson, Pres., Whitefish, Mont.; Geo. R. Causton, Sec.-Mgr., Bonners Ferry. **Inc.:** Jan. 21, 1919. **Capital:** 3,500,000 shares; par value $1; 1,960,637 shares issued. **Property:** Buckhorn group; 15 unpatented claims, Moyie Yaak dist.; Bonners Ferry. **Development:** By 4 tunnels: Sand, 1230 ft.; Lower Keystone, 980 ft.; Upper Keystone, 350 ft.; Buckhorn, 1200 ft. Total development, approximately 5000 ft. **Plant:** MINE: 2 gas-driven C-P compressors; complete mining equipment and camp. MILL: 200-ton cyanide, including fine grinding. **Men employed:** 1 watchman. **Remarks:** Annual labor only.

GOLDEN SCEPTRE MINING CO., LTD.

Office: E. 245 Sprague Ave., Spokane, Wash. **Officers:** O. L. Elvigen, Pres.; C. F. Halverson, Sec., both of Spokane, Wash. **Inc.:** Aug. 30, 1909. **Capital:** 1,500,000 shares; par value 50c; 652,841 shares issued. **Property:** Golden Sceptre group; 7 unpatented claims, Porthill dist.; Porthill. **Development:** Principally by 1 tunnel 1800 ft. long. **Plant:** Gas-driven compressor and complete mining equipment. **Ore:** Copper-gold. **Remarks:** Annual labor only.

IDAHO CONTINENTAL CO., THE

Office: 1015 Paulsen Bldg., Spokane, Wash. **Officers:** A. Klockmann, Pres.-Mgr.; Richard Schacht, Sec., both of Spokane, Wash. **Inc.:** Jan. 11, 1910. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** 15 patented, 5 unpatented claims, Porthill dist.; Klockmann. "The company owns by lease and exchange of shares with Idaho Continental Mining Co., the Continental, Jasper, Blue Joe, Volcanic, Morning Star, Evening Star, and outright all others." **Development:** Approximately 15,118 ft. of underground workings consisting principally of 5 tunnels: No. 1, 250 ft. long; No. 2, 100 ft. long; No. 3, 750 ft. long; No. 4, 1800 ft. long; No. 5, 2653 ft. long. **Plant:** MINE: 1200-cu.-ft. I-R Imperial type 10 compressor; Leyner drill sharpener, and complete mining equipment; 1600 ft. aerial tram between mine and mill. MILL: 250-ton concentrator; 10x20 crusher; conveyor belt; 4 double 4-compartment Hartz jigs; 3 rolls 12x20; drag classifier; 5 Wilfley tables; Hardinge ball mill; 4 Frue vanners; flotation; hydroelectric power plant. **Ore:** Lead-silver. **Men employed:** Average, 89. **Remarks:** This is one of the largest lead-producing mines in the State. Capacity production and an active mine development campaign were maintained until February, at which time production was suspended and development work continued with 15 men.

IDAHO CONTINENTAL MINING CO.

Office: 805 Sellwood Bldg., Duluth, Minn. **Officers:** Henry Turrish, Pres.; Henry Maxeiner, Sec., both of Duluth, Minn. **Inc.:** Dec. 12, 1902. **Capital:** 1,500,000 shares; par value $1; 1,200,000 shares issued. **Property:** Continental group; 7 patented, 1 unpatented claim, namely: Continental, Jasper, Blue Joe, Volcanic, Morning Star, Evening Star, and Aurora; Porthill dist.; Klockmann. **Remarks:** This is the same property as that operated by the Idaho Continental Co.

IDAMONT LEAD-ZINC MINES CO.

Office: Leonia. **Officers:** J. S. Hutchinson, Pres., Portland, Ore; M. E. Carson, Sec., Leonia. **Inc.:** Sept. 10, 1928. **Capital:** 1,000,000 shares; par value $1; 624,130 shares issued. **Property:** 66 placer and lode claims, approximately 2400 acres, Moyie Yaak dist.; Leonia. **Development:** 5-mile, 200 sec.-ft. capacity canal, giving a working head of approximately 430 ft.; in 2 sections, upper 3 miles long, lower 2 miles, with a difference in elevation of 210 ft. Water conducted from upper to lower through two 22-inch steel pipes; about 20 miles of road, 5 of which were very heavy construction. Lode claims developed by numerous cuts and tunnels. **Plant:** Approximately 3000 ft. steel pipe, one 8-inch giant, operating under a 430-ft. head and two 5-inch giants, operating under 130-ft. head; bed rock flume and spillway 300 ft. long on a grade of 10 inches in 12 ft.; in 3 sections, spillway 12 ft. wide by 8 ft. deep; one flume 6 ft. wide and one 12 ft wide, both 8 ft. deep. Concentrates from flume discharge into cement lined tank of approximately 15,000-ton capacity from which they are elevated into cleaning plant on top of flume. Cleaning plant consists of Ogden tables, classifiers and specially designed riffles. Complete machine shop, sawmill, planing mill, overhead cable system operated by steam; tractor haulage; complete company buildings and 35 individual homes for the men. **Ore:** Principally placer gold. **Men employed:** Average, 6. **Remarks:** A reorganization of the Leonia Gold Mining Co., in order that the stock might be made assessable. Annual labor only.

INTERNATIONAL MOLYBDENUM CO.

Office: Porthill. **Officers:** H. A. French, Pres.; P. W. Stas, Sec., both of Porthill. **Inc.:** Feb. 3, 1926. **Capital:** 25,000 shares; par value $1; 12,453 shares issued. **Property:** Hottentot group; 4 unpatented claims, Porthill dist.; Porthill. **Development:** 2 tunnels with a total length of 142 ft., and a number of open cuts. **Ore:** Molybdenum. **Men employed:** Average, 2. **Remarks:** Active prospecting work was maintained for a period of 3 months.

MOYIE GOLD COPPER MINING & MILLING CO., LTD.

Office: Bonners Ferry. **Officers:** Geo. E. Crocker, Pres.; H. J. McNally, Sec.; A. J. Kent, Mgr., all of Bonners Ferry. **Inc.:** Sept. 16, 1911. **Capital:** 1,250,000 shares; par value $1; 950,000 shares issued. **Property:** Queen group; 5 unpatented claims, Moyie Yaak dist.; Bonners Ferry. **Development:** 3 tunnels and 2 shafts, approximately 500 ft. **Ore:** Lead-silver. **Men employed:** Average, 4. **Remarks:** Active development work throughout the year. Press reports were to the effect that this work was successful in exposing a substantial showing of ore.

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Survey of the boundary line between Idaho and Montana from the international boundary to the crest of the Bitterroot Mountains, by R. U. Goode: U. S. Geol. Survey Bull. 170, **1900.**‡

Geology of the region adjoining the western part of the international boundary, by R. A. Daly: Canada Geol. Survey Ann. Rept., vol. 14, pp. 39-51a, **1901.**§

A geological reconnaissance in northern Idaho and northwestern Montana, by F. C. Calkins, with notes on the economic geology, by D. F. MacDonald: U. S. Geol. Survey Bull. 384, **1909.***

The mining districts of northern Idaho, by E. K. Soper: Min. & Sci. Press, vol. 116, pp. 126-127, **1918.***

Tungsten, cinnabar, manganese, molybdenum and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****

Geology and ore deposits of Boundary County, Idaho, by V. R. D. Kirkham and E. W. Ellis: Idaho Bureau of Mines and Geology Bull. 10, **1926.****

BUTTE COUNTY

Butte is one of the south-central counties, being bounded by Lemhi, Custer, Blaine, Bingham, Jefferson, and Clark counties. The Big and Little Lost rivers flow in a southerly direction across the county, and the lower valleys of these rivers constitute the larger part of its area of 2048 square miles. Arco, situated near the lower end of Big Lost River valley, is the largest town and the county seat. It is primarily an agricultural and stock-raising community, although its mining industry is gaining recognition and importance. The publicity given and the travel attracted to the new national monument, the Craters of the Moon, which is located in this county, have widely advertised the resources and scenic attractions of the State.

Two State highways have been designated and partly constructed, the Lost River Highway, which extends from Blackfoot to Challis and passes through Arco and Big Lost River valley, and the Idaho Central Highway from Hailey to Dubois, which serves the Craters of the Moon. The county is served by the Blackfoot-Mackay branch of the O. S. L. Railroad.

The principal mineral resources are lead, silver, zinc, gold, tungsten, manganese, limestone, and marble, the high-grade lead-silver ores being the most important, as they are found in all the mining districts of the county. The other metals occur in sufficient extent to be of commercial importance. Butte is one of the principal lead-silver producing counties in southern Idaho.

This county witnessed more new mine development, more new investigations and more prospecting and location of new claims than during the past 30 years. A large amount of these activities were inspired to a great degree by the entry into this county of the Federal Mining & Smelting Co., which acquired the Silver Bell group in the Lava Creek district, installed complete mining equipment, and commenced driving a long crosscut tunnel.

This tunnel encountered two blind veins which greatly enhance the possibility of the property developing into a substantial producer. The Wilbert Mining Co., Ltd., operating in the Dome district, maintained active production and mine development work throughout the year. This company is one of the largest producers of lead-silver ore in southern Idaho. The Dahle Bros. at the Hornsilver mine, known as the Horn Silver Consolidated Mines Co., maintained active development work throughout the year and were successful in proving a substantial showing of new ore.



MINE CAMP AND MILL: WILBERT MINING CO., LTD.

AMALGAMATED SUGAR CO.

Office: Eccles Bldg., Ogden, Utah. **Officers:** A. W. Ivins, Pres., Salt Lake City; Fera S. Young, Sec.; J. M. Eccles, Mgr., both of Ogden, Utah. **Inc.:** Filed in Idaho Apr. 24, 1915. **Capital:** 724,624 common, 50,000 shares preferred stock; no par value; all shares issued. **Property:** 4 patented claims, Arco dist.; Arco. **Plant:** 1 electrically-driven 130-cu.-ft. compressor; 3200-ft. gravity tramway and complete mining and quarrying equipment. **Mineral:** Lime rock. **Remarks:** Buildings and equipment removed and no further quarrying operations contemplated.

BADGER MINES CO.

Office: Rexburg. **Officers:** S. H. Abbott, Pres.-Mgr.; Fay Abbott, Sec., both of Rexburg. **Inc.:** June 8, 1925. **Capital:** 1,000,000 shares; par value 3c; all shares issued. **Property:** Badger group; 8 unpatented claims, Dome dist.; Howe; held under lease and option. **Development:** Principally by 1 tunnel, 2135 ft. in length. **Plant:** MINE: Gas-driven compressor and complete mining equipment. MILL: 25-ton concentrator, driven by gas engine. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Tunnel extended 600 ft. during the year.

BUTTE ANTELOPE MINING CO.

Office: 407 Ness Bldg., Salt Lake City, Utah. **Officers:** George G. Armstrong, Pres.; J. M. Hamilton, Sec., both of Salt Lake City; F. F. Williams, Mgr., Grouse. **Inc.:** Sept. 8, 1927. **Capital:** 1,000,000 shares; par value 5c; 385,000 shares issued. **Property:** Foot Wall group; 14 unpatented claims, Lava Creek dist.; Moore; held under lease and option from Ardell Gamett. **Development:** By 1 tunnel 200 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** Tunnel extended 100 ft. during the year.

FEDERAL MINING & SMELTING CO. (See Shoshone County)
Office: Wallace. **Officers:** F. H. Brownell, Pres.; J. L. Martin, Sec., both of 120 Broadway, New York City; Frederick Burbidge, Mgr., Wallace; John L. Stone, Supt., Martin. **Property:** Silver Bell group; Lava Creek dist.; Martin. **Development:** Principally by a 600-ft. crosscut. **Plant:** Gas-driven compressor; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 15. **Remarks:** During the early part of the year, the property was acquired, plant and equipment installed, and work started on a long crosscut to intersect the veins at an additional depth below the former workings. This crosscut intersected 3 veins.

HORN SILVER CONSOLIDATED MINES CO.
Office: Arco. **Officers:** Edward Dahle, Pres.-Mgr.; M. M. Dahle, Sec., both of Arco. **Inc.:** Dec. 21, 1925. **Capital:** 100,000 shares; par value $1; all shares issued. **Property:** Horn Silver group; 3 patented, 7 unpatented claims, held under lease and option; Lava Creek dist.; Martin. **Development:** By 3 tunnels: No. 1, 630 ft.; No. 2, 530 ft.; No. 3, 1500 ft. **Plant:** Gas-driven compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 7. **Remarks:** Active development work throughout the year, which consisted principally of drifting on the vein in No. 3 tunnel. This work opened a substantial showing of ore. All the men employed are interested in the mine and work without wages. The Dahle brothers are to be complimented for hard work, intelligent manner of developing the property and economy of operation.

METTA MINING CO., LTD.
Office: Shelley. **Officers:** W. R. Jones, Pres., Ogden, Utah; E. Milton Christensen, Sec.-Mgr., Shelley. **Inc.:** Oct. 20, 1906. **Capital:** 1,000,000 shares; par value $1; 386,500 shares issued. **Property:** Metta group; 9 unpatented claims, Hamilton dist.; Howe. R. R. Dubois, 47 miles. **Development:** 3 short tunnels and 3 short vertical shafts; total development work approximately 880 ft. **Ore:** Lead-silver. **Remarks:** Annual labor only.

ST. LOUIS MINING CO.
Office: 981 First Ave., Salt Lake City, Utah. **Officers:** Earl Wright, Pres.; Mrs. Jessie B. Russell, Sec., both of Salt Lake City. **Inc.:** Unknown; never filed in Idaho. **Capital:** 750,000 shares; par value 1c; 449,000 shares issued. **Property:** St. Louis group; 5 unpatented claims, Lava Creek dist.; Arco. **Development:** By 3 tunnels: No. 1, 560 ft. long, No. 2, 290 ft. long, No. 3, 180 ft. long; and an inclined shaft 160 ft. long. **Plant:** Gas-driven Gardner compressor; small air-driven hoist; complete mining equipment. **Ore:** Silver. **Remarks:** Operated during part of the year by a lessee who employed 4 men.

WILBERT MINING CO., LTD.
Office: 221 Kearns Bldg., Salt Lake City, Utah. **Officers:** J. A. Foley, Sec.; H. S. Knight, Mgr., both of Salt Lake City, Utah. **Inc.:** Apr. 10, 1907. **Capital:** 2,000,000 shares; par value 50c; 1,566,128 shares issued. **Property:** Daisy Black group; 6 patented, 30 unpatented claims Dome dist.; Howe. R. R. Arco, 42 miles. **Development:** Approximately 15,000 ft. of underground workings, the principal of which is No. 4 tunnel, in which there is an inclined shaft 350 ft. long with 3 intermediate levels. When this tunnel was completed to 2800 ft. in length, a raise was put through at its end and connection made with the old workings. **Plant:** MINE: 50-h. p. gas-driven C-P compressor, 25-h. p. gas-driven electric generator, and 20-h. p. electrically-driven hoist. MILL: 60-ton concentrator, gas-driven. **Ore:** Lead-silver. **Men employed:** Average, 25. **Remarks:** In addition to maintaining production and shipping a large tonnage of concentrate during the year, a large amount of mine development work was performed. This work consisted principally of extending the shaft 150 ft., which was successful in opening a substantial tonnage of new ore. This property is one of the largest lead-producing mines of southern Idaho.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Apex, Apex 3	Lava Creek	Edward Dahle	Martin
Badger 1, 2, 3, 4	Hamilton	William Deusner	Howe
Badger Creek	Hamilton	Frank Peete	Clyde
Big Butte	Hamilton	B. A. Smith	Arco
Black Hawk	Hamilton	Chas. W. Johnson	Howe
Bluebird et al.	Hamilton	Roy Hawley	Howe
Bozette Gr.	Lava Creek	J. W. Gamett	Moore
Comstock	Lava Creek	Mrs. E. H. Brim	Martin
Crater View Gr.	Lava Creek	J. Y. Greene et al.	Arco
Copper King Gr.	Lava Creek	B. A. Smith	Arco
Cut Wall	Hamilton	W. A. Beakley	Blackfoot
Denver Gr.	Lava Creek	Leonard Dresser	Emmett
Divide et al.	Lava Creek	Mary V. Stone	Martin
Edmonville	Badger Creek	Louis Edmon	Howe
Ella	Lava Creek	B. F. Morrison	Martin
Flora	Hamilton	G. W. Hooper et al	Howe
Foot Wall	Lava Creek	Ardell Gamett	Moore
Gold Belt Gr.	Lava Creek	J. M. Walker	Blackfoot
Golden Chariot	Lava Creek	Mabel R. Rush	6710 Windsor Ave., Chicago, Ill.
Granite Mountain	Lava Creek	E. H. Hammond	Arco
Gray Wolfe et al.	Hamilton	S. H. Abbott	Howe
Great Western	Lava Creek	Daniel Romney	Arco
Happy Hooligan	Lava Creek	Ardell Gamett	Moore
Hidden Treasure	Lava Creek	Mattie D. Martin	Martin
Homestake	Lava Creek	J. F. Houf	Arco
Hub Gr.	Lava Creek	S. O. Nelson	Boise
Humdinger	Lava Creek	Ole Anderson	Martin
Iron Dyke et al.	Lava Creek	V. R. Markel	Martin
Ironsides	Lava Creek	A. Brim	Martin
Ironsides	Lava Creek	Gordon Lee	Boise
Johnson Gr.	Dome	Lew Johnson	Howe
Josephine et al.	Hamilton	W. C. Hammond	Martin
Lead Belt	Lava Creek	H. W. Weiler Est.	Mackay
Lindy No. 1	Dome	Geo. H. Shail	Rexburg
Little Jim	Lava Creek	John T. Welch	Arco
Lone Pine	Badger Creek	George Hooper	Howe
Lost Gold et al.	Lava Creek	Mattie D. Martin	Martin
Matilda	Lava Creek	M. Weeks	Arco
Neppar et al.	Hamilton	John Linder	Howe
Nester	Lava Creek	Thos. D. Kilion	Arco
Oxide Lode	Lava Creek	Ole Anderson	Arco
Pacific et al.	Lava Creek	M. L. Shanafelt	Hailey
Pandora	Lava Creek	Mattie D. Martin	Martin
Pioneer	Lava Creek	Ardell Gamett	Moore
Policy	Lava Creek	Hugo Vogelsang	Arco
Rabbits Foot	Lava Creek	H. C. Schwamb	Hailey
Reliance	Lava Creek	T. C. Woodbridge	Arco
Rosetta	Lava Creek	Rose Shaughnessy	Arco
St. Louis et al.	Lava Creek	T. H. Philipson	Arco
Sam & Tom	Lava Creek	Ira Petty	Howe
Second Chance	Lava Creek	Riley Kent	Arco
Shail & Comstock	Dome	Shail & Comstock	Rexburg
Silent Friend	Dome	J. D. Powell	Howe
Silver Bell	Lava Creek	Ardell Gamett	Moore
Silver Horn et al.	Lava Creek	E. B. Jones	Martin
Sooge Gr. et al.	Hamilton	Louis Edmonds	Howe
Sunbeam	Dome	Isidore Fallert	Howe
West Idaho et al.	Lava Creek	W. H. Miller et al.	Arco

BIBLIOGRAPHY

See pages 13-14 for publisher's address, meaning of reference marks, and abbreviations.

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Notes on geology of southwestern Idaho and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Bull. 217, pp. 36-47, 59, **1903.**‡

The lead-silver deposits of the Dome district, Idaho, by J. B. Umpleby: U. S. Geol. Survey Bull. 540, pp. 212-222, **1912.***

Geology and ore deposits of the Mackay region, Idaho, by J. B. Umpleby: U. S. Geol. Survey Prof. Paper 97, **1917.**‡

Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****

A geologic reconnaissance of Clark and Jefferson, and parts of Butte, Custer, Fremont, Lemhi and Madison Counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 19, **1927.****

Craters of the Moon National Monument, Idaho, by H. T. Stearns: Idaho Bureau of Mines and Geology Bull. 13, **1928.****

Lava Creek vents, Butte County, Idaho, by A. L. Anderson, Dept. of Geology, University of Idaho, Moscow, Idaho: Northwest Science, vol. 3, pp. 13-18; also issued privately; December, **1928.**§

CAMAS COUNTY

Camas County is one of the south-central counties, being bounded on the north and east by Blaine, on the south by Lincoln and Gooding, and on the west by Elmore County. It has an area of 1070 square miles, and was accredited with a population of 1730 in the 1920 census, or 1.6 persons to the square mile. The population is engaged in stockraising and dry farming, which pursuits are confined to the 300,000 fertile acres of the Camas Prairie.

The county is served by locally maintained roads, two Forest Service highways, and the Shoshone-Hill City branch of the O. S. L. Railroad. Fairfield is the largest town and county seat.

The principal mining districts are the Rosetta, Little Smoky, and Skeleton. The Skeleton district includes the drainage area forming the headwaters of the South Fork of the Boise River, and Little Smoky district comprises the drainage area of Little Smoky and Carrie Leonard Creeks. The ores found in the latter are those of lead-silver and zinc, and the mines in the former are principally gold, both placer and lode. In addition to the foregoing, the other mineral resources are copper, tungsten, and diatomaceous earth.

The mines in the Carrietown section of the Little Smoky district have a good production record to their credit, and their latent possibilities still offer excellent opportunities for profitable mines, either through the apparent possibility in some mines for finding the ore beyond the faults which caused a suspension of operations in the early nineties, or, in other mines, of adapting modern flotation methods to the large bodies of proven low-grade ore.

The Consolidated Mines Syndicate, which is developing a prospect in the Willow Creek district, maintained exploration work with a small crew throughout the summer months. I. E. Haight at the Taft mine on Little Smoky installed complete mining equipment, erected new camp buildings, and started an active mine development campaign. This work proved to be encouraging through the exposure of a substantial showing of new ore.

AMERICAN MINING & DEVELOPMENT CO.

Office: Glenns Ferry. **Officers:** J. W. Davis, Pres., Glenns Ferry; Geo. H. Hickok, Sec., Pocatello. **Inc.:** Apr. 19, 1920; charter forfeited Dec. 1, 1925. **Capital:** 600,000 shares; par value 10c; 190,000 shares issued. **Property:** Liberal group; 3 unpatented claims, Little Smoky dist.; Fairfield. **Development;** Principally by 1 tunnel, which is 1365 ft. long. **Plant:** MILL: 50-ton; consisting of Hardinge mill, amalgamation plates and two concentrating tables; gas driven. **Ore:** Gold-silver. **Remarks:** Annual labor only.

CARRIE LEONARD MINING CO.

Office: 319 Dooly Blk., Salt Lake City, Utah. **Officers:** Boyd T. Park, Pres.; W. A. Wilson, Sec.-Mgr., both of Salt Lake City. **Inc.:** Filed in Idaho, July 21, 1926. **Capital:** 200,000 shares; par value 10c; shares issued unknown. **Property:** Carrie Leonard group; 8 patented claims, Little Smoky dist.; Fairfield. **Ore:** Lead-silver. **Remarks:** Idle. At one time this property was the principal producer in the Little Smoky district.

CLIPPER GOLD MINING & MILLING CO.

Office: Box 61, Fairfield. **Officers:** Chas. J. Sherry, Sr., Pres.-Mgr., Fairfield; Chas. J. Sherry, Jr., Sec., Long Beach, Calif. **Inc.:** April 3, 1907. **Capital:** 500,000 shares; par value $1; 400,000 shares issued. **Property:** Clipper group; 4 unpatented claims, Rosetta dist.; Fairfield. **Development:** By 3 short tunnels. **Remarks:** Annual labor only.

CONSOLIDATED MINES SYNDICATE

Office: 623 First Nat'l Bank Bldg., Boise. **Officers:** Frank E. Johnesse, Pres.-Mgr.; Wm. MacLeod, Sec., both of Boise. **Inc.:** May 6, 1924. **Capital:** 10,000 shares; no par value. On August 15, 1924, the capitalization was changed to 10,000,000 shares, $2.50 par value; and on May 2, 1925, the capitalization was decreased to 10,000,000 shares, par value $1; 2,449,004 shares issued. **Property:** Princess-Blue Ribbon groups; 7 unpatented claims, unorganized dist.; Beaver Creek; Fairfield. **Development:** By 3 tunnels: No. 1, 170 ft.; No. 2, 225 ft.; No. 3, 415 ft. **Ore:** Lead-silver-gold. **Men employed:** Average, 9. **Remarks:** Active development work, which consisted of driving an intermediate tunnel.

CRYSTAL GOLD PLACER MINING CO.

Office: Fairfield. **Officers:** S. B. McEwen, Pres., San Gabriel, Calif.; S. W. Struble, Sec., Fairfield. **Inc.:** Nov. 8, 1924. **Capital:** 500,000 shares; par value $1; 53,000 shares issued. **Property:** 7 unpatented claims, Skeleton dist.; Fairfield; held under lease and option. **Development:** 3 short cuts. **Plant:** Small sawmill and small concentrating plant, both gas-driven. **Ore:** Placer gold. **Remarks:** Annual labor only.

HIDDEN TREASURE MINE & MILLING CO.

Office: Fairfield. **Officers:** Chas. J. Sherry, Sr., Pres.-Mgr.; Fairfield. **Inc.:** July 10, 1916. **Capital:** 500,000 shares; par value 10c; 5,000 shares issued. **Property:** Hidden Treasure group; 4 unpatented claims, Little Smoky dist.; Fairfield. **Development:** By 3 tunnels; total development, approximately 3000 ft. **Plant:** Partly dismantled 50-ton concentrator. **Ore:** Lead-silver. **Remarks:** Annual labor only.

IDAHO LEAD CO.

Office: 221 Eastman Bldg., Boise. **Officers:** Eugene B. Sherman, Pres.; M. H. Brownell, Sec., both of Boise. **Inc.:** Dec. 30, 1926. **Capital:** 1,000,000 shares common, 500,000 shares preferred; par value $1; 506,309 shares common, 6,300 shares preferred issued. **Property:** Silver Star group; 11 patented claims, Little Smoky dist.; Fairfield. **Development:** By 3 tunnels: No. 1, 700 ft. long; No. 2, 900 ft. long; No. 3, 1100 ft. long; and an inclined shaft 200 ft. long. Total development over 6000 ft., which opens the vein to a depth of 500 ft. **Ore:** Lead-zinc-silver. **Remarks:** No. 3 tunnel partly rehabilitated during the year.

PERSEVERANCE MINES CO., INC.

Office: 1620 N. 6th St., Boise. **Officers:** Fred R. Wilson, Pres., Spokane, Wash.; Geo. R. Colvin, Sec.-Mgr., Boise. **Inc.:** May 28, 1927. **Capital:** 4,000,000 shares; par value 25c; 800,000 shares issued. **Property:** Five Points group; 11 unpatented claims, Little Smoky dist.; Fairfield. **Development:** By 3 tunnels: No. 1, 119 ft.; No. 2, 235 ft.; No. 3, 500 ft. **Plant:** Partly constructed 70-ton concentrator. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** During the year a small rod-mill was installed in the mill and some work done on installation of other mill equipment. Most of the funds expended during the year were derived from continuous stock assessments. This is the third organization Mr. Colvin has had on this property, the others being the Walton Mines Co., incorporated April 28, 1921; and the Happy Bill Mines Co., incorporated Dec. 31, 1923.

RED STAR MINING CO.

Office: Boise. **Officers:** D. W. Zent, Pres., Fairfield; John M. Berry, Sec., Gooding. **Inc.:** Nov. 20, 1924. **Capital:** 250,000 shares; par value 10c; 130,000 shares issued. **Property:** Red Star group; 4 unpatented claims, Little Smoky dist.; Fairfield. **Development:** 1 tunnel 50 ft. long. **Ore:** Gold-silver-lead. **Remarks:** Annual labor only.

RICHARD ALLEN MINES CO.

Office: Gooding. **Officers:** F. D. Wagner, Pres., Gooding; A. W. Steeves, Sec., Fairfield. **Inc.:** May 23, 1927. **Capital:** 600,000 shares; par value 5c; 50,000 shares issued. **Property:** 3 unpatented claims, unorganized dist. Soldier Mountain; Fairfield. **Development:** By 3 tunnels; total development, approximately 1000 ft. **Ore:** Copper-silver-gold. **Men employed:** Average, 3. **Remarks:** Principal tunnel extended 200 ft. during the year.

TAFT MINE

Office: Hailey. **Owner:** Homer D. Jones, Hailey. **Property:** Taft group; 4 unpatented claims, Little Smoky dist.; Fairfield. **Development:** By 2 tunnels: No. 1, 165 ft. long; No. 2, 200 ft. long. **Ore:** Lead-zinc-silver. **Men employed:** Average, 8. **Remarks:** Property under lease and option to I. E. Haight, who constructed new camp buildings, installed equipment, and commenced active development work.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Axalorr	Skeleton Creek	R. M. Angel	Fairfield
Bear Creek	Skeleton Creek	R. S. Mockett	Lincoln, Neb.
Blue Bird	Little Smoky	Robt. Leaper	Fairfield
Carrie Leonard	Little Smoky	Jas. Gilson, Agt.	Hailey
Climax	Little Smoky	Jas. Williams	Fairfield
Dollarhide	Little Smoky	R. D. Leach	Pocatello
Five Points	Little Smoky	Wm. Finney	Soldier
Fourth of July	Little Smoky	H. D. Jones	Hailey
Golden Star	Little Smoky	Chris Christofsen	Fairfield
Hercules	Big Smoky	W. W. Counterman	209 So. 3d St., Boise
Horn Silver	Little Smoky	P. E. Fletcher	Fairfield
Idaho Chief	Little Smoky	Philip B. Becker	Fairfield
Isabella	Little Smoky	Edw. Somers Est.	Hailey
Gold Bar Placer	Skeleton Creek	Chris L. Giskey	Fairfield
King of the West	Little Smoky	Maylan C. Fox	P. O. Box 774, Salt Lake City, U.
Little Bob	Little Smoky	M. Ryan	Fairfield
Lucky Strike	Little Smoky	Joe Vogner	Fairfield
Manchuria Placer	Rosetta	H. D. Jones	Hailey
Ohio Placer	Little Smoky	Geo. E. Ball	Bridgeport, Conn.
Princess	Willow Creek	Roy Jones	Fairfield
Silver King	Little Smoky	H. D. Jones, Agt.	Hailey
Smoky Bullion	Little Smoky	Ernest Worswick Est.	Reno, Nev.
Square Deal	Little Smoky	Robert Leaper	Fairfield
.....	Little Smoky	Wm. Lewis	Fairfield

BIBLIOGRAPHY

See pages 13-14 for publisher's address, meaning of reference marks, and abbreviations.

A geological reconnaissance across Idaho, by G. H. Eldridge: U. S. Geol. Survey, Sixteenth Ann. Rept., pt. 2, pp. 217-276, **1895.***

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey, Twentieth Ann. Rept., pt. 3, pp. 75-256, **1900.***

Nitrate deposits in southern Idaho, and eastern Oregon, by G. R. Mansfield: U. S. Geol. Survey Bull. 620, pp. 19-44, **1915.***

Ore deposits in the Sawtooth quadrangle, Blaine and Custer counties, Idaho, by J. B. Umpleby: U. S. Geol. Survey Bull. 580, pp. 221-249, **1915.**‡

Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****

Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 60, art. 3, pp. 1-33, **1921.**‡

Ground water for irrigation on Camas Prairie, Camas and Elmore counties, Idaho, by A. M. Piper: Idaho Bureau of Mines and Geology, Pamphlet 15, **1926.****

CARIBOU COUNTY

Caribou is one of the large southeastern counties of the State, being bounded on the east by the State of Wyoming, on the south by Bear Lake, on the east by Bannock, and on the north by Bingham and Bonneville counties. It has an area of 1263 square miles, and was accredited with a population of 2191, or 1.7 persons to the square mile, in the 1920 census. Soda Springs, the county seat and the only settlement of importance, is situated in the southeastern corner. The county is principally a sheep raising and agricultural community, and Soda Springs is one of the largest sheep shipping points in the United States.

The southeastern corner of the county is served by the main line of the O. S. L. Railroad, with an 8-mile branch road to Conda, the scene of the Anaconda Copper Mining Co.'s operation, and by the main east and west State highway, the Old Oregon Trail.

The principal mineral resources are phosphate rock, salt, sulphur, and mineral springs, and there are excellent possibilities for the discovery of petroleum. These resources are different from those of most counties, and when properly exploited will be a material factor in the prosperity of the county and State.

A large part of the five billion tons of minable phosphate rock, estimated by geologists of the U. S. Geological Survey, is in this county. These deposits are practically untouched, and constitute one of the greatest potential mineral resources of the State. They are fully described, including analyses and tonnage estimates, in the numerous publications referred to in the bibliography. The Anaconda Copper Mining Co. is pioneering in the development of the rock phosphate industry and has expended over $1,000,000 in its mine, mine plant, mill, railroad, power lines, and townsite.

One of the most outstanding publications issued by the U. S. Geological Survey in recent years is Professional Paper 152, by G. R. Mansfield: "Geography, Geology, and Mineral Resources of Part of Southeastern Idaho". This appeared during 1927; it is profusely illustrated with pictures, maps, and diagrams, and describes in detail the subjects mentioned in its title, dealing especially with the immense areas of phosphate rock found in this county.

The only salt found in the State is in Caribou County. Geologists of the U. S. Geological Survey conservatively estimate five million tons in one deposit, with the possibility of a large tonnage in adjacent areas. The deposits are located on Stump and Tygee creeks, near the State line.

The mineral springs, which are located at Soda Springs, constitute an important resource which is lying dormant. The waters from these springs have exceptional medicinal qualities, are excellent for table use, and offer a great possibility if properly developed and exploited.

A number of structures favorable to the accumulation of petroleum are found in the eastern part of the county. The location and geology of these areas are fully described in the publications issued by the Idaho Bureau of Mines and Geology.

The Anaconda Copper Mining Co., which is operating one of the largest phosphate mines in the United States, enlarged its mining equipment, constructed nine new homes for its employees, and maintained capacity production throughout the greater part of the year. The phosphate rock which this company is producing is shipped to Anaconda, Montana, where it is manufactured into high-grade fertilizer and sold under the trade name of "Anaconda treble superphosphate."

ANACONDA COPPER MINING CO.

Office: Anaconda, Mont. **Officers:** C. F. Kelley, Pres.; A. H. Melin, Sec., both of 25 Broadway, New York City; E. M. Norris, Local Mgr., Conda, Idaho. **Inc.:** Filed in Idaho: Apr. 10, 1916. **Capital:** 6,000,000 shares; par value $50; 3,000,000 shares issued. **Property:** 23 patented claims; 3403 acres, unorganized dist.; Conda. **Development:** 3 adits, 45 ft. above railroad-track level, 9x9 ft. inside of timbers: No. 1, 6050 ft. long; No. 2, 2660 ft. long; No. 3, 5120 ft. long. The main operating tunnels are equipped with 25-lb. rail, 36-in. gauge track, 15-ton storage-battery locomotive capable of hauling a 100-ton net load at a speed of 4 to 7 miles per hour, 10-ton side dump ore cars, power loading machines operated by compressed air and No. 4 sirocco fan. **Plant:** MINE: 1000-cu.-ft. compressor; drill sharpeners; machine, blacksmith and carpenter shops with latest type power-driven equipment; switch boards and motor generator charging set; laboratory; electric sub-station and sawmill all housed in fireproof gunited and steel buildings. MILL: Crushing and drying plant. The mill feed and storage bins are connected with the main tunnels by large trestles. The storage bins, with a capacity of over 4000 tons, and houses over them are protected with several inches of gunite. The main storage bin is equipped with an Ottumwa boxcar loader and modern railroad scales. The rock drawn from the mill feed bin, which has a capacity of 450 tons, passes over shaking grizzlies, the oversize going to a 12-inch Traylor gyratory crusher, which reduces it to about 2½ inches. The product from the crusher and the undersize is elevated and passed over a Mitchell vibrating screen. The rock passing through this screen goes to the dryer feed bin, and the oversize to 22x54-inch Anaconda rolls that reduce it to three-fourths of an inch. The product from the rolls is elevated and again passes over the Mitchell vibrating screen. The crushed rock drawn from the dryer feed bins is conveyed into class A-12 Ruggles-Coles dryers by apron feeders. After leaving the dryer the rock goes over a shaking feeder to a chain bucket elevator. This elevator carries it to the top of the mill where it passes through a Vezin sampler, and it is then conveyed to the storage bins. The present capacity of the mill is 400 tons in 24 hours. This output can be increased to 1000 tons in the same time by adding another dryer. **Railroad:** 8-mile branch from Soda Springs to mine, with storage tracks that will accommodate 100 fifty-ton railroad cars, spurs to mill and coal bins, and wyes at each end of the yards. The gradient of the storage tracks is such that the cars are operated by gravity to and from the storage bins. **Town:** The company has erected a model mine town consisting of modern homes, which are rented to the employees at a nominal figure. Company offices, bunk and boarding houses, superintendent's home, recreation hall and a number of small homes have been erected. A fully equipped store is maintained by the company, a postoffice has been established, and a modern school erected and maintained. A complete water system for the town and plant has

been installed; the water is piped a distance of 2 miles to a 100,000-gallon storage tank from which it is distributed. **Ore:** Phosphate rock. **Men employed:** Average, 70. **Remarks:** During the greater part of the year active production was maintained at the rate of approximately 200 tons per day. A large number of new homes for the employees were constructed, mine plant was enlarged, and an additional storage-battery locomotive added during the year. Note pages 26 to 31 of 1923 Annual Report for complete description of this operation.

GREAT WESTERN OIL CO.

Office: 953 W. Lander St., Pocatello. **Officers:** L. M. Capps, Pres., Blackfoot; Harvey W. Dice, Sec., Pocatello. **Inc.:** Feb. 2, 1923. **Capital:** 1,000,000 shares; par value $1; 658,146 shares issued. **Property:** Oil and gas leases on 1383 acres of patented farm land situated on Stump and Tygee creeks, unorganized dist.; Auburn, Wyo.; R. R. Montpelier. **Development:** 2640 ft. well. **Plant:** Miller well-drilling outfit equipped with F-M 40-h. p. gas engine. **Mineral sought:** Oil and gas. **Remarks:** Idle.

BIBLIOGRAPHY

See pages 13-14 for publisher's address, meaning of reference marks, and abbreviations.

Phosphate deposits in western United States, by F. B. Weeks and W. F. Ferrier: U. S. Geol. Survey Bull. 315, pp. 449-462, **1907.***

The salt resources of the Idaho-Wyoming border, with notes on the geology, by C. L. Breger: U. S. Geol. Survey Bull. 430, pp. 555-569, **1910.***

Preliminary report on a portion of the Idaho phosphate reserve, by R. W. Richards and G. R. Mansfield: U. S. Geol. Survey Bull. 470, pp. 371-439, **1910.***

Sulphur deposits near Soda Springs, Idaho, by R. W. Richards and J. H. Bridges: U. S. Geol. Survey Bull. 470, pp. 499-503, 1910; Eng. and Min. World, vol. 36, p. 12, Jan. 6, **1910.***

A geological reconnaissance in southeastern Idaho, by A. R. Schultz and R. W. Richards: U. S. Geol. Survey Bull. 530, pp. 267-284, **1911.***

Geology of the phosphate deposits northeast of Georgetown, Idaho, by R. W. Richards and G. R. Mansfield: U. S. Geol. Survey Bull. 577, **1914.**‡

Revision of the Beckwith and Bear River formations of southeastern Idaho, by G. R. Mansfield and P. V. Roundy: U. S. Geol. Survey Prof. Paper 98, pp. 75-84, **1916.***

Salt resources of the United States, by W. C. Phalen: U. S. Geol. Survey Bull. 669, pp. 131-137, **1919.**‡

Oil shale in western Montana, southeastern Idaho, and adjacent parts of Wyoming and Utah, by D. D. Condit: U. S. Geol. Survey Bull. 711, pp. 15-40, **1920.**‡

Petroleum possibilities of certain anticlines in southeastern Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Bull. 4, **1922.***

The Wasatch and Salt Lake formations of southeastern Idaho, by G. R. Mansfield: Am. Jour. Sci., vol. 49, pp. 390-406, June, **1920.**§

Triassic and Jurassic formations in southeastern Idaho and neighboring regions, by G. R. Mansfield: Am. Jour. Sci., vol. 50, pp. 53-64, July, **1920.**§

Types of Rocky Mountain structure in southeastern Idaho, by G. R. Mansfield: Jour. Geology, vol. 29, No. 5, pp. 444-468, July-August, **1921.**§

Phosphate mine of Anaconda Copper Company, by C. E. Nighman: Twenty-fifth Ann. Rept., Mining Industry of Idaho, **1923.***

Geology and oil possibilities of Bingham, Bonneville, and Caribou counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Bull. 8, **1924.****

Geography, geology, and mineral resources of part of southeastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Prof. Paper, 152, **1927.***

The Idaho phosphate field, by G. R. Mansfield: Mining and Metallurgy, vol. 9, pp. 19-20, January, **1928.**§

CASSIA COUNTY

Cassia is one of the principal southern counties, being bounded on the south by the States of Nevada and Utah, on the west by Twin Falls, and on the east by Oneida and Power counties. Snake River forms its northern boundary, which is also a part of the southern boundary of Jerome, Minidoka, Blaine, and Power counties. It has an area of 2595 square miles, and was accredited with a population of 15,659 in the 1920 census. The principal industries are stockraising and farming. Burley, which is on the Snake River, near the center of the Minidoka project of the U. S. Reclamation Service, is the largest town and county seat.

The northern part of the county is served by the Old Oregon Trail State Highway; the other parts by a well-maintained system of county roads. Its railroad is the Minidoka-Buhl branch of the O. S. L. Railroad, from which there are branch lines extending from Burley to Idahome, and from Burley to Oakley.

The minerals found in this county are silver, lead, copper, gold, limestone, building stone, marble, cinnabar, and lignite. In the past, a little drilling has been done for petroleum, but all the companies have been practically idle for the past four years. These varied mineral resources, particularly the high grade lead-silver and silver-copper ores of the Stokes and Dolomite districts, offer excellent opportunities and possibilities for prospectors and development companies.

The Silver Hills Mining Co. and the Big Bertha Mining Co. were the only active companies during the year, although there was an increase in the number of prospectors and the amount of work done by them.

BIG BERTHA MINING CO.

Office: Albion. **Officers:** R. A. Bohn, Pres., Oakland, Calif.; R. E. Bohn, Sec., Escondida, Calif. **Inc.:** Sept. 30, 1924. **Capital:** 25,000 shares; par value $1; 5 shares issued. **Property:** Big Bertha group; 13 unpatented claims, Stokes dist.; Declo. **Development:** By 2 tunnels: No. 1, 500 ft. long; No. 2, 400 ft. long. **Plant:** Small gas-driven compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Principal tunnel extended 190 ft. during the year.

GOOSE CREEK OIL AND DEVELOPING CO.

Office: 424 4th Ave., Pittsburgh, Pa. **Officers:** Edward Martin, Pres.; H. E. Wynn, Sec., both of Pittsburgh, Pa.; D. P. Carpenter, Mgr., Oakley. **Inc.:** Oct. 28, 1920. **Capital:** 1,000,000 shares; par value 50c; 346,600 shares issued. **Property:** Government prospecting permit on 8000 acres on Coal and Goose creeks; Oakley. **Development:** 1425 ft. well. **Mineral sought:** Oil and gas.

MELCHER MINING & MILLING CO.

Office: 503 McIntyre Bldg., Salt Lake City, Utah. **Officers:** Samuel McIntyre, Sr., Pres.; Roy A. McIntyre, Sec., both of Salt Lake City. **Inc.:** May 2, 1899. **Capital:** 500,000 shares; par value 10c; all shares issued. **Development:** By 2 tunnels: No. 1, 3300 ft. long; No. 2, 1600 ft. long. **Remarks:** Annual labor only.

SILVER HILLS MINING CO.

Office: 1258 Crandall Ave., Salt Lake City, Utah. **Officers:** W. J. Burridge, Pres.-Mgr., Black Pine; L. M. Francis, Sec., Salt Lake City, Utah. **Inc.:** Mar. 31, 1920. Charter forfeited Nov. 30, 1926. **Capital:** 800,000 shares; par value 10c; 532,102 shares issued. **Property:** Busy Bee and Joven groups; 30 unpatented mining claims, Black Pine dist.; Black Pine. **Development:** 3 tunnels, 1 shaft; approximately 2600 ft. total development. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** Small amount of development work during the summer months.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Alice	Stokes	W. E. Langford	229 W. 2d St. N., Salt Lake City
Albion Gr.	Stokes	J. E. Comerford	Rupert
Bimetallic	Stokes	F. E. Trayme	Albion
Giant	Stokes	Samuel McIntyre	Salt Lake City
Golden Eagle	Stokes	O. H. Melcher	Albion
Hazel Pine	Black Pine	F. B. Platt	265 E. Broadway, Salt Lake City
Ken-Sko	Dolomite	Robt. B. Kenner	Salt Lake City
Last Chance	Unorganized	Charles Ransom	Burley
Last Chance Gr.	Grape Creek	J. W. Durfee	Malta
Sample Placer	Snake River	Thomas C. Elgin	Neeley
Walton No. 2	Stokes	T. C. Walton	Burley

BIBLIOGRAPHY

See pages 13-14 for publisher's address, meaning of reference marks, and abbreviations.

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Lignite in the Goose Creek district, Cassia County, Idaho, by C. F. Bowen: U. S. Geol. Survey Bull. 531, pp. 252-262, **1913.***

Portland cement materials and industry in the United States, by E. C. Eckel, with contributions by E. F. Burchard and others: U. S. Geol. Survey Bull. 522, p. 135, **1913.***

Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****

Preliminary report on the clays of Idaho, by F. H. Skeels: Idaho Bureau of Mines and Geology Bull. 2, **1920.****

Geology and water resources of the Goose Creek Basin, Cassia County, Idaho, by A. M. Piper: Idaho Bureau of Mines and Geology Bull. 6, **1923.****

CLARK COUNTY

Clark is one of the southeastern counties, adjoining and lying east of Lemhi and Butte counties, and bounded on the north by the State of Montana, on the east by Fremont County, and on the south by Jefferson County. It contains an area of 1778 square miles and was accredited with a population of 1886 in the 1920 census. Dubois is the principal town and county seat.

The Pocatello-Butte division of the O. S. L. Railroad, and the Idaho-Montana State highway traverse the county north and south, thus giving it good transportation facilities.

The Lemhi Mountains, which extend into the northwest corner of the county, constitute the principal mining district. This district is named from Birch Creek, which flows in a southern direction and which divides the district. The western part is an extension of the Dome, or Hamilton, district of Butte County, and the eastern part is an extension of the Nicholia district of Lemhi County. The ores found throughout this area are lead-silver, copper-silver, and zinc. The deposits have been partially developed and a small tonnage has been marketed.

Deposits of coal and bentonite of sufficient extent to be of commercial importance occur in the Beaver Head Mountains, the summit of which is the state line between Idaho and Montana.

The geography, geology, and ore deposits of the Birch Creek district are fully described, together with maps and illustrations, in a publication issued during the year by the Idaho Bureau of Mines and Geology as Pamphlet No. 27: "Geology and Ore Deposits of the Birch Creek District, Idaho," by P. J. Shenon.

BIRCH CREEK MINING CO., LTD.

Office: Idaho Falls. **Officers:** George Brunt, Pres.; A. T. Shane, Sec., both of Idaho Falls. **Inc.:** June 21, 1907. **Capital:** 1,000,000 shares; par value 10c; 500,000 shares issued. **Property:** Scott group; 9 unpatented claims, Birch Creek dist.; Winsper, R. R. Dubois, 35 miles. **Ore:** Lead.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Aviator et al.	Birch Creek	R. A. Connell and J. O'Brien	Reno
Big Dyke	Birch Creek	John Peterson	Winsper
Elephant	Birch Creek	David Bloom et al.	Idaho Falls
Lead Basin	Birch Creek	Frank Worthing	Reno
Lucky Strike No. 1	Unorganized	E. M. Kaufman	Dubois
Lucky Strike No. 2	Unorganized	C. H. Manhart	Dubois
Snow Flake Pl.	Birch Creek	John Peterson	Winsper
Sunset	Birch Creek	Ray Best et al.	Dubois
Sun Shine	Heart Mountain	Geo. A. Briggs et al.	Winsper
Tip Top	Birch Creek	Wm. Garretson et al.	Dubois

BIBLIOGRAPHY

See pages 13-14 for publisher's address, meaning of reference marks, and abbreviations.

Geology and ore deposits of the Mackay region, Idaho, by J. B. Umpleby: U. S. Geol. Survey Prof. Paper 97, **1917.**‡

Geology and water resources of the Mud Lake basin, Idaho, by H. T. Stearns and L. L. Bryan: U. S. Geol. Survey Water-Supply Paper 560-D, **1925.**‡

A geologic reconnaissance of Clark and Jefferson, and parts of Butte, Custer, Fremont, Lemhi and Madison counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 19, **1927.****

Geology and ore deposits of the Birch Creek district, Idaho, by P. J. Shenon: Idaho Bureau of Mines and Geology Pamphlet 27, **1928.****

CLEARWATER COUNTY

Clearwater is one of the large northern counties, being bounded on the north by Shoshone County, on the east by the State of Montana, on the south by Idaho County, and on the west by Lewis, Nez Perce, and Latah counties. It has an area of 2508 square miles and was accredited with a population of 4993 in the 1920 census. Orofino, which is on the Clearwater River, near the western border, is the largest town and county seat. Except a small area adjacent to Orofino, which is devoted to agriculture, the entire county is mountainous and heavily timbered. The largest body of virgin white pine timber in the United States is located in this county.

It is served by three State highways which are partly constructed, by good county-maintained roads, and by the Lewiston-Stites branch of the Northern Pacific Railroad, which follows the Clearwater River.

Pierce City, which is the principal mining district in the county, was the scene of the first gold discovery in Idaho. This discovery was made in 1860, and the ensuing stampede soon crowded the district and the overflow spread into other sections. The stampede and resulting overflow formed the nucleus of the State, and shortly thereafter the Territory of Idaho was formed. Practically all the placer gold that could be recovered by hand methods or hydraulicking was exhausted years ago, and all recent operations have been devoted to dredging and lode mining.

Gold—placer and lode—silver, monazite, and copper are the principal minerals found in the Pierce City district. Lead, zinc, and silver occur in the Neva Hill section, and placer gold is still found in some of the isolated sections.

The lead-silver deposits in the Neva Hill section, near Elk River, received a small amount of attention, the principal operations being those of the Ruby Creek Mining Co.

Near Orofino the Clearwater Lime Products Co., a new enterprise based on the mining and marketing of a high-grade white crystalline limestone, installed its plant and equipment and produced and marketed a substantial tonnage during the year. Its products are sold principally to the agricultural industries.

ALDER CREEK MINING CO.

Office: 404 Court House, Duluth, Minn. **Officers:** Thos. Owens, Pres., Two Harbors, Minn.; H. J. Grannis, Sec., Duluth, Minn. **Inc.:** Apr. 4, 1902. **Capital:** 200,000 shares; par value $1; 178,000 shares issued. **Property:** 800 acres patented land, Pierce City dist.; Orofino. **Ore:** Placer gold.

AMERICAN PLACER MINING CO., LTD.

Office: Peyton Bldg., Spokane, Wash. **Officers:** J. M. Porter, Pres.; D. W. Porter, Sec., both of Spokane. **Inc.:** Nov. 18, 1893. **Capital:** 500,000 shares; par value $1; all shares issued. **Property:** 3 patented, 1 unpatented claim; Pierce.

CLEARWATER LIME PRODUCTS CO.

Office: 422 Breier Blk., Lewiston. **Officers:** Walter Harr, Pres., Orofino; L. A. Strickfaden, Sec., Lewiston; Elmer Harr, Mgr., Orofino. **Inc.:** Sept. 4, 1928. **Capital:** 500,000 shares; par value $1; 150,000 shares issued. **Property:** 247 acres held under lease and 80 acres patented land, unorganized dist.; Orofino. **Development:** Quarry. **Plant:** MINE: Electrically-driven compressor; complete mining equipment. MILL: Electrically-driven crusher, pulverizer, and screens. **Ore:** Limestone. **Men employed:** Average, 8. **Remarks:** A new enterprise based on the mining and marketing of a high-grade white crystalline limestone, which is sold principally to the agricultural industries. Plant and equipment were installed and a substantial tonnage was produced and marketed during the year.

CLEARWATER PLACER MINING CO.

Office: 601 Hutton Bldg., Spokane, Wash. **Officers:** H. E. Rhodehamel, Pres., Hyde Bldg., Spokane, Wash.; Chas. H. Ennis, Sec., 601 Hutton Bldg., Spokane, Wash. **Inc.:** Aug. 21, 1923. **Capital:** 1,400,000 shares; par value 10c; all shares issued. **Property:** 8 unpatented placer claims, 160 acres, Pierce City dist.; Pierce. **Ore:** Placer gold. **Remarks:** Annual labor only.

COBRA MINING & MILLING CO.

Office: Lewiston. **Officers:** Robert Anderson, Pres.; W. C. Kirby, Sec.-Mgr., both of Lewiston. **Inc.:** May 7, 1925. **Capital:** 5,000,000 shares; par value 1c; 305,500 shares issued. **Property:** Cobra group; 4 unpatented claims, Pierce City dist.; Pierce City. **Ore:** Copper.

INDEPENDENCE PLACER MINING CO., LTD.

Office: Wallace. **Officers:** Wm. Fahle, Pres.-Mgr.; Hugh Toole, Sec., both of Wallace. **Inc.:** Oct. 25, 1906. **Capital:** 1,000,000 shares; par value $1; 888,893 shares issued. **Property:** 16 unpatented claims, Moose City dist.: Rivulet, Mont. **Men employed:** Average, 7. **Ore:** Placer gold. **Remarks:** Operations conducted for a period of 190 days. A stock assessment of 6 mills was levied on June 25.

OXFORD COPPER MINING CO., LTD.

Office: Moscow. **Officers:** Samson Snyder, Pres., Orofino; L. F. Parsons, Sec., Moscow. **Inc.:** Apr. 10, 1907. **Capital:** 1,000,000 shares; par value $1; 611,185 shares issued. **Property:** 6 unpatented claims, Pierce City dist.; Pierce. **Development:** Approximately 500 ft. of underground workings. **Plant:** Steam-driven hoist. **Ore:** Copper. **Remarks:** Annual labor only.

RUBY CREEK MINING CO.

Office: Bovill, Idaho. **Officers:** P. A. Hughes, Pres.; J. M. Evans, Sec.; James Gilroy, Mgr., all of Bovill. **Inc.:** Sept. 14, 1925. **Capital:** 1,500,000 shares; par value 10c; 667,095 shares issued. **Property:** Ruby Creek group; 20 unpatented claims, Ruby Creek dist.; Bovill. **Development:** By 1 tunnel 665 ft. long, and a vertical shaft 170 ft. deep. **Plant:** Steam-driven compressor; complete mining equipment, and camp. **Ore:** Lead-zinc-silver. **Men employed:** Average, 5. **Remarks:** Operated throughout the year by lessees, who reported the development of a substantial tonnage of ore.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
American	Pierce City	J. M. Porter	Spokane, Wn.
Aurora et al.	Pierce City	Franz Magnus	Orofino
Chloe	Pierce City	A. B. Rhude	Pierce
Collins	Pierce City	J. E. Collins	Pierce
Cow Creek	Pierce City	Jas. Crawford	Grangemont
Deep Placer	Moose Creek	E. J. Hughes	Pierce
Dream, The	Pierce City	Fred Forsman	Pierce
Elsie Lucky et al.	Moose Creek	Hans Ehret	----------
Gold Dust Gr.	Pierce City	Chas. Rogers	Pierce
Gold Island	Pierce City	Lewis Pratt	Pierce
Granite et al.	Ruby Creek	P. A. Hughes	Bovill
Jericho	Burnt Creek	F. A. Losekamp	Elk River
K. H. C. et al.	Ruby Creek	K. Barker	Elk River
Little Joe	Pierce City	Joseph Frank	Orofino
Little Mascot	Pierce City	Earl McHenry	Orofino
Lone Pine et al.	Pierce City	J. W. Bartlett	Pierce
Ozark	Pierce City	Chas. Meyers	Greer
Oyama et al.	Pierce City	Agnes M. Kelly	Spokane
Rummel et al.	Pierce City	James Clark	Pierce
Russell Gr.	Pierce City	J. E. Rudersdorf	Pierce
Silver Creek Pl.	Pierce City	Gus Anderson	Pierce
Snake Creek Pl.	Pierce City	G. V. Friedman	Pierce
Trapper et al.	Pierce City	R. E. Willoughby	Pierce
Venus Placer	Burnt Creek	John Pearson	Dent
Victoria et al.	Ruby Creek	Geo. Brady	Bovill
Victory Loan	Pierce City	H. J. Steffey	Pierce
Vida Pl. et al.	Pierce City	J. H. Wells et al.	Pierce
Wendell Placer	Burnt Creek	Walter Wendell	Dent
Wild Rose	Pierce City	John Gaffney	Pierce
Wonder	Pierce City	P. H. Sayles	Lapwai
Yukon et al.	Burnt Creek	Peter Skjarve	Deary

BIBLIOGRAPHY

See pages 13-14 for publisher's address, meaning of reference marks, and abbreviations.

Bitterroot Forest Reserve (Idaho-Montana), by R. U. Goode: Nat. Geog. Mag., vol. 9, pp. 387-400, **1898.**§

Geology and water resources of Nez Perce County, Idaho, by I. C. Russell: U. S. Geol. Survey Water-Supply Papers 53 and 54, **1901.**‡*

Mineral deposits of the Bitterroot Range and Clearwater Mountains, by Waldemar Lindgren: U. S. Geol. Survey Bull. 213, pp. 66-70, **1903.***

A geological reconnaissance across the Bitterroot Range and Clearwater Mountains in Montana and Idaho, by Waldemar Lindgren: U. S. Geol. Survey Prof. Paper 27, **1904.***

Central Idaho gold districts, by S. P. Jellum: Northwest Min. News, vol. 3, pp. 83-91, 107-114, 134-139, **1908**; vol. 4, pp. 2-6, 31-37, 66-73, **1909.***

An occurrence of monazite in northern Idaho, by F. C. Schrader: U. S. Geol. Survey Bull. 430, pp. 184-191, **1909.***

Portland cement materials and industry in the United States, by E. C. Eckel, with contributions by E. F. Burchard and others: U. S. Geol. Survey Bull. 522, pp. 135-140, **1913.***

The Orofino coal field, Clearwater, Lewis, and Idaho counties, Idaho, by C. T. Lupton: U. S. Geol. Survey Bull. 621, pp. 99-108, **1915.***

Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 60, art. 3, pp. 1-33, **1921.**‡

Geology and gold resources of north central Idaho, by F. A. Thomson and S. M. Ballard: Idaho Bureau of Mines and Geology Bull. 7, **1924.****

CUSTER COUNTY

Custer County is bounded on the north by Lemhi County, on the east by Butte, on the south by Blaine, and on the west by Boise and Valley counties. Its principal area comprises the drainage basins of the headwaters of the Salmon River, Big Lost River, and Little Lost River. It has an area of 4921 square miles, and was accredited with a population of 3550 in the 1920 census, or 0.7 persons to the square mile. A comparison of the area and density of population with the State of Connecticut, which contains 4845 square miles and a population of 286.4 persons to the square mile, conveys a good idea of the size of Custer County and its lack of population. It is one of the south-central counties, and the area within its borders comprises the greater part of the region known as "Central Idaho's Mineral Empire."

It is principally a mining county and always ranks as one of the principal mineral-producing counties of the State. It is also noted for its agricultural and stockraising industries, particularly sheep, as it is one of the largest sheep raising sections in the State.

The county is served by the Blackfoot-Mackay branch of the O. S. L. Railroad, by the Sawtooth Park and the Lost River State highways and by well-maintained county and Forest Service roads, which extend into all the various mining districts. The roads are kept in good repair and are open to travel during the larger part of the year. Mackay, the terminus of the railroad, is the largest town and the supply point for most of the mines. Challis, which is 60 miles northwest of Mackay, is the county seat and oldest settlement.

The principal mineral resources are lead, silver, copper, gold—placer and lode, zinc, antimony, molybdenum, tungsten, graphite, bentonite, and garnet. The deposits are widely distributed throughout the county, and many of them offer exceptionally favorable opportunities to prospectors and development companies. Excepting the flat land and river bottoms, which are suitable to dredging and which fully justify investigation, practically all the placer mines are exhausted. The diversity of mineralization and the favorable geological conditions are attracting some of the largest organizations in the United States to this county, and many resulting new discoveries fully prove the possibilities that are in store for those who possess a little courage.

The most important event in this county during 1928 was the acquisition of the Empire copper mine at Mackay by the Mackay Metals in June. After this new company acquired control of the property, the mine and mill plants were entirely rebuilt, the mine rehabilitated, an active mine development campaign was started and operations commenced by a large number of lessees. The development work opened up a substantial tonnage of new ore, and at the end of the year the mine and mill were practically on capacity production. The Camp Bird group near Clayton was acquired by H. B. Kingsbury of Wallace and Wilbur Greenough of Spokane, who immediately started mine development and the construction of a hydroelectric power plant. After the plant is completed, during the early part of 1929, it is proposed to develop the property by a new 400-foot shaft.

The Livingston Mines Corporation improved and enlarged its mine and mill plants and proved the extent of its ore reserves through additional development at depth. This company is the largest producer of lead and zinc ore and concentrates in southern Idaho and maintains one of the largest pay rolls. The Twin Apex Mining Co. on Squaw Creek near Clayton, the Aztec Mining & Milling Co. on Fourth of July Creek, and the Crater Mines Co. on Lake Creek conducted active operations during the summer months. A large amount of new development work was performed by the MacGinniss-Walker Metals Co. at the Phi Kappa group and the Black Rock group, both on the head of Big Lost River, and the Franklin group on Yankee Fork. The Red Bird mine of the Ford Motor Co. was idle throughout the year, while the only operation conducted at the Ramshorn was that conducted by lessees, who produced and marketed a small tonnage of high-grade hand-sorted ore,

AZTEC MINING & MILLING CO.

Office: 839 W. Lander St., Pocatello. **Officers:** D. C. Ray, Pres.; Ben F. Anderson, Sec., both of Pocatello; T. W. Galigher, Mgr., Boise. **Inc.:** May 26, 1917. Capital stock increased Feb. 2, 1925. **Capital:** 50,000 shares; par value $1; 34,000 shares issued. **Property:** Kingfisher group; 3 unpatented claims, Stanley dist.; Stanley. **Development:** Inclined shaft 650 ft. long. Total development, approximately 1750 ft. **Plant:** MINE: 25-h. p. steam-driven hoist. MILL: Partly installed Gibson mill and amalgamation plates. **Remarks:** Small amount of labor in excess of annual requirement.

BAYHORSE MINES, INC.

Office: Mackay. **Officers:** Wayne Darlington, Pres.; Chase A. Clark, Sec.; R. R. Huffman, Mgr., all of Mackay. **Inc.:** Nov. 12, 1927. **Capital:** 500,000 shares; par value $1. Increased on June 22, 1928, to 1,000,000 shares; par value $1; shares issued, unknown. **Property:** Beardsley group; 3 patented, 5 unpatented claims, held under lease and option; Bay Horse dist.; Challis.

BURNS MINING & MILLING CO.

Office: Meridian. **Officers:** G. W. Parkin, Pres., J. M. Evans, Sec., both P. O. Box 63, Meridian. **Inc.:** May 3, 1911. **Capital:** 500,000 shares; par value $1; 332,819 shares issued. **Property:** Burns group; 7 unpatented claims, Seafoam dist.; Stanley. **Development:** Approximately 750 ft. of workings. **Ore:** Lead-silver, gold. **Remarks:** Annual labor only.

CAMP BIRD GROUP

Owners: H. B. Kingsbury, Wallace, and Wilbur Greenough, Spokane, Wash. **Property:** Camp Bird group; 7 unpatented claims, Kinnikinnick Creek; Bay Horse dist.; Clayton. **Development:** Principally by 1 tunnel 800 ft. long. **Plant:** MINE: Small gas-driven Sullivan compressor; complete mining equipment and camp. MILL: Small concentrator. **Ore:** Lead-silver. **Men employed:** Average, 10. **Remarks:** During the closing months of the year, work was started on the construction of a small hydroelectric power plant. After this plant is completed, the owners expect to sink a 400-ft. vertical shaft to further prove the extent of the substantial showing of ore which has been exposed in the tunnel.

CENTRAL IDAHO MINING CO.

Office: Shelley. **Officers:** Roy Young, Pres.-Mgr.; A. J. Mickelson, Sec., both of Shelley. **Inc.:** Jan. 20, 1927. **Capital:** 50,000 shares; par value $1; 19,700 shares issued. **Property:** Muley Creek group; 11 unpatented claims, Yankee Fork dist.; Clayton. **Ore:** Placer gold. **Remarks:** Annual labor only since August, 1927.

CRATER MINES, INC.

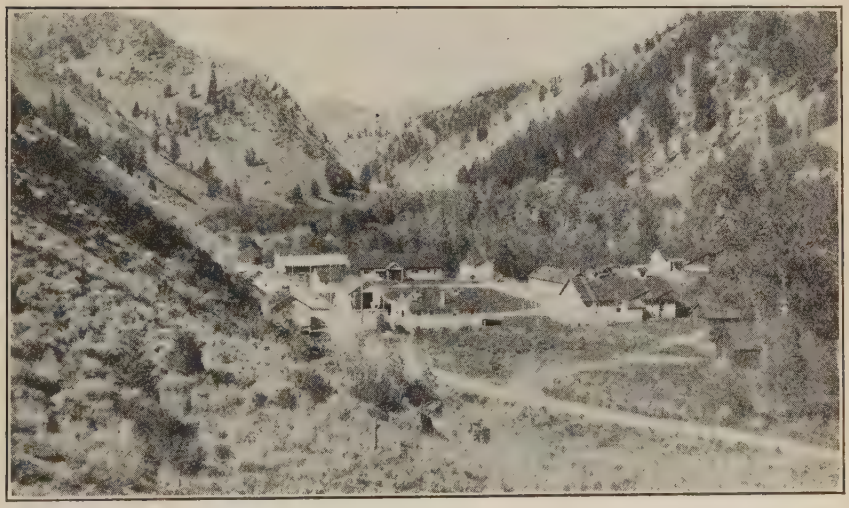
Office: Rigby. **Officers:** Harry S. Thayer, Pres.-Mgr., Idaho Falls; Geo. E. Hill, Sec., Rigby. **Inc.:** Aug. 30, 1927. **Capital:** 1,000,000 shares; par value $1; 515,000 shares issued. **Property:** Crater group; 9 unpatented claims at the head of Slate Creek, Boulder dist.; Mackay; held under lease and option. **Development:** By 1 tunnel. **Plant:** Small gas-driven compressor. **Ore:** Lead-antimony-silver. **Men employed:** Average, 6. **Remarks:** New camp buildings were constructed and equipment was installed during the latter part of 1927. Work continued without interruption throughout 1928.

EAST STAR MINING CO.

Office: Downey. **Officers:** Albert Christenson, Pres.; G. T. Hyde, Sec., both of Downey; L. W. Johnson, Mgr., Moore. **Inc.:** Apr. 16, 1924. **Capital:** 1,000,000 shares; par value 25c; 800,000 shares issued. **Property:** East Star group; 4 unpatented claims, Alder Creek dist.; Mackay. **Development:** By 1 tunnel 290 ft. long. **Remarks:** Small amount of development work throughout the year, funds for which were derived from stock assessments. Press reports during the latter part of the year were to the effect that a new showing of high-grade copper ore was disclosed.

FORD MOTOR CO.

Office: Highland Park, Mich. **Officers:** Edsel B. Ford, Pres.; B. J. Craig, Sec., both of Highland Park, Mich. **Inc.:** Filed in Idaho, Jan. 6, 1925. **Capital:** 1,000,000 shares; par value $100. **Property:** Red Bird and Silver Rule groups; 44 patented claims and 6 millsites, Bay Horse dist.; Clayton; R. R. Mackay, 70 miles. **Development:** Principal development on Red Bird group consists of 4 tunnels: No. 1, 500 ft. long; No. 2, 1300 ft. long; No. 4, 510 ft. long; No. 9, 2127 ft. long, giving a total depth of 900 ft. on the vein; total development approximately 23,000 ft. **Plant:** 2 1-R semi-Diesel engines, type POC-2, direct connected to compressors; complete mining equipment including 2 diamond drills; shops and mining camp consisting of 11 buildings. **Ore:** Lead-silver. **Men employed:** 1 watchman. **Remarks:** Idle.



MINE CAMP: FORD MOTOR CO.

GREYHOUND MINING & MILLING CO., LTD.

Office: Gem Bldg., Boise. **Officers:** W. C. Annett, Pres.; Edward Smith, Sec., both of Boise. **Inc.:** Sept. 2, 1902. **Capital:** 1,500,000 shares; par value $1; 1,483,299 shares issued. **Property:** Greyhound group; 7 patented claims, Seafoam dist.; Stanley. **Plant:** Stamp mill, 10 1050-lb. stamps; crusher; 2 Dorr classifiers; 4 vanners and a small circular blast furnace. **Remarks:** Small tonnage of ore was produced and marketed by lessees during the year.

HORSE SHOE COPPER CO., LTD.

Office: Mackay. **Officers:** Geo. L. Morgan, Pres.-Mgr.; D. V. Archbold, Sec., both of Mackay. **Inc.:** Dec. 10, 1903. **Capital:** 1,000,000 shares; par value $1; 916,150 shares issued. **Property:** Horse Shoe group; 20 unpatented claims, Alder Creek dist.; Mackay. **Development:** This mine is developed principally by 3 tunnels and 1 vertical shaft, 350 feet deep, and a large amount of crosscuts, drifts and raises, totalling over 2000 ft. **Plant:** MINE: Electrically-driven 2-drill compressor and hoist. Complete mine camp. **Ore:** Lead-zinc-silver, copper-silver. **Remarks:** Property under lease and option to Ray Strunk of Mackay.

IDAHO SILVER & LEAD MINES, INC.

Office: 139 N. Clark St., Chicago, Ill. **Officers:** James R. Howe, Pres.; R. H. Van Meter, Sec., both of Chicago; Dr. C. S. Ellis, Mgr., Challis. **Inc.:** May 10, 1928. **Capital:** 2,000,000 shares; par value $1; all shares issued. **Property:** Vulture group; 13 unpatented claims, Stanley dist.; Obsidian. **Ore:** Lead-silver. **Men employed:** Average, 10. **Remarks:** A new organization which commenced development work during the year.

IVANHOE MINING CO.

Office: 485 California St., San Francisco, Cal. **Officers:** Harry L. Tevis, Pres.; William Letson, Sec., Both of San Francisco, Cal. **Inc.:** Filed in Idaho, July 28, 1909. **Capital:** 2500 shares; par value $1; all shares issued. **Property:** Badger group; 6 patented claims, Yankee Fork dist.; Clayton. **Remarks:** Idle for many years.

KAY DEVELOPMENT CO., INC.

Office: 253 Broadway, New York. **Officers:** Wayne Darlington, Pres.-Mgr., Mackay; Kenneth O'Brien, Sec., New York City. **Inc.:** March 17, 1924. **Capital:** 5000 shares; par value $100; all shares issued.

LIVINGSTON MINES CORPORATION

Office: 25 Broad St., New York. **Officers:** A. W. Walker, Pres.-Mgr., Mackay; L. M. Turner, Sec., New York. **Inc.:** July 23, 1923. **Capital:** 2,000,000 shares; par value $1. Capitalization increased on Sept. 21, 1926, to 3,000,000 shares; par value $1; all shares issued. **Property:** Livingston group; 7 patented, 16 unpatented claims, Boulder dist.; Mackay, 62 miles. **Development:** Principally by 7 tunnels, averaging from 200 to 2400 ft. in length; No. 2, or Livingston, tunnel is 2000 ft. long, in which are 3000 ft. of crosscuts and drifts. Total development on Livingston lode, approximately 22,000 ft. **Plant:** MINE: 3 electrically-driven compressors, a 12x14 Sullivan, a 10x10 I-R, and a 12x16 I-R; storage-battery locomotive haulage; complete mining equipment and mine camp; 3-mile aerial tramway connecting Livingston No. 2 tunnel with the mill. MILL: 300-ton concentrator, including flotation, Blake crusher, Symonds disc-crusher, Davis rolls, 2 6-ft. Hardinge ball mills, 6 Wilfley tables, Callow flotation, complete mill camp. POWER PLANT: 380-h. p. hydroelectric power plant, supplemented with a 250-h. p. I-R vertical Diesel engine; 8-mile electric transmission and telephone lines connecting power plant, mill and mine. **Ore:** Lead-silver. **Men employed:** Average, 93. **Remarks:** This company maintained the largest payroll of any mine in southern Idaho throughout the year. In addition to continuous production, it re-designed and rebuilt its mill, installed an electrically-driven hoist, sank a vertical shaft 400 ft. deep in No. 2 tunnel, performed a large amount of lateral development work, and maintained over 20 miles of its road. Ore is hauled by motor trucks from the mill to Mackay by an independent contractor.

LOON CREEK HYDRAULIC PLACER MINING CO., LTD.

Office: Judge Bldg., Salt Lake City, Utah. **Officers:** J. Frank Judge, Pres., John J. Harvey, Sec., both of Salt Lake City; John P. Boyle, Mgr., Stanley. **Inc.:** May 17, 1905. **Capital:** 300,000 shares; par value $1; all shares issued. **Property:** 4 unpatented placer claims, Loon Creek dist.; Stanley. **Plant:** 4000 ft. timber flume, 5 ft. wide and 3 ft. high; two-thirds of a mile of ditch; sawmill, and complete mine camp. **Remarks:** This company owns a large tract of placer ground suitable for hydraulic mining. Annual labor only.

LUCKY STRIKE MINING CO. NO. 1

Office: Hollister. **Officers:** Henry Jones, Pres.; A. F. Craven, Sec.; Ora Jones, Mgr., all of Hollister. **Inc.:** April 27, 1917. **Capital:** 500,000 shares; par value $1; 465,000 shares issued. **Property:** Lucky Strike group; 5 unpatented claims, Joe's Gulch, Stanley dist.; Stanley. **Development:** By 3 tunnels; total development approximately 1000 ft. **Ore:** Gold. **Remarks:** Idle.

MAC GINNISS-WALKER METALS CO.

Office: Room 1618, 25 Broad St., New York City. **Officers:** John MacGinniss, Pres.; James A. Dayton, Sec., both of New York; A. W. Walker, Mgr., Mackay. **Inc.:** May 25, 1925. Charter forfeited Nov. 30, 1928. **Capital:** 3,000,000 shares; par value $1; all shares issued.

WHY NOT GROUP

Property: 2 patented, 3 unpatented claims, Yankee Fork dist.; Clayton. **Development:** Principally by 1 tunnel, which is over 700 ft. long. **Ore:** Gold-silver. **Men employed:** Average, 4. **Remarks:** Work was maintained throughout the year in extending the principal tunnel, which is a crosscut.

PHI KAPPA GROUP

Property: Phi Kappa group, 1 patented, 8 unpatented claims; Alto dist.; Mackay. R. R. Ketchum, 15 miles. **Development:** By 2 tunnels: No. 1, 225 ft. long; No. 2, 2100 ft. long. **Plant:** Gas-driven compressor, complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Men employed:** Average, 6. **Remarks:** Continuous development throughout the year.

BLACK ROCK GROUP

Property: 17 unpatented claims on Big Fall Creek, Alto dist.; Mackay. **Development:** By 1 tunnel 250 ft. long. **Plant:** 2 gas-driven portable compressors and complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** Active development work throughout the year.

MACKAY METALS

Office: Mackay. **Officers:** Chase A. Clark, Pres.; W. E. Narkaus, Sec.-Mgr., both of Mackay. **Inc.:** June 4, 1928. **Capital:** 1,500,000 shares; par value $1; 1,400,000 shares issued. **Property:** Empire Copper group; 20 patented, 10 unpatented claims, Alder Creek dist.; Mackay. **Development:** Over 20 miles of underground workings, the principal entries being the Cossack and Alberta tunnels; the Cossack is 650 ft. below the Alberta tunnel; the principal shaft is the Empire, which is in the Alberta tunnel and extends 350 ft. below. **Plant:** MINE: Air-driven hoist; 20-drill, steam-driven Laidlaw-Dunn-Gordon compressor, and an aerial tramway 16,300 ft. long connecting mine with railroad. MILL: 200-ton concentrator, consisting of fine grinding and flotation. **Ore:** Copper-silver-gold. **Men employed:** Average, 100. **Remarks:** A new organization. The property was acquired in June, after which the mine, mine plant, and equipment were entirely rehabilitated and the mill was repaired. After this an active development campaign was started, part of which included prospecting by "long drill holes" . A large part of the mine was subleased, and during the closing months of the year ore produced by company and lessee operations was sufficient to maintain the mill on a 24-hour basis.

MONTE CRISTO GOLD MINES CO.

Office: Pocatello. **Officers:** C. A. Garrett, Pres.-Mgr.; E. W. Larsen, Sec., both of Pocatello. **Inc.:** March 19, 1917. **Capital:** 1,000,000 shares; par value $1; 680,789 shares issued. **Property:** Monte Cristo group; 10 unpatented claims, Loon Creek dist.; Clayton. **Development:** By 2 tunnels: No. 1, 340 ft. long; No. 2, 780 ft. long. **Ore:** Gold. **Remarks:** Annual labor only.

PHEMSPACE MINES CO.

Office: 721 Seventh St., Rochelle, Ill. **Officers:** E. M. Wagner, Pres., P. A. Wagner, Sec., both of Rochelle, Ill. **Inc.:** Jan. 3, 1906. **Capital:** 1,000,000 shares; par value $1; 70,000 shares issued. **Property:** Phemspace group; 14 unpatented claims, Stanley dist.; Stanley. **Development:** By 5 tunnels, totaling approximately 1400 ft.

PIG TAIL PLACER, INC.

Office: Twin Falls. **Officers:** Geo. R. Easley, Pres.-Mgr.; E. M. Sweeley, Sec., both of Twin Falls. **Inc.:** Mar. 30, 1928. **Capital:** 25 shares; no par value; 22 shares issued. **Property:** Pig Tail Placer group; 7 unpatented claims, Stanley dist.; Obsidian. **Ore:** Placer gold. **Men employed:** Average, 3. **Remarks:** Commenced work on installation of hydraulicking equipment during the summer months.

RAMSHORN MINES CO.

Office: 321 Felt Bldg., Salt Lake City, Utah. **Officers:** O. J. Salisbury, Pres.; C. B. Felt, Sec., both of Salt Lake City, Utah. **Inc.:** July 14, 1919. **Capital:** 150,000 shares; par value $10; all shares issued. **Property:** Ramshorn and Beardsley groups; 14 patented, 2 unpatented claims, Bay Horse dist.; Bay Horse. **Development:** Approximately 6½ miles of underground workings with 10 intermediate levels. **Plant:** MINE: Laidlaw-Dunn-Gordon duplex 13x8x10 compressor, electrically driven; complete mine equipment and camp. MILL: 60-ton fine grinding flotation, gyratory crusher; primary and secondary rolls; ball mill; Dorr classifier; Fagergren and Janney flotation cells; American vacuum filter; dryer. Entire mill electrically driven. **Ore:** Silver-copper, lead. **Men employed:** 10 lessees. **Remarks:** Property operated throughout the year by lessees, who produced and marketed a small tonnage of ore.

SALMON RIVER MINING CO.

Office: c|o Terre Haute Nat'l Bank & Trust Co., Terre Haute, Ind. **Officers:** John T. Beasley, Pres.; William K. Hamilton, Sec., both of Terre Haute, Ind. **Inc.:** July 6, 1910. **Capital:** 500,000 shares; par value $1; 400,000 shares issued. **Property:** Pacific group; 12 patented claims, Bay Horse dist.; Bay Horse. **Remarks:** Idle for 14 years.

SEAFOAM MINES CORPORATION

Office: 1903 Penn Ave., Pittsburgh, Pa. **Officers:** J. C. Hungerman, Pres.; George L. Lafbury, Sec., both of Pittsburgh, Pa. **Inc.:** Oct. 17, 1923. **Capital:** 500,000 shares; no par value; 350,000 shares issued. **Property:** 16 patented, 1 unpatented claim, Seafoam dist.; Stanley. R. R. Ketchum, 104 miles. **Development:** Total development approximately 2300 ft., the principal part of which is confined to the Silver King claim, where it opens the vein 200 ft. in depth. **Plant:** MINE: Electrically-driven 8x10 I-R compressor; steel sharpener; complete mining equipment; steam-driven saw-mill; mine camp consisting of a large boarding house, 2 two-story bunkhouses, and 10 residences. MILL: 50-ton amalgamation, including fine grinding and table concentration. POWER PLANT: 230-h. p. hydroelectric power plant, operating under a 270-ft. head through a 3400-ft. flume; 4-mile transmission line. **Ore:** Gold-silver-lead. **Men employed:** Average, 15. **Remarks:** 30 men were employed until July, at which time financial difficulties were encountered and all operations suspended. In November 3 men were employed in development work.

TWIN APEX MINES CO.

Office: 423 Ness Bldg., Salt Lake City. **Officers:** H. S. Brooks, Pres.; G. F. McGonagle, Sec.; A. G. Gutheil, Mgr., all of Salt Lake City. **Inc.:** Sept. 19, 1925. **Capital:** 1,000,000 shares; par value 5c; 730,000 shares issued. **Property:** Twin Apex group; 4 patented, 11 unpatented claims, on Squaw Creek, Bay Horse dist.; Clayton. **Development:** Principally by 2 tunnels: No. 2, 550 ft. long; No. 3, or crosscut, 1450 ft. long. **Plant:** Gas-driven 8x9 Sullivan compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 7. **Remarks:** Active work throughout the greater part of the year in extending No. 3 tunnel.

WHITE KNOB MINING CO.

Office: Newhouse Bldg., Salt Lake City, Utah. **Officers:** D. D. Muir, Jr., Pres.; W. W. Rager, Sec., both of Salt Lake City, Utah. **Inc.:** Aug. 23, 1919. **Capital:** 500,000 shares; par value $1; 127,510 shares issued. **Property:** White Knob group; 3 unpatented claims, Alder Creek dist.; Mackay. **Development:** Principally by 2 tunnels and 1 vertical shaft 250 feet deep. **Plant:** 40-h. p. gas-driven hoist. **Ore:** Lead-silver. **Remarks:** Operated by lessees who made a number of shipments during the year.

YANKEE FORK PLACER CO., LTD.

Office: 605 Eastman Bldg., Boise. **Officers:** James H. Hawley, Pres.; James H. Hawley, Jr., Mgr., both of Boise. **Inc.:** April 7, 1906. **Capital:** 400,000 shares; par value $1; all shares issued. **Property:** Bonanza group; 5 patented placer claims; 320 acres on Yankee Fork Creek, Yankee Fork dist.; Clayton.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
American et al.	Bay Horse	Ivie Bros.	Mackay
Alto Coppers	Alto	Hannah Donahue	Mackay
Andromeda et al.	Alder Creek	J. S. Taylor	Mackay
Annex et al.	Boulder	A. W. Walker	Mackay
Antler et al.	East Fork	Geo. Z. Blackmon	Clayton
Apex No. 2	Alto	N. B. Bauguess	Mackay
Arcade et al.	Yankee Fork	A. J. Franklin et al.	Stanley
Badger	Stanley	Henry Duffy	Stanley
Baldwin Placer	Yankee Fork	W. P. Fowler	Hailey
Barney Google et al.	Stanley	J. D. Smith	Twin Falls
Basin Creek Placer	Stanley Basin	W. K. Lynch	Stanley
Bellevue	Bay Horse	A. D. Sargent	Challis
Big Ben et al.	Alder Creek	John Bradshaw	Mackay
Big Chief	Alto	J. C. Martin	Mackay
Big Liz	Alder Creek	John Turner	Mackay
Birdie Girl	Seafoam	P. H. Rasche	Stanley
Bisbee et al.	Alder Creek	L. B. Laird	Mackay
Black Daisy	Alder Creek	Geo. R. Morgan	Mackay
Blossom Placer	Yankee Fork	Peter Burch	Bonanza
Blue Bird	Bay Horse	J. D. Sullivan	Clayton
Blue Bird	Alder Creek	W. Darlington, Agt.	Mackay
Blue Jay	Alder Creek	K. E. Barton	Mackay
Bob Cat	Bay Horse	Ralph Gianoli	Clayton
Boise et al.	Bay Horse	J. W. Calvin	Challis
Bristle et al.	Seafoam	E. M. Sweeley	Twin Falls
Broadway Gr.	Boulder	Ed. Hinze	Challis
B. R. S.	Seafoam	F. P. Richards	Mackay
Buckhorn et al.	East Fork	John R. Creist	Clayton
Buckskin	Alder Creek	H. P. Hunter	Mackay
Camp Bird et al.	Bay Horse	Jean E. Clark	Mackay
Camp Bird et al.	Alder Creek	Clyde Fishel et al.	Mackay
Carbonate	Alder Creek	Wm. Stevenson Est.	Mackay
Cash Box	Loon Creek	Geo. Bowden	Bonanza
Cave	Bay Horse	Chris Peterson	Bay Horse
Centennial et al.	Bay Horse	N. J. Churchill	Mackay
Chas. Dickens	Yankee Fork	Chase Clark	Mackay
Clemenson et al.	Alder Creek	H. B. Curtis	Mackay
Cold Spgs. et al.	Stanley	T. R. Green	Stanley
Columbia Standard	Alder Creek	George Manwaring	Salt Lake City, Utah
Consolidated	Alto	Hannah Donahue	Mackay
Copper Basin	Alder Creek	F. A. Stacy	Mackay
Copper Cut	Alto	E. W. Hovey	Mackay
Copper King et al.	Alder Creek	M. B. Jensen	Mackay
Copperopolis	Alder Creek	H. P. Hunter	Mackay

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Corn Gressor	Copper Basin	S. W. Anderson	Mackay
Corral et al.	Alder Creek	S. W. Anderson	Mackay
Crescent et al.	Alder Creek	Brown & Nolan	Mackay
Crown Point	Boulder	Antonio Yacomello	Clayton
Daisy et al.	Stanley	John R. Love	Stanley
Deer Trail	East Fork	Geo. Blackman	Clayton
Democrat et al.	Bay Horse	Mrs. Lee Watson	Challis
Dewey	East Fork	Andrew Nielson	Obsidian
Dixie Louise et al.	Alder Creek	E. C. Sims	Mackay
Dougherty	Bay Horse	E. A. Dougherty	Challis
Douglas et al.	East Fork	Evelyn R. Clark	Challis
Dryden	Bay Horse	E. D. Williams	Challis
Dry Hollow	Bay Horse	W. B. Swigert	Challis
East Boulder	Boulder	Ed Hinze et al.	Challis
East Butte	Bay Horse	Moses Le Fever	Clayton
East Star et al.	Alder Creek	Lars W. Johnson	Seafoam
Ella B. Gr.	Seafoam	A. R. Smith	Stanley
Enterprise	Yankee Fork	I. U. Hager	Mackay
Eureka	Bay Horse	A. M. Wilson	Challis
Flag Staff	Alder Creek	H. E. Gilbert	Mackay
Florence	Stanley	Henry Lund et al.	Stanley
Forest Bell	Yankee Fork	Chase A. Clark	Clayton
Forest Rose	Bay Horse	Pietro Pedrini	Challis
Golden Glow	Stanley	J. E. Smith	Stanley
Gold King	Alder Creek	Ed. Maelzer	Mackay
Gold Star et al.	Yankee Fork	B. W. Clark	Idaho Falls
Golden Gate	Yankee Fork	A. E. Eddy	Salt Lake, Utah
Good Enough	Bay Horse	Campbell & Strom	Clayton
Good Friend et al.	Bay Horse	John Ernst	Clayton
Greenhorn et al.	Seafoam	Chas. H. Smith	Stanley
Grey Copper	Bay Horse	John McConnell	Clayton
Grey Eagle	Yankee Fork	C. L. Kirtley	Challis
Head Light et al.	Bay Horse	Bob Campbell	Clayton
Hidden Treasure	Yankee Fork	J. A. Franklin, Agt.	Custer
Hillside	Bay Horse	Roy Huffman	Challis
Hohmann Placer	Stanley Basin	Walter K. Lynch	Stanley
Home Stake et al.	Bay Horse	Robt. E. Muir	N. Hollywood, Cal.
Horse Shoe	Alder Creek	Chas. Nolan, Adm.	Mackay
Howardy et al.	Boulder	Hitchcock & Bohlin	Clayton
Hummer	Yankee Fork	Chase A. Clark	Clayton
H-Y-U et al.	Alto	F. D. Sherry et al.	Mackay
Idaho Girl	Stanley	Robt. McAllister	Stanley
Idaho Gr.	Seafoam	Wm. Chevier	Stanley
Ideal et al.	Bay Horse	Clyde A. Torrey	Clayton
Independence et al.	Alder Creek	J. R. Kearns et al.	Mackay
International	Alder Creek	Hannah Donahue	Mackay
Iron Bog et al.	Alder Creek	C. H. Atha	Mackay
Joe Gulch	Yankee Fork	F. Georgetta	Clayton
Joe's Gulch Placer	Stanley Basin	W. W. Smith	Stanley
Joker et al.	Alder Creek	Eli & Dan Jonesch	Boise
Josephus Lake	Seafoam	E. H. Hasbrouck	Boise
Josie et al.	Bay Horse	Jack Ferguson	Challis
Katherine	Bay Horse	C. A. Torrey	Clayton
Kelly Gulch Placer	Stanley Basin	Henry Sturkey	Stanley
Keystone	Bay Horse	Wilson & Fox	Challis
Kingfisher et al.	Yankee Fork	Frank G. Fisher	Obsidian
Lake View et al.	Alder Creek	W. H. Warren	Mackay
Last Chance et al.	Bay Horse	L. A. Verbeck	Rupert
Last Resort	East Fork	Rosa V. Carman	Clayton
Left Wing	Bay Horse	E. J. Michael, Agt.	Challis

NAME OF MINE	MINING DIST	OWNER	P. O. ADDRESS
Little Jimmy	Alder Creek	P. A. Berg	Mackay
Lodge Pole	Lost Creek	A. L. Ball	Mackay
Lone Eagle et al	Alder Creek	John Finnegan	Mackay
Long Chance	Alder Creek	A. W. Jamieson	Mackay
Lookout	Bay Horse	W. B. Sullivan	Clayton
Lost Pegleg	Lost Creek	Carl Mann	Clayton
Lost Packer	Lost Creek	Henry Wren	734 E. 2d So. Salt Lake City
Lucky Boy	Yankee Fork	W. B. McDermott	Salt Lake City, U
Lucky Strike	Stanley	Henry Jones	Stanley
May Flower	East Fork	D. B. Fisher	Clayton
Morning Star	Alder Creek	Anthony Jury	Mackay
Mountain Girl	Stanley Basin	J. H. Thompson	Stanley
Mt. Owyhee No. 1	Alder Creek	G. W. Shaver	Mackay
Nancy Lee	Bay Horse	J. W. Dewey	Lemhi
Niagara	Seafoam	P. P. Richards	Mackay
Ohio Lode	Bay Horse	J. H. Palmer	Mackay
Oregon	Lost Creek	Josepha Eddy	Salt Lake City, U
Outlaw et al	Boulder	R. M. Rose	Clayton
Panama et al	Alder Creek	D. M. Hinton	Mackay
Peerless	Alder Creek	J. L. Campbell	Mackay
Pocket Gr	Sheep Mountain	J. A. May	Bruce
Polar Bear	Alder Creek	M. H. Vaught	Mackay
Post Office	Bay Horse	Antonio Buenaventura	Clayton
Ruby Queen	Bay Horse	Phillip Brun	Clayton
Rum Boy	Bay Horse	Oscar Metcalfe	Clayton
Sacramento	Stanley	Henry Lund	Stanley
Sandy Creek	Yankee Fork	G. W. Friend	Clayton
Sandy Summit et al	Bay Horse	Moses Le Fever	Challis
Sandy Sue et al	Stanley	P. H. Rankin	Stanley
Sheep Mountain	Seafoam	C. M. Rankin	Salt Lake City
Silver	Yankee Fork	A. J. Franklin	Stanley
Silver Belt	Alder Creek	Johnson & Haney	Mackay
Silver Bell	Bay Horse	Jas. H. Marker	Challis
Singer Gr	Sheep Mountain	W. H. Bruse	Bruse
Snowbird	Yankee Fork	Frank Cano	Challis
Snow Storm et al		Homer Granger	Pennsylvania
Solar Jr	Alder	Martin & Clark	Mackay
South Belle	Bay Horse	William McClure	Mackay
Spencer	Alder Creek	H. P. Hunter	Mackay
Square Deal	Bay Horse	M. E. Crawford	Clayton
Sun Rise	Alder Creek	P. A. Berg	Mackay
Sunrise et al	Lost Creek	J. T. Mendell	Clayton
Sunset Lode et al	Alder Creek	A. W. Anderson	Mackay
Tapper Gr	Alder Creek	Taylor & Mahan	Mackay
Tip Top	Alder Creek	Dan Mahan	Mackay
Tracy et al	Seafoam	A. B. Smith	Challis
Trinity	Bay Horse	M. S. Churchill	Mackay
Uncle Sam et al	East Fork	J. S. Ross	Challis
Unknown et al	East Fork	S. H. Van Meter	Challis
Waterhouse	Alder Creek	A. W. Anderson	Mackay
Wedge Gr	Alder	A. W. Wagner	Mackay
White Elephant	Alder Creek	Lewis Clark	Mackay
Wigwam	Yankee Fork	Aaron Franklin	Clayton
Wonderful	Bay Horse	Jno. D. Rowell	Challis
Yellow Jacket	Stanley	Ed. Martin	Stanley
Zaccheus	Bay Horse	D. J. Michael, Agt.	Challis

BIBLIOGRAPHY

See pages 13-14 for publisher's address, meaning of reference marks, and abbreviations.

The volcanic tuffs of Challis, Idaho, by A. A. Julian: Trans. New York Acad. Sci., vol. 1, pp. 49-53, **1882.**§

A geological reconnaissance across Idaho, by G. H. Eldridge: U. S. Geol. Survey, Sixteenth Ann. Rept., pt. 2, pp. 217-276, **1895.***

Central Idaho gold field, by Don Maguire: Mines and Minerals, vol. 19, pp. 289-291, February, **1899.***

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey, Twentieth Ann. Rept., pt. 3, pp. 75-256, **1900.***

The deepest mine in Idaho, the Ramshorn at Bay Horse, by R. N. Bell: Mines and Minerals, vol. 21, pp. 174-176, November, **1900.***

An outline of Idaho geology and of the principal ore deposits of Lemhi and Custer counties, by R. N. Bell: Proc. Int. Min. Cong. 4th sess., pp. 64-80, **1901.**§

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Thunder Mountain and Mackay, Idaho, by R. N. Bell: Min. and Sci. Press, vol. 84, p. 62, Feb. 1, **1902.***

An extinct glacier of the Salmon River Range, by G. H. Stone: Am. Geology, vol. 11, pp. 406-409, **1903.***

The Lost Packer copper-gold lode, by E. P. Jennings: Jour. Canadian Min. Inst., vol. 9, pp. 54-57, **1906;** Min. and Sci. Press, vol. 92, pp. 435-436, June 30, **1906;** Salt Lake Min. Review, Mar. 30, **1906.***

The White Knob copper deposits, Mackay, Idaho, by J. F. Kemp and G. G. Gunther: Trans. Am. Inst. Min. Eng., vol. 38, pp. 269-296, **1907.**§

Resources of Custer and Lemhi counties, Idaho: Salt Lake Min. Review, vol. 12, pp. 17-19, Mar. 15, **1911.**§

A preliminary account of the ore deposits of the Loon Creek district, Idaho, by J. B. Umpleby: U. S. Geol. Survey Bull. 530, pp. 66-74, **1911.***

Some ore deposits in northwestern Custer County, Idaho, by J. B. Umpleby: U. S. Geol. Survey Bull. 539, **1913.**‡

The genesis of the Mackay copper deposits, by J. B. Umpleby: Econ. Geology, vol. 9, pp. 307-358, June, **1914.**§

Ore deposits in the Sawtooth quadrangle, Blaine and Custer counties, Idaho, by J. B. Umpleby: U. S. Geol. Survey Bull. 580, pp. 221-249, **1915.**‡

The occurrence of ore on the limestone side of garnet zones, by J. B. Umpleby: University of California publications, Bull. Dept. of Geology, vol. 10, No. 3, pp. 25-37, Oct. 14, **1916.****

Geology and ore deposits of the Mackay region, Idaho, by J. B. Umpleby: U. S. Geol. Survey Prof. Paper 97, **1917.**‡

A reconnaissance of south central Idaho, embracing Thunder Mountain, Big Creek, Stanley Basin, Sheep Mountain, and Seafoam districts, by J. B. Umpleby and D. C. Livingston: Idaho Bureau of Mines and Geology Bull. 3, pp. 13-22, **1920.****

Brannerite, a new uranium mineral (Stanley Basin, central Idaho), by F. L. Hess: Franklin Inst. Jour., vol. 189, No. 2, pp. 225-237, February, **1920;** No. 6, pp. 779-780, June, **1920.****

Ground water in Pahsimeroi Valley, Idaho, by O. E. Meinzer: Idaho Bureau of Mines and Geology Pamphlet 9, **1924.****

The Livingston mine, Custer County, Idaho, by J. B. Stewart: Mining and Metallurgy, vol. 7, No. 233, pp. 223-224, May, **1926.**§

A geologic reconnaissance of Clark and Jefferson, and parts of Butte, Custer, Fremont, Lemhi and Madison counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 19, **1927.****

Ore deposits in Tertiary lava in the Salmon River Mountains, Idaho, by C. P. Ross: Idaho Bureau of Mines and Geology Pamphlet 25, **1927.****

ELMORE COUNTY

Elmore is one of the southwestern counties, being bounded on the south by Owyhee, on the west by Ada, on the north by Boise, and on the east by Blaine, Camas, and Gooding counties. A large part of the drainage basin of the Boise River is included within its 2808 square miles, which was accredited with a population of 5087 in the 1920 census. The chief industries are stockraising—principally sheep—farming, and mining.

The southern part of the county is served by the main line of the O. S. L. Railroad and the principal east-west State highway, the Old Oregon Trail; a well built and maintained system of county roads extends into all the various mining districts and sections. Mountain Home is the largest town and county seat.

The principal mineral resources are gold, silver, copper, lead, zinc, arsenic, molybdenum, diatomaceous earth, and potassium nitrate.

In past years this county was a noted producer of high-grade gold-silver ores and placer gold, particularly when the mines in the Atlanta and Rocky Bar districts were being worked. The placer ground which could be hydraulicked has long been exhausted, and the quartz mines have been dormant for years, having been closed down either through litigation, lack of power, or finances. These districts offer many opportunities to development companies and, since power is within easy reach from Featherville, there appears to be no reason why the mines are not receiving more attention.

The South Park Dredging Co. at Featherville continued operations until June, at which time they were temporarily suspended. This enterprise is a big factor in the welfare of the district and is attracting attention to the mineral resources and possibilities of this part of the State.

The Rocky Bar district witnessed no improvement over that of the previous year in the starting of new enterprises, and no work of any importance was performed.

The Atlanta district witnessed a little investigation, but no new enterprises were started. Other than repair work, the Boise-Rochester mine remained idle.

APEX GOLD MINING CO.

Office: Box 165, Nampa. **Officers:** Dr. J. C. Lay, Pres., M. A. Cook, Sec., both of Nampa. **Inc.:** Oct. 15, 1926. **Capital:** 400,000 shares; par value $1; all shares issued. **Property:** West Ophir group; 5 unpatented claims; Rocky Bar. **Development:** By 5 tunnels, totaling about 800 ft. **Ore:** Gold. **Remarks:** Annual labor only.

BLACKSTONE MINING CO., LTD.

Officers: James H. Hawley, Pres.; Charles W. Mack, Sec., both of Boise. **Inc.:** Dec. 26, 1899. **Capital:** 1,000,000 shares; par value 10c; shares issued, unknown. **Property:** 5 patented claims, Blackstone dist.; Hill City.

BLAKE'S GULCH GOLD MINING CO.

Office: Mountain Home. **Officers:** Seth Harris, Pres.-Mgr.; C. B. Clays, Sec., both of Mountain Home. **Inc.:** May 11, 1927. **Capital:** 100,000 shares; par value $1; 63,400 shares issued. **Property:** Commonwealth group; 2 unpatented claims, Bear Creek dist.; Rocky Bar. **Development:** By 2 tunnels: No. 1, 227 ft.; No. 2, 600 ft. **Plant:** Gas-driven compressor. **Ore:** Gold. **Men employed:** Average, 2. **Remarks:** Active work throughout the year.

CONSOLIDATED MINES SYNDICATE

Office: 623 First Nat'l Bank Bldg., Boise. **Officers:** Frank E. Johnesse, Pres.-Mgr.; Wm. MacLeod, Sec., both of Boise. **Inc.:** May 6, 1924. **Capital:** 10,000 shares; no par value. On Aug. 15, 1924, the capitalization was changed to 10,000,000 shares, $2.50 par value; and on May 2, 1925, capitalization was decreased to 10,000,000 shares, par value $1; 2,449,004 shares issued. **Property:** Revenue group; 11 unpatented claims, Volcano dist.; Hill City. **Remarks:** Idle.

DALEY CONSOLIDATED MINES CO.

Office: Mountain Home. **Officers:** Daniel Reber, Pres.-Mgr.; Max Wagener, Sec., both of Mountain Home. **Inc.:** Nov. 1, 1913. Charter forfeited Nov. 30, 1927. **Capital:** 1,500,000 shares; par value $1; 1,200,000 shares issued. **Property:** Daley group; 50 unpatented claims, Dixie, unorganized dist.; Bennett. **Development:** Approximately 4500 ft. of underground workings, the principal of which are: A tunnel 1800 ft. long; a vertical shaft 100 ft. deep; and an inclined shaft 460 ft. long with 5 intermediate levels. **Plant:** Two 40-h. p. boilers; steam-driven hoist and compressor; complete mining equipment and camp. **Ore:** Gold-lead-silver. **Remarks:** Annual labor only.

FRANKLIN CONSOLIDATED GOLD MINES CO.

Office: Box 1262, Boise. **Officers:** John J. Stanford, Pres., Spokane, Wash.; Fred T. Kelly, Sec.-Mgr., Boise. **Inc.:** Dec. 22, 1925. **Capital:** 1,250,000 shares; par value $1; 634,400 shares issued. **Property:** Franklin group; 2 patented, 4 unpatented claims, held under lease and option, Pine Grove dist.; Pine. **Development:** Approximately 3000 ft. of underground workings, the principal of which is No. 3 tunnel, 860 ft. in length. **Plant:** An old 10-stamp mill including cyanide equipment. **Ore:** Gold. **Men employed:** Average, 2. **Remarks:** Owing to litigation, only the necessary annual labor was performed.

GAS DOME OIL CO.

Office: 222 Eastman Bldg., Boise. **Officers:** A. Beverly Howard, Pres.-Mgr., Boise; Freda Maxwell, Sec., Buhl. **Inc.:** June 20, 1927. **Capital:** 500,000 shares, par value $1; 153,125 shares issued. **Property:** Oil and gas leases on patented farm lands near Hammett. **Mineral sought:** Oil and gas.

GEORGE F. ROTH CO.

Office: P. O. Box 147, Rochester, N. Y. **Officers:** Walter J. Duffy, Sec., Rochester, N. Y. **Inc.:** June 17, 1909. **Capital:** 2500 shares; par value $100; 2102 shares issued. **Property:** Homestake group; 7 patented, 3 unpatented claims, Neal dist.; c|o Mayfield Stage, Boise. **Ore:** Gold. **Remarks:** Idle.

IDAHO GOLD CORPORATION

Office: Rocky Bar. **Officers:** George Graham Rice, Pres.; Rose McKernan, Sec., both of New York City; Norman D. McLeod, Mgr., Rocky Bar. **Inc.:** July 10, 1923. Charter forfeited Nov. 30, 1928. **Capital:** 5,000,000 shares; par value 10c; shares issued, unknown. **Property:** 41 unpatented claims, Bear Creek dist.; Rocky Bar. **Development:** By 3 tunnels. **Ore:** Gold.

LA TRINIDAD MINING CO.

Office: Las Vegas, Nev. **Officers:** E. P. Jeanes, Pres., J. F. Hesse, Sec., both of Las Vegas, Nev. **Inc.:** Filed in Idaho Sept. 9, 1926. **Capital:** 2,500,000 shares; par value $1; 1,500,000 shares issued. **Property:** Black Warrior Placers; 12 unpatented claims, held under lease and option; Black Warrior dist.; Atlanta. **Plant:** Saw-mill and complete hydraulic mining equipment. **Ore:** Placer gold. **Men employed:** Average, 4. **Remarks:** Small amount of work in the summer months. During the closing part of the year difficulties were encountered and the company was being reorganized as Black Warrior Mines, Inc.

LITTLE QUEEN GROUP

Owner: E. F. Money, 937 34th St., Seattle, Wash. **Inc.:** Not incorporated. **Property:** 3 unpatented claims, Middle Boise dist.; Atlanta. **Development:** Principally by 1 tunnel 100 ft. long. **Plant:** 7-ton Ellis mill and amalgamation. **Ore:** Gold. **Remarks:** Small amount of work during the year.

MARSH CREEK MINING CO.

Officers: Roy Y. Bogard, Pres.-Mgr., Burns, Ore.; Curtis F. Pike, Sec., 1317 Idaho St., Boise. **Inc.:** July 9, 1921. **Capital:** 1,000,000 shares; par value $1; 39,985 shares issued. **Property:** 2 unpatented claims on Marsh Creek, Bear Creek dist.; Featherville.

NORTHWESTERN DEVELOPMENT CO.

Office: P. O. Box 1035, Boise. **Officers:** William Williams, Pres.-Mgr.; Geo. L. Fleharty, Sec., both of Boise. **Inc.:** April 30, 1927. **Capital:** 1,500,000 shares; par value $1; 900,000 shares issued. **Property:** 5 groups of unpatented placer claims on Boise River; unorganized dist.. **Ore:** Placer gold.

OMO MINES CORPORATION

Office: 326 Lindelle Blk., Spokane, Wash. **Officers:** J. T. Omo, Pres.-Mgr.; Alfred Hage, Sec., both of Spokane. **Inc.:** Jan. 19, 1926, as Omo Mining & Leasing Co., name changed March 3, 1926. **Capital:** 2,000,000 shares; par value 5c; 1,400,000 shares issued. **Property:** Mountain View group; 3 unpatented claims held under lease and option; Pine Grove dist.; Pine. **Ore:** Gold. **Men employed:** Average, 3. **Remarks:** A small amount of work during the summer months, funds being derived from stock assessments.

SOUTH PARK DREDGING CO.

Office: 351 California St., San Francisco, Cal. **Officers:** W. P. Hammon, Pres.; A. L. Dahl, Sec., both of San Francisco, Cal. **Inc.:** Sept. 12, 1921. **Capital:** 50,000 shares; no par value; all shares issued. **Property:** 1100 acres of dredging land on Feather River, Featherville dist.; Featherville. **Plant:** Yuba dredge, 9-cu.-ft. buckets, close connected. The hull is constructed entirely of Oregon fir, 105 ft. long with 44 ft. 7 in. beam, 10 ft. deep, drawing 7 ft. water. The bucket line is composed of 67 buckets connected with pins weighing 150 lbs. each; the buckets weigh approximately 2000 lbs. each. The digging ladder is of the plate girder type, 75 ft. long and weighs approximately 50 tons. The lower tumbler is round and spool shaped; the upper tumbler is hexagonal. The tailing stacker is 124 ft. long and provided with a 36 in. conveyor belt. The entire dredge is electrically driven, 520 h. p. being required, and is operated from the winch room. The pump capacity is 5000 gallons per minute. **Ore:** Placer gold. **Men employed:** Average, 20. **Remarks:** Construction work was started in October, 1921, and the dredge commenced digging on August 21, 1922; a very remarkable record, as the entire dredge had to be transported 43 miles over rough mountain roads. In addition to building the dredge, a power line 43 miles long from Mountain Home to the dredge was built. The entire plant, including power line, involved an expenditure of over half a million dollars before a wheel was turned. In June, 1928, operations were temporarily suspended.

STANLEY-FIVE BARS MINING CO.

Office: P. O. Box 1368, Boise. **Officers:** O. O. Haga, Pres.; H. M. Jeffrey, Sec., both of Boise. **Inc.:** Sept. 8, 1925. **Capital:** 25,000 shares; par value $1; 20,000 shares issued. **Property:** Five Bars group; 4 unpatented placer claims, Middle Boise dist.; Atlanta.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Ada Elmore Gr.	Bear Creek	Grant McCargo	Pittsburgh, Pa.
Alice et al.	Bear Creek	R. Y. Bogard	Burns, Ore.
Alma Placer Gr.	Bear Creek	R. A. Peck	Rocky Bar
April Fool	Middle Boise	J. C. Birdwell	Atlanta
Avis et al.	Pine Grove	Ray J. Allison	Pine
Badger No. 1	Neal	Chas. Fell	R. D. 5, Boise
Badger et al.	Neal	John T. Hammack	R. D. 5, Boise
Baltimore et al.	Middle Boise	Robt. B. Browne	Atlanta
Bear Gr. et al.	Bear Creek	F. M. Dodge	Rocky Bar
Ben Hur	Bear Creek	E. W. Lothrop	Mountain Home
Benton Gr.	Middle Boise	G. L. Bixby	Atlanta
Big Five et al.	Bear Creek	Frank Bayhouse	Boise
Big Four et al.	Bear Creek	Rupert Winters	Featherville
Big Lode	Middle Boise	Frank T. Wyman	Boise
Bird Gr.	Pine Grove	Mrs. Alice M. Reecy	Mountain Home
Black Diamond	Bear Creek	Clara R. Brassch	Mountain Home

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Black Ribbon	Bear Creek	E. C. Helfrich	Mountain Home
Black Warrior	Bear Creek	C. H. Allison	Beverly Hills, Cal.
Bobolink et al.	Bear Creek	Walter Walsh	Rocky Bar
Boise Bar	Middle Boise	Thomas Walker	Atlanta
Boise-Rochester	Middle Boise	Jas. W. Stewart	Atlanta
Bonanza et al.	Bear Creek	Chas. Wyatt	Rocky Bar
Bonaparte Gr.	Bear Creek	Rupert Winters	Featherville
Bonnie Annie Gr.	Pine Grove	B. F. Skelton	Pine
Bowerman	Volcano	M. R. Wood	606 Marion St., Seattle, Wash.
Brooklyn et al.	Bear Creek	Louise A. S. Allen	Rocky Bar
Cabin Claim	Middle Boise	Chester W. Rose	Glenns Ferry
Capital et al.	Middle Boise	John Bell	Atlanta
Cock Robin et al.	Bear Creek	Walter Walsh	Rocky Bar
Colorado et al.	Bear Creek	Francis M. Nixon	Rocky Bar
Cornucopia et al.	Neal	John Hermo	427 Thatcher St., Boise
Debs Gr.	Bear Creek	J. C. Edwards	Rocky Bar
Doolittle Gr.	Bear Creek	Elmer C. Towne	Rocky Bar
Edna et al.	Bear Creek	E. C. Helfrich	Mountain Home
Eureka	Twin Springs	W. L. West	Twin Springs
Evelyn	Bear Creek	Marion House	Mountain Home
Flagstaff et al.	Bear Creek	Francis M. Nixon	Rocky Bar
Forest King et al.	Bear Creek	Mrs. E. Tregonning	Box 893, Boise
Fourth of July	Middle Boise	Grant Wilson	Atlanta
Gold Bug et al.	Bear Creek	Chas. Wyatt	Rocky Bar
Gold Eagle	Neal	C. C. Anderson	Boise
Gold Gate No. 2	Bear Creek	Irving Brooks	Rocky Bar
Gold Key	Bear Creek	Ah Sing	Rocky Bar
Gold King Gr.	Middle Boise	Harry Teskey	Atlanta
Granby et al.	Middle Boise	G. L. Bixby	Atlanta
Gray Warrior et al.	Middle Boise	P. M. Swan	Atlanta
Greenback	Middle Boise	H. D. Gracey	Atlanta
Gunny Sack Gr.	Middle Boise	John Timmons	Atlanta
Hazel Queen	Middle Boise	L. N. Franke	Atlanta
Humming Bird	Middle Boise	Jas. A. Comer	Atlanta
Jericho Gr.	Middle Boise	Fritz Scholl	Atlanta
Kierman Gr.	Bear Creek	Dan Kirby	Boise
Keystone et al.	Featherville	E. N. Stone	Featherville
Kitty Hicks	Neal	J. F. Wilson	Mayfield
Last Chance	Pine Grove	Chas. V. Price	Pine
Last Chance et al.	Middle Boise	Frank E. Erickson	Atlanta
Last Chance	Twin Springs	Cyrus H. Pickens	Twin Springs
Little Joker Pl.	Featherville	A. W. Stevens	Boise
Middle Boise et al.	Black Warrior	Max Mayfield	Boise
Middle Boise Lode	Middle Boise	Thomas Walker	Atlanta
Midnight Pl.	Snake River	H. S. Olson	Glenns Ferry
Minnehaha Pl.	Bear Creek	Frank Galbraith	Rocky Bar
Monarch	Middle Boise	Dan Kirby	913 Hays St., Boise
Montezuma Pl.	Middle Boise	Dick Miller	Atlanta
Mountain View	Featherville	E. N. Stone	Featherville
Mountain View	Pine Grove	Fred Skelton	Pine
New Century	Middle Boise	Henry Button	Atlanta
Northwestern	Bear Creek	W. N. Nixon	Rocky Bar
Old Oliver Diggins	Middle Boise	A. S. Longwill	Atlanta
Ontario	Bear Creek	Mary A. Lison	Boise
Ophir	Bear Creek	Elmer C. Towne	Rocky Bar
Overland et al.	Bear Creek	S. Howard	Pine
Owens Gr.	Pine Grove	Thos. Potter	Pine
Piney Gr.	Middle Boise	J. C. Birdwell	Atlanta
Pittsburgh Gr.	Bear Creek	Mrs. Emily Frew	Pittsburgh, Pa.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Queen River Pl.	Middle Boise	Fred Felix	Atlanta
Red Warrior	Bear Creek	Frank Pon	Rocky Bar
Rosetta Gr.	Bear Creek	Barnsdale Corp.	Rocky Bar
Silver Horde	Middle Boise	W. T. Burnett	Atlanta
Silver Star Gr.	Pine Grove	May Larson	Pine
Silver Tide et al.	Middle Boise	Frank L. Erickson	Atlanta
Sunrise	Twin Springs	John Vaughn	Twin Springs
Sunrise Gr.	Bear Creek	Wm. H. Stowell	Spokane, Wash.
Sunshine et al.	Bear Creek	E. C. Helfrich	Mountain Home
Sunny Side	Pine Grove	Monroe E. Shraft	Pine
Tahoma No. 3	Middle Boise	J. Steunenberg Est.	Boise
Tekla et al.	Featherville	Paul V. Lambrix	Featherville
Trinity Gr.	Featherville	M. E. Rineback	Featherville
Tumble Bug	Bear Creek	Walter Walsh	Rocky Bar
Uncle Ben	Bear Creek	B. J. Nordyke	Featherville
Uncle Sam Gr.	Pine Grove	May Larson	Pine
Verdun Gr.	Pine Grove	W. R. Deckard	Pine
Vibrator Gr.	Bear Creek	Elmer C. Towne	Rocky Bar
White Bird et al.	Bear Creek	Otis Howard	Rocky Bar
Wide West	Bear Creek	John J. Allen	109 Montague St., Brooklyn, N. Y.
Wonder	Pine Grove	Lou Roberts	Pine
Yuba Gold Chest	Middle Boise	C. W. Joy	Emmett

BIBLIOGRAPHY

See pages 13-14 for publisher's address, meaning of reference marks, and abbreviations.

Atlanta district, by J. E. Clayton: Trans. Am. Inst. Min. Eng., vol. 5, pp. 468-473, February, **1887.**§

A geological reconnaissance across Idaho, by G. H. Eldridge: U. S. Geol. Survey, Sixteenth Ann. Rept., pt. 2, pp. 217-276, **1895.***

The Atlanta lode, Idaho, by J. B. Hastings: Eng. and Min. Jour., vol. 59, p. 128, Feb. 9, **1895.**§

Mining districts of the Idaho Basin and the Boise Ridge, Idaho, by Waldemar Lindgren: U. S. Geol. Survey, Eighteenth Ann. Rept., pt. 3, pp. 625-736, **1898.***

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey, Twentieth Ann. Rept., pt. 3, pp. 75-256, **1900.***

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Geology of southwestern Idaho, and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Bull. 217, **1903.**‡

Atlanta gold district, by R. N. Bell: Eng. and Min. Jour., vol. 86, pp. 176-177, July 25, **1908.**§

Rich gold ore found in Idaho, by R. N. Bell: Eng. and Min. Jour., vol. 102, pp. 783-785, Oct. 28, **1916.**§

Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 60, art. 3, pp. 1-33, **1921.**‡

A preliminary reconnaissance of the gas and oil possibilities of southwestern and south-central Idaho, by J. P. Buwalda: Idaho Bureau of Mines and Geology Pamphlet 5, **1923.****

Molybdenite in the Rocky Bar district, Idaho, by F. C. Schrader: U. S. Geol. Survey Bull. 750, pp. 87-99, **1924.**‡

Ground water for irrigation on Camas Prairie, Camas and Elmore counties, Idaho, by A. M. Piper: Idaho Bureau of Mines and Geology Pamphlet 15, **1926.****

Geology and ore deposits of the Rocky Bar quadrangle, by S. M. Ballard: Idaho Bureau of Mines and Geology Pamphlet 26, **1928.****

FREMONT COUNTY

Coal, phosphate rock, oil shale, and asbestos occur in different sections of this county. The occurrence of coal in commercial quantities in the northeastern corner of the county has been reported, but these deposits are too far removed from transportation to be available. The other deposits have never been sufficiently developed to prove their extent.

BIBLIOGRAPHY

See pages 13-14 for publisher's address, meaning of reference marks, and abbreviations.

Fifth, Sixth and Eleventh Ann. Repts., U. S. Geol. and Geog. Survey of the Territories, by F. V. Hayden, **1871, 1873,** and **1879.***

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Guidebook of the western United States, by W. T. Lee and others: U. S. Geol. Survey Bull. 612, pp. 114-147, **1915.**‡

Coal in eastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 716, pp. 123-153, **1920.**‡

Oil shale in western Montana, southeastern Idaho and adjacent parts of Wyoming and Utah, by D. D. Condit: U. S. Geol. Survey Bull. 711, pp. 15-40, **1920.**‡

Geology and water resources of the Mud Lake basin, Idaho, by H. T. Stearns and L. L. Bryan: U. S. Geol. Survey Water-Supply Paper 560-D, **1925.**‡

A geologic reconnaissance of Clark and Jefferson, and parts of Butte, Custer, Fremont, Lemhi and Madison counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 19, **1927.****

GEM COUNTY

Gem is one of the smallest counties in area in the State, but one of the largest in population per square mile. Its area is 567 square miles, and the 1920 census credited it with a population of 6427, or 11.3 persons per square mile. The chief industries are fruit growing, farming, and livestock. It is particularly noted for its fruit farming, which is confined to the valley of the Payette River, which flows westerly through the southern end of the county.

It is one of the southwestern counties, being bounded by Ada, Canyon, Payette, Washington, Adams, Valley, and Boise counties. The drainage basin of Squaw Creek and twenty-five miles of the Payette River valley make up the larger part of its area. Emmett, the county seat and only settlement of importance, is near the center of the southern part of the county.

The county is served by a good system of locally maintained roads and by the Nampa-McCall and Payette-Emmett branches of the O. S. L. Railroad.

The Pearl district, once a famous gold-producing camp, and a few undeveloped sections where a small amount of prospecting has been done, are the only mineralized areas in the county. The principal minerals occurring in these districts are gold, silver, lead, zinc, copper, and arsenic. Gold predominates, and occurs in a free-milling quartz and combined with the sulphides of lead, zinc, and iron. The deposits containing the complex sulphide ore are of commercial importance and have not been mined, as transportation and the metallurgical methods in use at the time the Pearl district was active prevented profitable operations. The sulphide ores are amenable to modern flotation methods, and, as there is a large tonnage in many of the old mines that are lying dormant, they will again become profitable operations when properly equipped, financed, and managed.

During the year much publicity was given to the possibility of finding petroleum in this county.

The only active mine in this county was the Lincoln Mine Operating Co., which controls the famous old Lincoln mine at Pearl. This company maintained a pay roll of 20 men throughout the year, unwatered and repaired the 600-foot vertical shaft, and performed a small amount of development work.

COOPERATIVE OIL EXPLORATION FUND

Office: Boise. **Officers:** Paul G. Savic, Trustee, Boise. **Inc.:** Trust agreement. **Property:** Oil and gas leases on approximately 5000 acres of patented land near Letha. **Mineral sought:** Oil and gas. **Remarks:** A small amount of exploratory work by diamond drilling was performed under contract.

FELIX MINING CO.

Office: Boise. **Officers:** T. J. Jones, Pres.-Mgr., Boise. **Inc.:** July 25, 1917. **Capital:** 500 shares; par value $10; all shares issued. **Property:** Felix group; 5 patented claims, West View dist.; Pearl.

GRANITE STATE CONSOLIDATED MINES CO.

Office: 242 Water St., Augusta, Maine. **Officers:** G. R. Chadbourne, Augusta, Maine; H. W. Dorman, Sec., Boise. **Inc.:** June 23, 1914. **Capital:** 3,000,000 shares; par value $1; 2,113,664 shares issued. **Property:** Granite State group; 20 patented, 16 unpatented claims, West View dist.; Pearl. **Development:** Principally by 1 tunnel 2300 ft. long. **Remarks:** Annual labor only on unpatented claims.

JOHNSON MINING CO.

Office: 1220 N. 11th St., Boise. **Officers:** J. C. Johnson, Pres., Boise. **Inc.:** Dec. 27, 1905. **Capital:** 300,000 shares; par value $1; all shares issued. **Property:** 1 patented claim, West View dist.; Pearl.

LINCOLN MINE OPERATING CO.

Office: Pearl. **Officers:** Wm. I. Phillips, Pres., Miami, Fla.; M. W. Hallam, Sec.; H. P. Taylor, Mgr., both of Pearl. **Inc.:** May 20, 1926. **Capital:** 1,000,000 shares; par value 25c; all shares issued. **Property:** Lincoln group; 3 patented, 6 unpatented claims, held under lease and option from Alexander Lewis, 115 Broadway, New York. West View dist.; Pearl. **Development:** By 2 vertical shafts, one of which is 540 ft. deep; total development, approximately 8000 ft. **Plant:** MINE: 2 electrically-driven hoists, complete mining equipment. MILL: 100-ton concentrator, including flotation. **Ore:** Gold-silver-lead. **Men employed:** Average, 20. **Remarks:** During the early part of the year the main shaft was unwatered and repaired, after which a large amount of exploratory work was performed on the intermediate levels.

NEW LIBERTY MINING CO.

Office: Box 1368, Boise. **Officers:** E. Sweet, Pres., Sweet. **Inc.:** Jan. 14, 1926. **Capital:** 450,000 shares common, par value $1; 50,000 shares preferred, par value $1; 450,000 shares issued. **Property:** Old Liberty group; 4 patented claims, Squaw Creek dist.; Sweet.

OLD LIBERTY MINING CO.

Office: Box 1368, Boise. **Officers:** E. Sweet, Pres., Sweet. **Inc.:** Sept. 6, 1911. **Capital:** 250,000 shares common, par value $1; 300 shares preferred, par value $100; all shares issued. **Property:** Old Liberty group; 4 patented claims, Squaw Creek dist.; Sweet.

SOUTH LINCOLN GROUP

Owner: J. A. McGowen, Portland, Ore.; H. W. Dorman, Agt., Boise. **Inc.:** Not incorporated. **Property:** South Lincoln group; 3 unpatented claims, West View dist.; Pearl.

YELLOW GOLD PLACER CO.

Office: Mountain Home. **Officers:** Ernest Tacha, Pres.; Hetta M. Tacha, Sec.; Edward N. Crawford, Mgr., all of Mountain Home. **Inc.:** May 16, 1927. **Capital:** 500,000 shares; par value $1; 15,101 shares issued. **Property:** Lease on 320 acres of farm land, West View dist.; Pearl. **Remarks:** Active stockselling campaign throughout the year.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Apache	West View	Jas. H. Hawley	Boise
Black Jack	West Mountain	Edgar McFadden	Nampa
Black Pearl	West View	H. W. Dorman	Boise
Burton Bell	West View	John Ackley	Boise
Checkmate	West View	E. K. Hayes	Emmett
Dark Horse	West View	Ed. H. Peasley	Boise
Dewey	West View	E. H. Dewey	Nampa
Double Eagle Gr.	West View	Mrs. C. N. Boone	Box 1177, Boise
Gem	West View	H. W. Dorman	Boise
Golden Age	West View	Lot Feltham	Weiser
Hi Henry	West View	C. G. Conn	Elkhart, Ind.
I X L	West View	H. W. Dorman	Boise
Kentuck	West View	H. W. Dorman	Boise
King Gr.	West View	H. J. C. Graveley	Boise
King Tut Gr.	West View	Warren L. Mace	Boise
McCarty	West View	Scott Anderson	Boise
Middleman	West View	J. C. Johnson	Boise
Morning Glory	West View	E. J. Thorpe	Pearl
Oxford	West View	J. C. Dunbar	Pearl
Silver Wreath	West View	Fremont Wood	Boise
Virginia Mines	West View	G. L. Loope	Seattle, Wash.
White Sapphire Gr.	West Mountain	Geo. H. Storm	Van Nuys, Calif.
Wolverine	West View	H. B. Williams	Portland, Ore.

BIBLIOGRAPHY

See pages 13-14 for publisher's address, meaning of reference marks, and abbreviations.

Description of the Boise quadrangle, by Waldemar Lindgren: U. S. Geol. Survey Geol. Atlas, Folio No. 45, **1898.***

Mining districts of the Idaho Basin and the Boise Ridge, Idaho, by Waldemar Lindgren: U. S. Geol. Survey, Eighteenth Ann. Rept., pt. 3, pp. 625-736, **1898.***

The gold and silver veins of Silver City, De Lamar and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey, Twentieth Ann. Rept., pt. 3, pp. 75-256, **1900.***

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Description of the Nampa quadrangle, by Waldemar Lindgren and N. F. Drake: U. S. Geol. Survey Geol. Atlas, Folio No. 103, **1914.***

A preliminary reconnaissance of the gas and oil possibilities of southwestern and south-central Idaho, by J. P. Buwalda: Idaho Bureau of Mines and Geology Pamphlet 5, **1923.***

GOODING COUNTY

Placer gold, which is found in the gravel bars and sand along the Snake River, constitutes the only mineral resource of this county. These deposits are worked in a limited manner, and generally return the operator a fair profit on his labor.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Big Body Placer	Snake River	John Criswell	Clear Lake
Black Butte Placer	Snake River	A. S. Madalena	Clear Lake
Boulder Hill Placer	Snake River	Charles N. Ingersoll	Bliss
Brown Placer	Snake River	C. E. Jenkins	Hagerman
.....Pl.	Snake River	H. C. Bryant	Hagerman
....Pl.	Snake River	Hand & Seburn	Hagerman
Zeolite Gr.	Unorganized	Geo. H. Chaffin	Gooding

BIBLIOGRAPHY

See Snake River Gold under General Bibliography.

IDAHO COUNTY

This county occupies a vast region about midway between the northern and southern boundaries of the State, extending from Montana, on the east, to Oregon, on the west. It is bounded on the north by Nez Perce, Lewis, and Clearwater counties, on the east by the State of Montana, on the south by Lemhi, Valley, and Adams counties, and on the west by the State of Oregon. It contains 8539 square miles, or an area which is larger than the combined areas of the States of Rhode Island, Delaware, and Connecticut. The 1920 census accredited it with a population of 11,749, or 1.4 persons to the square mile. The larger part of the population is located on Camas Prairie, a table-land of about 400 square miles. The chief industries are farming, principally wheat, for which Camas Prairie is famous; stockraising, and mining.

The western part of the county is served by the North and South State Highway, which extends from the southern to the northern boundary, and by the Elk City and Lewis & Clark highways, which are partly constructed. Its railroads are the Lewiston-Stites branch of the Northern Pacific Railroad, and the Lewiston-Grangeville branch, which is owned jointly by the Union Pacific and Northern Pacific railroads. Both these railroads serve Camas Prairie, or the northwestern part of the county. Grangeville is the largest town and county seat.

Idaho County is the largest in the State in area, and one of the greatest in diversity of mineral resources and mining opportunities. The principal metals and minerals which occur in sufficient extent to be of commercial importance are gold—placer and lode—silver, copper, lead, zinc, antimony, tungsten, asbestos, molybdenum, talc, and mica.

During the early days of Idaho this county was one of the largest gold-producing districts in the United States, and at the present time it offers more possibilities for profitable gold mining than any other section. Many of the millions produced during those days were won from placer deposits which occur in practically all the 17 mining districts within the county. Excepting the flat land and river bottoms, which are suitable for dredging, and which fully justify investigation, practically all the placer mines are exhausted.

The greatest handicap which the county is compelled to undergo is the lack of transportation, and under present road conditions only the highest grade free-milling ores can be successfully handled. Railroads into the various mining districts are a far removed possibility; however, a good automobile or motor truck road would serve to open many of the districts which are now dormant.

Much of the ore is a free-milling gold, and if not, a high-grade concentrate can be made which will permit a long haul. The latter statement applies particularly to the ores of the Ten Mile, Orogrande, Elk City, Buffalo Hump, and Dixie districts. The highway from Harpster to Elk City up the South Fork of the Clearwater River will make all these districts accessible by a water grade road, and their development will soon follow. This highway is one of the most meritorious projects in the State, and everyone interested in mining in these districts is looking forward to its early completion. In July, 1926, the prospectors and companies holding unpatented claims in the Elk City, Orogrande, Dixie, and Buffalo Hump districts voted to do their annual labor on this road. As a result of their faith in these districts, over six miles of road and a bridge crossing the Red River were constructed on the Elk City end. The lower end of the road was extended a distance of eight miles during 1928.

A gradual return to more normal conditions, under which gold mining is again becoming profitable, affected this county during the year by a small substantial increase in mining operations, investigations, new enterprises and increased production. The most important of these was the resumption of operations by the Unity Gold Mines Co., which remodeled its mill, adding

flotation cells, and performed a large amount of new development work in addition to operating the mill throughout the greater part of the year. An important production from a new mine was that from the Lone Pine group at Golden, Ten-Mile district, which is owned by F. O. Miller and son; they remodeled their 2-stamp mill, constructed new camp buildings, performed a large amount of development work, and marketed a substantial amount of bullion. A new enterprise of importance is the Golden Anchor Mining Co., which purchased the Holte mine in the Marshall Lake district, constructed a small hydroelectric power plant, and commenced driving a long crosscut tunnel which will intersect the Holte vein at a substantial depth below the present workings.

The Buffalo-Idaho Mining Co. at the Mackey group in the Ten-Mile district, the Garner Electric Range Co., developing a talc property near Pollock on the Little Salmon River, and the Moose Creek Placers Co. at Elk City were active throughout the year. The principal development of importance in the Elk City district was that of George Henton, who was actively engaged in churn-drilling extensive placer ground in that vicinity. The results of this work were satisfactory, a company has been organized, and an additional drill will be installed early in 1929, that all of the ground may be prospected at an early date, in anticipation of the construction of a large dredge. The Salmon River Development Co., whose enterprise is based on the recovery of black sand from the bars of the Salmon River, commenced the construction of a large flume to convey the waters of Lake Creek to the ground it proposes to mine.

ABBA CORPORATION

Office: 128 Broadway, New York City. **Officers:** Henry W. Allen, Pres.; Charles H. Suhl, Sec., both of New York City. **Inc.:** Mar. 6, 1926. **Capital:** 50,000 shares; par value $1; 45,750 shares issued. **Property:** 4 patented claims, Warren dist.; Warren. **Ore:** Silver.

ALTA-IDAHO GOLD & COPPER MINING CO.

Officers: M. C. Hetler, Pres., Berwick, Pa.; Mrs. Rachel E. Fine, Sec., Cassadaga, Fla.; Geo. M. Snyder, Mgr., Pardee. **Inc.:** Filed in Idaho June 17, 1903. **Capital:** 1,000,000 shares; par value $1; 756,107 shares issued. **Property:** Empire group; 11 unpatented claims, on South Fork of Clearwater River, Lolo dist.; Pardee. **Development:** Approximately 450 ft. of underground workings, the principal of which is 1 tunnel 250 ft. long. **Ore:** Gold-silver-copper. **Men employed:** 1 watchman.

BADGER MOUNTAIN MINING CO.

Office: Grangeville. **Officers:** Markus Lies, Pres., Cottonwood; Will C. Jones, Sec., Route 3, Seattle, Wash. **Inc.:** Feb. 13, 1925. **Capital:** 10,000,000 shares; par value 1c; 108,800 shares issued. **Property:** 2 patented, 7 unpatented claims, held under lease and option from Homestake Gold Mining Co.; Orogrande dist.; Orogrande. **Development:** By 3 tunnels, the longest of which is 460 ft. **Ore:** Gold.

BLACKTAIL MINING CO.

Office: 1517 E. 9th Ave., Spokane, Wash. **Officers:** R. E. Wakeley, Pres.-Mgr.; N. L. Wakeley, Sec., both of Spokane. **Inc.:** Dec. 3, 1914. **Capital:** 200,000 shares; par value $1; 121,920 shares issued. **Property:** 10 unpatented claims, Harpster dist.; Harpster. **Development:** By 2 tunnels: No. 1, 370 ft. long; No. 2, 70 ft. long. **Ore:** Gold. **Remarks:** Annual labor only.

BLUE RIBBON MINE

Owner: A. W. Boyd, Agent. **Property:** Blue Ribbon group; 5 unpatented claims, Elk City dist.; Elk City. **Development:** 1 tunnel about 400 ft. long; 1 shaft 100 ft. deep. **Ore:** Gold-silver. **Remarks:** One of the principal prospects in the Elk City district in which a large tonnage of ore has been developed.

BUFFALO-IDAHO MINING CO.

Office: 822 Humboldt Parkway, Buffalo, N. Y. **Officers:** Geo. J. Becker, Pres., Buffalo, N. Y.; Ray R. Becker, Sec., Williamsville, N. Y.; Joseph A. Fields, Mgr., Golden. **Inc.:** Nov. 7, 1927. **Capital:** 250,000 shares;

par value $1; 110,000 shares issued. **Property:** Mackey group; 11 unpatented claims held under lease and option, Ten Mile dist.; Golden. **Development:** Principally by 1 tunnel 1100 ft. long, in which is a 40-ft. inclined shaft. **Plant:** Small gas-driven compressor; complete mining equipment and camp. **Ore:** Gold. **Men employed:** Average, 6. **Remarks:** Active development work throughout the year, part of which consisted of road construction.

CENTRAL IDAHO GOLD MINES, INC.

Office: 601 Hutton Bldg., Spokane, Wash. **Officers:** Henry Merritt, Pres., Rosalia, Wash.; Chas. H. Ennis, Sec., Spokane, Wash.; Harold Scheave, Mgr., Grangeville. **Inc.:** July 20, 1928. **Capital:** 100,000 shares; par value $1; 37,100 shares issued. **Property:** New York group; 29 unpatented claims held under lease and option, Ten Mile dist.; Golden. **Development:** By 10 tunnels, the principal one of which is 1200 ft. long. **Plant:** Water-driven 10-stamp mill, constructed in 1916; complete hand-mining equipment and camp. **Remarks:** Annual labor and ordinary repairs.

CLEARWATER MINING CO.

Office: Elk City. **Officers:** Wm. Hogan, Pres.-Mgr., Elk City; Lucy Schafer, Sec., New York City. **Inc.:** May 18, 1925. **Capital:** 10,000 shares; par value $10; all shares issued. **Property:** Clearwater group; 42 unpatented claims, Elk City and Orogrande dist.; Elk City. **Development:** Approximately 7000 ft. of short open cuts and tunnels. **Ore:** Gold. **Men employed:** Average, 6. **Remarks:** Annual labor only.

COMMODORE GOLD MINING CO.

Office: Lewiston. **Officers:** Wm. C. McNutt, Pres.-Mgr.; M. R. Morgan, Sec., both of Lewiston. **Inc.:** Mar. 28, 1921. **Capital:** 1,000,000 shares; par value $1; 261,515 shares issued. **Property:** Commodore group; 38 unpatented claims, at junction of Crooked River and South Fork of Clearwater River, Orogrande dist.; Elk City. **Development:** By 10 short tunnels, totaling approximately 500 ft., and 253 discovery pits. **Ore:** Gold. **Remarks:** Annual labor only.

CONSOLIDATED MINES SYNDICATE (See Camas County)

Property: Blue Jacket group; 7 patented claims, Crooks Corral dist.; Lucile. **Remarks:** Idle.

CROOKS CORRAL MINES, LTD.

Office: Grangeville. **Officers:** Frank McGrane, Pres.; A. F. Parker, Sec., both of Grangeville. **Inc.:** Sept. 13, 1897. **Capital:** 1,000,000 shares; par value $1; 990,000 shares issued. **Property:** 8 patented placer claims, Crooks Corral dist.; Lucile.

EMPIRE METALS CO.

Office: Elk City. **Officers:** Wm. Hogan, Pres.-Mgr.; Carl Vermillion, Sec., both of Elk City. **Inc.:** Jan. 20, 1927. **Capital:** 999,000 shares; par value 50c; all shares issued. **Property:** 37 unpatented claims, Orogrande dist.; Orogrande. **Development:** By 10 open cuts and tunnels. **Ore:** Gold. **Men employed:** Average, 5. **Remarks:** Annual labor only.

ERICKSON RIDGE DEVELOPMENT CO., INC.

Office: Elk City. **Officers:** Wm. Hogan, Pres.-Mgr., Elk City. **Inc.:** Aug. 25, 1926. **Capital:** 200,000 shares; par value $10; all shares issued. **Property:** Erickson Ridge group; 30 unpatented claims, Elk City dist.; Elk City. **Development:** Approximately 1500 ft. of short tunnels and open cuts. **Ore:** Gold. **Men employed:** Average, 3. **Remarks:** Annual labor only.

ESPERANZA GOLD DIKES MINING CORPORATION

Office: 802 Farling Bldg., Portland, Ore. **Officers:** Edward M. Griffith, Pres., Grangeville; C. W. Twining, Sec., Portland, Ore. **Inc.:** Sept. 14, 1925. **Capital:** 1,000,000 shares; par value 25c; all shares issued. **Property:** Champion group; 18 patented claims, Orogrande dist.; Orogrande. **Development:** Approximately 4000 ft. of old workings. **Ore:** Gold. **Remarks:** Idle throughout the year.

GARNER ELECTRIC RANGE CO.

Office: P. O. Box 1166, Kellogg. **Officers:** W. C. Garner, Pres.; W. M. Pope, Sec., both of Kellogg. **Inc.:** An association. **Capital:** 1,000,000 shares; par value $1; 450,530 shares issued. **Property:** 80 acres patented farm land near Pollock, held under lease and option; Riggins. **Development:** One tunnel 100 ft. long. **Mineral sought:** Talc. **Men employed:** Average, 4. **Remarks:** During the year this company actively developed a talc deposit near Riggins, on the Little Salmon River.

GOLDEN ANCHOR MINING CO.

Office: Boise. **Officers:** J. A. Czizek, Pres.-Mgr.; H. F. Koelsch, Sec., both of Boise. **Inc.:** Apr. 14, 1928. **Capital:** 1,000,000 shares; par value $1; 500,000 shares issued. **Property:** Holte group; 22 unpatented claims, Marshall Lake dist.; Burgdorf. **Development:** Approximately 3200 ft. of underground workings, the principal of which are 4 tunnels: No. 1, 400 ft. long; No. 2, 1860 ft. long; No. 3, 600 ft. long; No. 4, 800 ft. long; 1 vertical shaft 150 ft. deep. **Plant:** MINE: Steam-driven compressor, complete mining equipment, sawmill, assay office and complete camp. MILL: 50-ton steam-driven Lane Chilean mill; cyanide plant. **Ore:** Gold. **Men employed:** Average, 6. **Remarks:** During the year a small hydroelectric power plant was constructed, and No. 4 tunnel was extended 400 ft.

GOLDEN EAGLE MINING CO.

Office: Elk City. **Officers:** Geo. R. Noble, Pres.; Robt. A. Koontz, Sec., both of Spokane, Wash.; Geo. E. Hottenstein, Mgr., Elk City. **Inc.:** Jan. 2, 1926. Charter forfeited Nov. 30, 1928. **Capital:** 2,500,00 shares; par value 10c; 1,010,000 shares issued. **Property:** Golden Eagle group; 6 unpatented claims, Elk City dist.; Elk City. **Development:** By 3 tunnels, the principal one of which is 1050 ft. long. **Ore:** Gold. **Men employed:** Average, 2. **Remarks:** Active throughout the year.

GOLDEN MINING & POWER CO.

Office: Golden. **Officers:** A. Marcuson, Pres., Exeter, Calif.; R. B. Harris, Sec., Grangeville. **Inc.:** Nov. 12, 1926. **Capital:** 100,000 shares; par value $1; 52,250 shares issued. **Remarks:** Owns no property.

GOLD ZONE MINING & MILLING CO., LTD.

Office: Grangeville. **Officers:** W. W. Brown, Pres.; Frank van Deventer, Sec., both of Grangeville; J. J. Schoner, Mgr., Elk City. **Inc.:** Sept. 9, 1919. **Capital:** 1,000,000 shares; par value 5c; all shares issued. **Property:** Gold Zone group; 9 unpatented claims, Elk City dist.; Elk City. **Development:** By 1 tunnel 500 ft. long. **Ore:** Gold. **Remarks:** Annual labor only.

GOODENOUGH UNITED MINING & MILLING CO., LTD.

Office: Payette. **Officers:** L. I. Purcell, Pres.-Mgr., Payette. **Inc.:** Nov. 1, 1905. **Capital:** 1,000,000 shares; par value 25c; 625,000 shares issued. Property: Goodenough group; 10 patented claims, Marshall Lake dist.; Burgdorf. **Remarks:** Idle for many years.

HOMESTAKE PLACER MINE

Owner: M. Kleiner, Portland, Ore. **Property:** 8 unpatented placer claims, Ten Mile dist.; Golden. **Ore:** Placer gold. **Remarks:** Under lease and option to Russell Webb of Lapwai, who performed a small amount of work during the summer months, consisting principally of installation of hydraulicking equipment.

IDAHO BUSTER MINING CO., LTD.

Office: 1022 Crocker Bldg., San Francisco, Cal. **Officers:** F. W. Bradley, Pres.; J. S. Wallace, Sec., both of San Francisco, Cal. **Inc.:** Dec. 9, 1908. **Capital:** 300,000 shares; par value $1; all shares issued. **Property:** Idaho Buster group; 4 patented claims, Elk City dist.; Elk City. **Remarks:** Idle since November, 1909.

IDAHO-COMSTOCK

Office: Tacoma, Wash. **Officers:** Thos. H. Minear, Pres.-Mgr., People's Store, Tacoma, Wash. **Inc.:** An association. **Capital:** 2,000,000 shares; no par value; all shares issued. **Property:** Idaho-Comstock group; 12 patented claims, Dixie dist.; Dixie. **Development:** By 3 tunnels: No. 1, 700 ft. long; No. 2, 200 ft. long; No. 3, 200 ft. long; 1 vertical shaft 140 ft. deep. **Ore:** Gold. **Remarks:** Idle.

JUMBO MINING & MILLING CO., LTD.

Office: Lewiston. **Officers:** J. C. Jansen, Pres., Lewiston Orchards; W. E. Howard, Sec., 537 San Francisco St., Pomona, Cal. **Inc.:** Aug. 13, 1902. **Property:** Jumbo group; 5 patented claims, Robins dist.; Orogrande.

LONE PINE GROUP

Owner: F. O. Miller, 735 Riverview Blvd., Clarkston, Wash.; S. O. Miller, Supt., Golden. **Property:** Lone Pine group; 4 patented, 8 unpatented claims, Ten Mile dist.; Golden. **Development:** By 5 tunnels, totaling over 1100 ft. **Plant:** 2-stamp mill, 1250-lb. stamps, water-driven. **Ore:** Gold. **Men employed:** Average, 6. **Remarks:** This property is one of the principal gold-producing mines in Idaho County. During the high-water season a substantial tonnage was produced and milled. During the latter part of the year new camp buildings were constructed and active development work was maintained.

LUCKY FIVE MINING CO.

Office: P. O. Box 1182, Spokane, Wash. **Officers:** M. Clinkenbeard, Pres.; C. Clinkenbeard, Sec.-Mgr., both of Spokane. **Inc.:** Never filed in Idaho; form of organization unknown. **Capital:** 1,499,990 shares; par value 10c; 666,940 shares issued. **Property:** Relief Creek placers; 12 unpatented claims, Orogrande dist.; Orogrande. **Ore:** Placer gold. **Men employed:** Average, 2. **Remarks:** Small amount of ditch and flume repair work done during the year.

McKINLEY GOLD MINING CO.

Office: Kellogg. **Officers:** P. P. Weber, Pres.; A. H. Polson, Sec., both of Kellogg. **Inc.:** Dec. 29, 1899. **Capital:** 1,500,000 shares; par value $1; 932,793 shares issued. **Property:** McKinley group; 4 patented, 4 unpatented claims, Simpson dist.; Lucile. **Development:** 4 tunnels: No. 1, 145 ft. long; No. 2, 1020 ft. long. Total development, approximately 1300 ft. **Ore:** Gold. **Remarks:** Annual labor only.

MAMMOTH MINE CORPORATION

Office: Lewiston. **Officers:** R. S. Erb, Pres.; R. G. Bailey, Sec., both of Lewiston. **Inc.:** Feb. 25, 1925. **Capital:** 500,000 shares; par value $1; 288,082 shares issued. **Property:** Mammoth group; 6 unpatented claims, Dixie dist.; Dixie. **Development:** By 14 open cuts and 2 short tunnels. **Men employed:** Average, 2. **Ore:** Gold. **Remarks:** A small amount of work throughout the year. Press reports during the latter part of the year were to the effect that the property had been optioned to other people.

MONTE CRISTO MINING CO.

Office: Lewiston Bank Bldg., Lewiston. **Officers:** Fred Johnson, Pres.-Mgr., Troy; A. P. Hagglund, Sec., Lewiston. **Inc.:** Oct. 22, 1927. **Capital:** 200,000 shares; par value $1; 80,000 shares issued. **Property:** Monte Cristo group; 2 unpatented claims, Robins dist.; Waverly; 1 patented claim, Florence dist.

MOOSE CREEK PLACERS CO.

Office: Kellogg. **Officers:** D. Williams, Pres.; Max R. Crosby, Sec.-Mgr., both of Kellogg. **Inc.:** Nov. 22, 1927. **Capital:** 2,500,000 shares; par value 10c; 1,000,000 shares issued. **Property:** Moose Creek placers; 2 unpatented claims, 320 acres, Newsome dist.; Newsome. **Ore:** Placer gold. **Men employed:** Average, 8. **Remarks:** During the summer months ditch and flue lines and hydraulicking equipment repaired and rehabilitated.

NORTH HILL MINING CO.

Office: 617 Hutton Bldg., Spokane. **Officers:** J. M. McLean, Pres.; Ralston McCaig, Sec., both of Spokane. **Inc.:** Apr. 18, 1925. **Capital:** 1,500,000 shares; par value 1c: 645,964 shares issued. **Property:** Summit Flat group; 5 unpatented claims, Orogrande dist.; Orogrande. **Development:** Principally by 1 tunnel, 1150 ft. long. **Plant:** Steam-driven Gardner-Ricks compressor and hoist; camp; complete mining equipment. **Ore:** Gold. **Men employed:** Average, 2. **Remarks:** This company is a reorganization of the Summit Flat Mining Co. A small amount of work was done during the summer months.

OROGRANDE GOLD MINING CO.

Office: 218 Columbia Bldg., Spokane, Wash. **Officers:** J. N. Pickrell, Pres., Colfax, Wash.; J. E. Pickrell, Sec., Spokane, Wash. **Inc.:** March 14, 1919. **Capital:** 3,500,000 shares; par value $1; 1,800,000 shares issued. **Property:** Orogrande group; 5 patented, 29 unpatented claims, Orogrande dist.; Orogrande. **Development:** Approximately 6000 ft. of underground workings and 4000 ft. of surface cuts on all claims. **Plant:** Stamp mill with partly completed cyanide plant; water-driven. **Ore:** Gold. **Men employed:** 1 watchman. **Remarks:** Idle.

REVENUE MINING & MILLING CO.

Office: 511 Kuhn Blk., Spokane, Wash. **Officers:** J. E. McCormack, Pres.; Walter Guthridge, Sec.-Treas., both of 511 Kuhn Blk., Spokane, Wash. **Inc.:** April 10, 1912. **Capital:** 500,000 shares; par value $1; 391,693 shares issued. **Property:** Revenue group; 8 patented claims, Elk City dist.; Elk City. **Development:** 2 tunnels: No. 1, 700 ft. long; No. 2, 100 ft. long. **Remarks:** Idle.

RICE MINING & MILLING CO.

Officers: Geo. F. Carson, Pres.; E. P. Adkison, Sec., both of Lewiston. **Inc.:** Apr. 8, 1920. Charter forfeited Nov. 30, 1928. **Capital:** 1,000,000 shares; par value $1; 530,978 shares issued. **Property:** Mother Lode group; 9 unpatented claims, Orogrande dist.; Orogrande. **Development:** Approximately 1700 ft. of underground workings. **Remarks:** Annual labor only.

SALMON RIVER DEVELOPMENT CO.

Office: Whitebird. **Officers:** J. L. Osterhout, Pres., Colfax, Wash.; L. L. Bassett, Sec., Washtucna, Wash.; J. M. Worton, Mgr., Whitebird. **Inc.:** Sept. 10, 1927. **Capital:** 500,000 shares; par value $1; 9,700 shares issued. **Property:** 15 unpatented placer claims, 325 acres, held under royalty and option, Simpson dist.; Whitebird. **Ore:** Placer gold. **Men employed:** Average, 8. **Remarks:** During the year construction work was started on a 12,000-ft. ditch and flume; a large part of the flume, which involved heavy construction, was completed.

SALMON RIVER MINERS, INC.

Office: Empire Bank Bldg., Lewiston. **Officers:** C. C. Byers, Pres.-Mgr.; C. D. Cole, Sec., both of Lewiston. **Inc.:** Mar. 26, 1928. **Capital:** 100 shares; par value $100; 60 shares issued. **Property:** 1 unpatented placer claim, Simpson dist.; Whitebird. **Ore:** Placer gold. **Remarks:** Small amount of work performed during the summer months by the officers of the company.

SEATTLE AMERICAN EAGLE MINES, INC.

Office: 407 American Bank, Seattle, Wash. **Officers:** Miss A. M. Hoffstater, Pres.; H. H. Hoffstater, Sec., both of Seattle, Wash. **Inc.:** Jan. 30, 1928. **Capital:** 195,000 shares; par value $1; 100,000 shares issued. **Property:** American Eagle group; 26 patented, 6 unpatented claims, Elk City dist.; Elk City. Held under lease and option from Homestake Gold Mining Co. **Development:** By 4 tunnels: No. 1, 345 ft.; No. 2, 1500 ft.; No. 3, 307 ft.; No. 4, 1157 ft.; and a vertical shaft 200 ft. deep. **Plant:** MINE: Steam-and-water-driven compressor; complete mining equipment and camp. MILL: Steam-driven 10-stamp mill with concentrating tables. **Ore:** Gold. **Men employed:** Average, 3. **Remarks:** Small amount of mine repair work during summer months.

SEELRIDGE GOLD MINING CO.
Office: Kellogg. **Officers:** P. E. Seelye, Pres., Kellogg; Edwin Smetheran, Sec.; H. Selfridge, Mgr., both of Spokane, Wash. **Inc.:** Jan. 18, 1928. **Capital:** 100,000 shares; par value $1; 62,000 shares issued. **Property:** Placer claims held under lease and option, near Freedom, Simpson dist.; Whitebird. **Ore:** Placer gold. **Remarks:** Experimental work on recovery of fine gold was conducted throughout the year. During the closing months of the year fabrication of concentrating plant was started.

SLATE CREEK GOLD MINING CO.
Office: Whitebird. **Officers:** G. A. Thomson, Pres.; W. W. White, Sec., both of Whitebird. **Inc.:** Sept. 21, 1925. **Capital:** 600,000 shares; par value 50c; 30,250 shares issued. **Property:** Lease and option on 480 acres patented farm land, Simpson dist.; Lucile. **Development:** By 3 tunnels, with a total of approximately 600 ft. **Ore:** Gold. **Remarks:** Idle.

SPHINX GOLD MINING CO.
Office: 832 Old National Bank Bldg., Spokane, Wash. **Officers:** Sam A. McCoy, Pres.-Mgr.; E. J. Johnson, Sec., both of Spokane, Wash. **Inc.:** May 3, 1923. **Capital:** 500,000 shares; par value $1; 425,000 shares issued. **Property:** Sphinx group; 5 unpatented claims, Ten Mile dist.; Newsome. **Ore:** Gold. **Remarks:** Annual labor only.

SPRING BARR PLACER CO.
Office: 210 Eiler Bldg., Spokane, Wash. **Officers:** N. L. Wakeley, Pres.; Geo. W. McCallum, Sec.; W. L. Wakeley, Mgr., all of Spokane, Wash. **Inc.:** May 14, 1927. **Capital:** 25,000 shares; par value $1; 4,300 shares issued. **Property:** Spring Barr group; 3 unpatented placer claims, Simpson dist.; Lucile. **Ore:** Placer gold.

STOWELL GOLD MINING CO.
Office: 421 Sprague Ave., Spokane, Wash. **Officers:** Wm. H. Stowell, Pres.; Robert A. Koontz, Sec., both of Spokane. **Inc.:** Dec. 4, 1926. **Capital:** 5,000,000 shares; par value 15c; 2,560,824 shares issued. **Property:** South Fork group; 5 patented, 6 unpatented claims, Elk City dist.; Elk City. **Development:** Approximately 3500 ft. of underground workings, the principal of which are: No. 1 tunnel, 1200 ft. long; No. 2, 1050 ft. long; No. 3, 1000 ft. long. **Plant:** 5-stamp mill. **Ore:** Gold. **Remarks:** Annual labor only.

SYLVANITE GOLD-COPPER CO.
Office: 408 E. Bridgeport Ave., Spokane, Wash. **Officers:** Wesley L. Wakeley, Pres.-Mgr., Harpster. **Inc.:** Aug. 20, 1919. **Capital:** 100 shares; par value $100; all shares issued. **Property:** Maud Randall group; 5 unpatented claims, 2 of which are held under lease and bond from Joseph Himmelspack of Grangeville; Harpster dist.; Harpster. **Development:** By 2 tunnels: No. 1, 825 ft. long; No. 2, 80 ft. long. **Plant:** Gas-driven Gardner-Ricks 6x6 compressor; complete mining equipment. **Ore:** Copper. **Remarks:** Annual labor only.

TRI METALLIC MINING CO., LTD.
Office: Pardee, Idaho. **Officers:** Frieda M. Bethmann, Pres.; Miner Bethmann, Mgr., both of Pardee. **Inc.:** Sept. 26, 1917. **Capital:** 250,000 shares; par value $1; 145,577 shares issued. **Property:** Tri Metallic group; 4 unpatented claims, Lolo dist.; Pardee. **Development:** By 3 tunnels: No. 1, 520 ft.; No. 2, 185 ft.; No. 3, 950 ft. **Ore:** Gold-silver-copper. **Remarks:** Annual labor only.

UNA MINE CO.
Office: 617 Hutton Bldg., Spokane, Wash. **Officers:** J. M. McLean, Pres.; Ralston McCaig, Sec.-Mgr., both of Spokane. **Inc.:** Feb. 6, 1925. **Capital:** 1,250,000 shares; par value 1c; 958,100 shares issued. **Property:** Una group; 4 unpatented claims, Orogrande dist.; Orogrande. **Development:** By 1 tunnel, 1100 ft. long. **Ore:** Gold. **Men employed:** Average, 2. **Remarks:** Active work during the summer months in extending the principal tunnel.

UNITY GOLD MINES CO.

Office: 120 Broadway, New York City. **Officers:** Lorren M. Hart, Pres.; J. B. Neumuller, Sec., both of New York City; Granville T. Eyman, Mgr., Warren. **Inc.:** May 25, 1916. **Capital:** 500,000 shares; par value $5; all shares issued. **Property:** Little Giant and Rescue groups; 8 patented 10 unpatented claims, Warren dist.; Warren. **Development:** Over 10,000 ft. of underground workings, the principal of which is the Unity or main crosscut tunnel, which is 5400 ft. in length. **Plant:** MINE: Storage-battery locomotive haulage; one 300-cu.-ft. and one 700-cu.-ft. electrically driven compressor; complete mining equipment. MILL: 10-stamp mill, 1000-lb. stamps, simple amalgamation. POWER PLANTS: A 50-h. p. hydroelectric plant on Warren Creek and a 600-h. p. hydroelectric plant on Elk Creek, the latter consisting of 2 units driven by Pelton impulse water wheel operating under a vertical head of 415 ft.; 9½-mile transmission line connecting power plant and mine. **Ore:** Gold. **Men employed:** 23. **Remarks:** In addition to adding flotation equipment to the mill, the company maintained active development work and production throughout the year.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Ada Brown et al.	Ten Mile	J. H. Lamb	Ephrata, Wash.
Alberta	Elk City	H. T. Thompson	Elk City
American Bar Pl.	Unorganized	Lula M. Unzicker	Cottonwood
American Flag	Elk City	Pat Brennan	Elk City
Americanus	Marshall Lake	Ed Luzadder	Burgdorf
Americus	Cottonwood Buttes	J. W. Bartlett	Greencreek
Anaconda	Unorganized	J. Himmelspak	Grangeville
Annie Laurie et al.	Florence	S. A. Deflong	Grangeville
Apex	Florence	Anderson & Seaberg	Florence
Argonne Gr.	Orogrande	A. C. Spengler	Lewiston
Arles	Warren	Kelley & Patterson	Warren
Bauer Gr.	Elk City	Frank Bauer	Elk City
Bengal	Elk City	Perry Bros.	Elk City
Bevier Pl.	Florence	Wm. D. Bevier	Elk City
Big Buffalo	Robins	M. J. Sweeney	Spokane, Wash.
Big Four	Warren	Patterson Bros.	Warren
Black Bear	Cottonwood Buttes	L. J. Anderson	Woodland
Blanco	Unorganized	J. W. Van Tine	Grangeville
Bluebird	Warren	Walter B. Martin	Warren
Blue Bird Gr.	Ten Mile	John P. Kee	Grangeville
Blue Ribbon	Elk City	J. E. Brown	Elk City
B & M Mine	Elk City	John Montgomery	Elk City
Bolinski Gr.	Elk City	Len Bolinski	Elk City
Bonanza Pl.	Elk City	Frederick Gribi	1546 Toberman St., Los Angeles, Cal.
Bonanza Pl.	Simpson	Hart & Richardson	1078 Stratton St., Portland, Ore.
Brown Gr.	Warren	Frank H. Brown	Warren
Buck Diggins Pl.	Warren	John Becker	Warren
Buckeye Pl. et al.	Unorganized	Henry Meyer	Grangeville
Buck Meadows Pl.	Unorganized	George Davis	Grangeville
Burrel	Ten Mile	J. J. Kowalski	Prosser, Wash.
Buster et al.	Dixie	Oscar Waller	Warren
Buttercup Gr.	Florence	Samuel Dunn	Grangeville
Cape Horn	Camp Howard	C. H. Lyons	Whitebird
Carson Pl.	Warren	Frank Carson	Warren
Carter Gr.	Elk City	Geo. M. Carter	Jackson, Mich.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Center Star	Elk City	Herman Brown	Elk City
Chicago et al.	Elk City	R. Greckwell	Elk City
China Garden	Camp Howard	B. V. Lyons	Grangeville
Clearwater Gr.	Elk City	Geo. L. Esh	Elk City
Cleveland	Elk City	S. W. Smith	Palo Alto, Cal.
Coeur d'Alene	Ten Mile	Peter Proulix	Golden
Columbia	Elk City	John Massam	Elk City
Concord Gr.	Robins	Galen S. Stone	Boston, Mass.
Congress	Elk City	S. W. Smith	Palo Alto, Cal.
Copper King Gr.	Lolo	Daniel Laverty	Pardee
Cornucopia et al.	Simpson	D. A. Hardin et al.	Whitebird
Cove Placers	Clearwater	M. B. Geary	Grangeville
Crescent Pl.	Orogrande	Geo. P. Kelley	Newsome
Crooked River Pl.	Elk City	George Brown	Orogrande
Cuban	Marshall Lake	G. E. Hyatt	Spokane, Wash.
Dandy Pl.	Simpson	E. W. Butcher	Lucile
Davis Gr.	Ten Mile	J. G. Kowalski	Newsome
Deadwood	Elk City	Chas. Forman	Los Angeles, Cal.
Diamond Hitch	Orogrande	Orin Lamb Est.	Orogrande
Discovery	Maggie Creek	W. E. Smith	Los Angeles, Cal.
Eagle	Warren	Gus Kupper	Warren
El Toro Gr.	Newsome	L. A. Strong	Fontana, Cal.
Eureka	Unorganized	Geo. A. Cowgill	Grangeville
Evergreen Gr.	Clearwater	Carolyn Wagner	Portland, Ore.
Fall Cr. Pl.	Marshall Lake	H. H. Hackett	Burgdorf
Florence	Florence	A. R. Smith	Spokane, Wash.
Foss Gr.	Elk City	R. E. Foss	Elk City
Fourth of July	Dixie	Thomas Pritchard	Dixie
Franklin	Ten Mile	A. S. Johnson	Golden
Franklin et al.	Robins	P. Klinkhammer	Grangeville
Free Gold	Dixie	Geo. L. Esh Est.	Dixie
Frisco Gr.	Elk City	E. J. Comley	Elk City
Gilt Edge	Ten Mile	Frank Osgood	Seattle, Wash.
Gold Dollar	Warren	M. W. Hubbard	New Meadows
Gold Dove	Elk City	Pat Brennan	Elk City
Gold Drop	Elk City	Geo. W. Widemeyer	Elk City
Gold Hill	Ten Mile	Ed. Bailey	Prosser, Wash.
Gold King	Orogrande	Geo. Peterson	Newsome
Gold Nugget Pl.	Unorganized	A. M. Anderson	Cripple Creek, Colo
Golden Brown	Crooks Corral	Revillo Johnson	Lucile
Golden Placer	Ten Mile	Edward Timm	Golden
Golden Rule	Maggie Creek	O. W. Montgomery	Kooskia
Golden Rule Pl.	Elk City	Chas. Tiedeman	Elk City
Golden Rule Pl.	Maggie Creek	A. E. Davis	Kooskia
Golden Rule Pl.	Warren	A. L. Freehafer	Payette
Grangeville	Elk City	Joe Schoner	Elk City
Great Nugget Pl.	Simpson	Hart & Richardson	Lucile
Great Western Gr.	Crooks Corral	James McCalla	Lucile
Grey Pallor	Warren	W. T. Copenhaver	Warren
Gunboat Pl.	Dixie	R. Burke	Dixie
Haig & Haig	Orogrande	R. McGregor	Elk City
Hawkeye	Warren	J. T. Murphy	Warren
Headlight	Newsome	J. E. Davis	Newsome
Hecla	Elk City	C. E. Skoglar	Elk City
Hercules	Elk City	Alex Hendrie	125 Kent St., Hamilton, Ont.
Hidden Treasure	Unorganized	Peter Solem	Grangeville
Hi-Yu	Florence	Odle Paul	Whitebird
Homestake Gr.	Orogrande	A. W. Boyd	Elk City
Hope Gr.	Elk City	Schuyler Simmons	Elk City

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Iola	Orogrande	James H. Colgrave	Spokane, Wash.
Jackson Gr.	Lolo	Othilie C. Jack	Pardee
James Moore	Dixie	James Moore	Dixie
Jim Crow Pl.	Simpson	Jacob Cassett	Lucile
Jumbo	Robins	A. F. Schultz	Lewiston
Jupiter Gr.	Marshall Lake	Chris Arnold et al.	Burgdorf
Keystone	Warren	Anthony Mohr	Warren
Keystone Gr.	Orogrande	Edw. Hansen	Orogrande
Kimberley & Jewel	Marshall Lake	D. L. Roy	Burgdorf
Klondyke	Camp Howard	George J. Burgund	Cottonwood
Knott & Delaware	Warren	James Long	Warren
Kramer Pl.	Simpson	Marion Kramer	Lucile
Lajulla Pl. et al	Camp Howard	R. W. Wyatt	Whitebird
Last Chance	Elk City	James P. Larson	Elk City
Last Chance	Florence	John Lamont	Grangeville
Laughing Water Gr.	Warren	Roy A. Briggs	Council
Laurel Hill	Elk City	P. S. Prichard	Elk City
Liberty	Elk City	Wm. A. Copland	Elk City
Liberty et al.	Florence	J. G. Irvin	Grangeville
Liberty Bell et al.	Robins	E. M. Griffith	Grangeville
Lick Creek Pl.	Elk City	Wm. Finley	Elk City
Lime Point	Simpson	Marion Kramer	Lucile
Little Johnnie et al.	Marshall Lake	E. Koontz et al.	Mesa
Little Leggat	Orogrande	Simpson & Overman	Newsome
L. & L.	Dixie	Louis Larson	Dixie
Local Option	Ten Mile	Frank McGrane	Grangeville
Lolo	Dixie	Don A. Burpee	Dixie
Loper	Marshall Lake	George Loper	Burgdorf
Lost Lake	Robins	R. McGregor	Elk City
Lost Meadows	Florence	W. A. Paul	Grangeville
Lot Lake et al.	Florence	Claud Flint	Florence
Lucky Ben	Warren	Jay A. Czizek	Warren
Lucky Strike	Warren	Grindle & Curtis	Warren
Lusitania	Cottonwood Buttes	J. W. Bartlett	Green Creek
Mackay & Lamb	Ten Mile	W. A. Harvey	Newsome
Madre d'Or	Elk City	S. W. Litchfield	Elk City
Malone Pl.	Simpson	John Struck	Cottonwood
Mammoth	Newsome	W. H. Baldwin	Stites
Mammoth Gr.	Dixie	C. A. Carpenter	Dixie
Mascot et al.	Elk City	John Massam	Elk City
Mayflower	Warren	Patterson, Morris & Blake	Warren
Miller Creek Pl.	Florence	S. A. Moon	Florence
Mineral Zone et al.	Elk City	G. L. Baskett	Elk City
Minnehaha	Warren	Dr. G. M. Waterhouse	Weiser
Modoc	Marshall Lake	L. W. Wilcox	Burgdorf
Monadnock	Dixie	George O. Trader	Dixie
Monarch	Simpson	C. H. Prescott	Dixie
Monmouth	Dixie	J. L. Hayes	Dixie
Moose Creek Pl.	Newsome	W. H. Giles	Newsome
Mother Lode	Elk City	Geo. Brown	Orogrande
Mount Eureka	Warren	W. G. Cadby	Warren
Mount Marshall Gr.	Marshall Lake	G. A. Green	Grangeville
New Jersey	Elk City	Condit Bros.	Elk City
Newsome Pl.	Newsome	James Surridge	Harpster
New York	Ten Mile	Wm. Huntley	Spokane, Wash.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Nugget Pl.	Orogrande	Geo. Brown	Elk City
Occidental Gr.	Orogrande	Frank A. Bauer	Elk City
Ohio Placer	Orogrande	Geo. Overfield Est.	Orogrande
Old Channel Pl.	Simpson	Currier Bros.	Riggins
Old Kentuck	Marshall Lake	Peterson & Spencer	Burgdorf
Olivia Gulch	Dixie	Henry S. Hazlitt	Dixie
Ore Bend et al.	Marshall Lake	A. J. Callis	Coeur d'Alene
Pacific Gr.	Elk City	Rod Leggett	Butte, Mont.
Pioneer Hill	Ten Mile	Timm & Braig	Newsome
Poorman	Dixie	Oscar Eakin	Dixie
Queen Gr.	Elk City	Grant Litchfield	Elk City
Rainier Gr.	Warren	Gus Sindt	Warren
Rapid Creek	Warren	Frank Mitchell	Warren
Red Cloud et al.	Marshall Lake	S. E. Gerber et al.	Payette
Red Horse Pl.	Elk City	Schuyler Simmons	Elk City
Red Warrior	Orogrande	Frank Peck	Orogrande
Rigdon Placer	Warren	Geo. G. Rigdon	Meadows
Rocky Butte et al.	Cottonwood Buttes	J. L. Eckert	Cottonwood
Saturday Pl.	Robins	Wm. Allen	Elk City
Shamrock et al.	Marshall Lake	H. H. Hackett et al.	Burgdorf
Shissler Creek Pl.	Warren	H. Cook	Warren
Shorty Pl. et al.	Camp Howard	Gus Schilling	Grangeville
Silver King	Warren	Sigo Myers	Savannah, Ga.
Skylark	Warren	Warren D. Smith	Warren
South Fork	Elk City	Martin Heckman	Elk City
Spike Quartz	Elk City	James Hubbs	Elk City
Spokane Pl. et al.	Simpson	Nettie Deasy	Whitebird
Spring Bar Pl.	Simpson	J. A. Carr	Lucile
Star	Florence	W. A. Nicodemus	Spokane, Wash.
Stephenson Gr.	Elk City	Lu Stephenson	Elk City
Subway Gr.	Orogrande	H. W. Harris	Elk City
Sunflower Pl.	Dixie	Monroe Hancock	Shoup
Surprise Gr.	Dixie	J. R. Painter	Dixie
Syringa	Maggie Creek	J. M. Wisdom	Culdesac
Syringa	Orogrande	James Montgomery	Orogrande
Tacoma Pl.	Camp Howard	Chas. Lyons	Whitebird
Thompson Pl.	Warren	Ah Sam	Warren
Three Mile Pl.	Marshall Lake	Jensen Bros.	Burgdorf
Thunder Mt. Gr.	Elk City	E. M. Griffith	Clarkston, Wash.
Tippie Placer	Ten Mile	Geo. R. Curtis	Newsome
Tivola	Elk City	George Braig	Elk City
Trout Gr.	Elk City	Geo. Trout	Elk City
Twin Butte et al.	Orogrande	Frank M. Peck	Orogrande
Two B Bar Pl.	Camp Howard	C. C. Byers	Lewiston
Uncle Sam	Elk City	J. E. Brown	Elk City
Umatilla Gr.	Orogrande	Orin Lamb Est.	Orogrande
Union Gr.	Orogrande	Robert Pulz	Orogrande
University et al.	Marshall Lake	W. L. Lyon	Grangeville
Venture	Robins	A. G. Schultz	Lewiston
Walker & Wilcox	Marshall Lake	E. S. Walker	Burgdorf
Wander Gr.	Ten Mile	G. W. Bassett Est.	Grangeville
War Eagle	Robins	Geo. J. Bancroft	220 Broadway, Denver, Colo.
Wild Rose	Elk City	Denzil Robinett	Kooskia
Wild Rose Pl.	Dixie	J. R. Cunningham	Shoup
Wilson	Newsome	A. E. Carpenter	Newsome
Wizzard Gr.	Robins	Jack Cameron	Orogrande
Yellow Pine	Ten Mile	Miller & Sons	Newsome

BIBLIOGRAPHY

See pages 13-14 for publisher's address, meaning of reference marks, and abbreviations.

A geological reconnaissance across Idaho, by G. H. Eldridge: U. S. Geol. Survey, Sixteenth Ann. Rept., pt. 2, pp. 217-276, **1895.***

The Deadwood placer claims, Idaho, by W. H. Hill: Eng. and Min. Jour., vol. 60, pp. 225-226, Sept., **1895.**§

The Little Giant mine, Warren, Idaho, by W. H. Hill: Eng. and Min. Jour., vol. 62, p. 417, **1896.**§

Mining districts of Idaho Basin and the Boise Ridge, Idaho, by Waldemar Lindgren; U. S. Geol. Survey, Eighteenth Ann. Rept., pt. 3, pp. 625-716, **1898.***

Central Idaho gold field, by Don Maguire: Mines and Minerals, vol. 19, pp. 289-291, February, **1899.***

The Buffalo Hump mining camp, Idaho, by C. H. Whittle: Eng. and Min. Jour., vol. 68, pp. 215-216, Aug. 19, **1899.**§

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey, Twentieth Ann. Rept., pt. 3, pp. 75-256, **1900.***

Buffalo Hump, Idaho, by D. G. Doubleday: Mines and Minerals, vol. 21, pp. 296-298, February, **1901.***

Geology and water resources of Nez Perce County, Idaho, by I. C. Russell: U. S. Geol. Survey Water-Supply Papers 53 and 54, **1901.**‡*

Mineral deposits of the Bitterroot Range and Clearwater Mountains, Montana, by Waldemar Lindgren: U. S. Geol. Survey Bull. 213, pp. 66-70, **1903.***

Thunder Mountain, by W. E. L'Hame: Mines and Minerals, vol. 24, pp. 207-209, December, **1903.***

A geological reconnaissance across the Bitterroot Range and Clearwater Mountains in Montana and Idaho, by Waldemar Lindgren: U. S. Geol. Survey Prof. Paper 27, **1904.***

Central Idaho gold district, by S. P. Jellum: Northwest Min. News, vol. 3, pp. 83-91, 107-114, 134-139, **1908**; vol. 4, pp. 2-6, 31-37, 66-73, **1909.***

Asbestos of Kamiah, Idaho, by J. S. Diller: Asbestos in the United States, U. S. Geol. Survey Bull. 470, pp. 519-520, **1910.***

Development of the Elk City district, Idaho, by B. K. Welch: Min. World, vol. 32, pp. 65-66, Jan. 8, **1910.***

Mining and milling in Elk City district, by B. K. Welch: Min. and Eng. World, vol. 37, pp. 391-392, Aug. 31, **1912.***

Buffalo Hump mining district, by A. L. Flagg: Min. and Eng. World, vol. 38, pp. 813-814, **1913.***

The Elk City mining district, Idaho County, Idaho: Trans. Am. Inst. Min. Eng., vol. 45, pp. 113-122, **1913.**§

Geology and ore deposits of the Dixie mining district, Idaho, by D. C. Livingston and C. A. Stewart: Univ. of Idaho School of Mines Bull. 2, vol. 9, **1914.***

The Orofino coal field, Clearwater, Lewis and Idaho counties, Idaho, by C. T. Lupton: U. S. Geol. Survey Bull. 621, pp. 99-108, **1915.***

Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****

A preliminary report on the clays of Idaho, by Frank H. Skeels: Idaho Bureau of Mines and Geology Bull. 2, p. 59, **1920.****

The copper deposits of the Seven Devils and adjacent districts, by D. C. Livingston and F. B. Laney: Idaho Bureau of Mines and Geology Bull. 1, **1920.***

Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 60, art. 3, pp. 1-33, **1921.**‡

Central Idaho—A rugged mining region, by G. J. Bancroft: Eng. and Min. Jour., vol. 113, pp. 438-441, March 18, **1922.**§

Geology and gold resources of north central Idaho, by F. A. Thomson and S. M. Ballard: Idaho Bureau of Mines and Geology Bull. 7, **1924.****

Gold veins of sundry areas in the Idaho batholith, by F. A. Thomson: Eng. and Min. Journal-Press, vol. 118, pp. 533-540, Oct. 4, **1924.**§

KOOTENAI COUNTY

Kootenai is one of the northern counties and constitutes an important part of the Idaho Panhandle. It is bounded on the west by the State of Washington, on the north by Bonner County, on the east by Shoshone County, and on the south by Benewah County. It contains an area of 1253 square miles and was accredited with a population of 17,878 in the 1920 census. The principal industries are lumbering, dairying, and farming. Its lumbering industry is the most important and the largest in the State.

The county is exceptionally fortunate with respect to transportation facilities. It is served by three State highways, one of which is completed, and the other two partly so; by six railroads, which include main lines or their branches; and by lake boats on Lakes Pend d'Oreille and Coeur d'Alene. Coeur d'Alene is the largest town and county seat.

The principal mining districts are the Little North Fork of the Coeur d'Alene River, Hayden Lake, and isolated sections bordering on Lake Coeur d'Alene, throughout which zinc, lead, silver, copper, gold, arsenic, and high-grade clays occur. A limited amount of development work has been done on some of the veins, with encouraging results, and many others are worthy of further attention.

This county witnessed more development and prospecting in the vicinity of Coeur d'Alene Lake than at any time during the past few years. The principal companies developing prospects in this vicinity are: Silvertip Mining Association, Caribou Mining Co., Ltd., Bluebird Mining Co., Royal Mining Co., Gray Wolf Mining Co., and Wolf Lodge Mining Co.

BLUE BIRD MINING CO.

Office: Coeur d'Alene. **Officers:** Harry Phillips, Pres.-Mgr.; Wm. McFarland, Sec., both of Coeur d'Alene. **Inc.:** Sept. 2, 1924. **Capital:** 1,000,000 shares; par value 10c; 356,500 shares issued. **Property:** Blue Bird group; 9 unpatented claims, Beauty Bay and Wolf Lodge districts; Coeur d'Alene. **Development:** About 300 ft. of workings. **Ore:** Arsenic, copper, gold. **Men employed:** Average, 4. **Remarks:** Actively developed during the summer months.

BURNT CABIN MINING CO.

Office: Coeur d'Alene. **Officers:** Wm. James, Pres.; C. O. Jennings, Sec., both of Coeur d'Alene. **Inc.:** Apr. 28, 1926. **Capital:** 1,500,000 shares; par value 10c; 414,505 shares issued. **Property:** Burnt Cabin group; 15 unpatented claims, Hayden Lake dist.; Hayden Lake. **Development:** By 2 tunnels: No. 1, 150 ft. long; No. 2, 547 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 5. **Remarks:** During the year a steam-driven compressor was installed and work started in sinking a 200-ft. shaft. A stock assessment of 5 mills was levied on May 21.

CARIBOU MINING CO., LTD.

Office: Coeur d'Alene. **Officers:** G. R. Scott, Pres.; C. O. Sowder, Sec., both of Coeur d'Alene. **Inc.:** July 15, 1918. **Capital:** 1,500,000 shares; par value 10c; 1,416,069 shares issued. **Property:** Caribou group; 10 unpatented claims, Wolf Lodge dist.; Coeur d'Alene. **Development:** Total development approximately 1350 ft.; consisting principally of No. 2 tunnel, 440 ft. long, and No. 3 tunnel, 755 ft. long. **Plant:** MINE: Gas-driven Gardner-Rix compressor; complete mining equipment. MILL: 75-ton concentrator, gas driven. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Active development work throughout the year, and uncovering of some high-grade ore was reported. A stock assessment of 3 mills was levied on July 2.

COEUR D'ALENE CLAY CO., LTD.

Office: 216 Sherman Ave., Coeur d'Alene. **Officers:** Oscar Nelson, Pres.; H. H. Barton, Sec.-Treas., both of Coeur d'Alene. **Inc.:** Apr. 6, 1912. **Capital:** 100,000 shares; par value $1; 18,882 shares issued. **Property:** 40 acres patented land near Coeur d'Alene. **Plant:** 1 incomplete brick-making machine, 20,000-brick capacity.

COEUR D'ALENE OIL & DEVELOPMENT CO.
Office: Coeur d'Alene. **Officers:** L. S. Severson, Pres., Coeur d'Alene; Alex Barclay, Sec.-Mgr., Hayden Lake. **Inc.:** Nov. 19, 1927. **Capital:** 100,000 shares; par value $1; 75,828 shares issued. **Property:** 6000 acres patented farm land in the vicinity of Hayden Lake; held under oil and gas leases. **Development:** 1200-ft. well. **Plant:** Armstrong gas-driven rig and drilling equipment. **Men employed:** Average, 3. **Remarks:** Small amount of drilling by contract during the year.

COEUR D'ALENE ROBISH MOUNTAIN MINING CO., LTD.
Office: Coeur d'Alene. **Officers:** Andrew J. Rasor, Pres.; Lawrence L. Lewis, Sec., both of Coeur d'Alene; Wm. M. Hill, Mgr., Spokane. **Inc.:** Oct. 9, 1909. **Capital:** 2,750,000 shares; par value $1; 1,530,800 shares issued. **Property:** 505 acres patented land and 4 unpatented claims; Little North Fork dist.; Linfor. **Development:** Approximately 600 ft. of underground workings. **Remarks:** Annual labor only on unpatented claims.

COEUR D'ALENE-SPOKANE MINING CO.
Officers: Roy L. Black, Sec., Pocatello. **Inc.:** Sept. 6, 1918. **Capital:** 1,000,000 shares; par value $1; 500,000 shares issued. **Property:** Strobel group; 3 unpatented claims, unorganized dist.; Lane. **Ore:** Lead-silver. **Remarks:** Annual labor only.

COMMONWEALTH METALS CO.
Office: Coeur d'Alene. **Officers:** G. R. Scott, Pres.; F. W. Reed, Sec., both of Coeur d'Alene. **Inc.:** Mar. 19, 1924. **Capital:** 2,500,000 shares; par value $1; 323,991 shares issued. **Property:** Commonwealth group; 7 unpatented claims, Hayden Lake dist.; Hayden Lake. **Development:** By 3 tunnels: No. 1, 600 ft.; No. 2, 40 ft.; No. 3, 100 ft.; a vertical shaft 325 ft. deep; and 2 inclined shafts, 150 and 225 ft. deep. **Plant:** Steam-driven I-R compressor; gas-driven hoist; complete mining equipment and camp. **Ore:** Lead-silver-copper. **Remarks:** Annual labor only.

CONNIE MINING & MILLING CO.
Office: 307 Ziegler Bldg., Spokane, Wash. **Officers:** C. Wm. Gralappe, Pres.; Conrad T. Hartung, Sec., both of Spokane. **Inc.:** July 11, 1927. **Capital:** 4,000,000 shares; par value 10c; all shares issued. **Property:** Chilco group; 11 unpatented claims, Hayden Lake dist.; Hayden Lake. **Development:** By 1 tunnel, 670 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only. This company is a reorganization of the Chilco Mining & Milling Co.

ESTELLA METALLURGICAL CO.
Office: Route 5, Coeur d'Alene. **Officers:** W. C. Brower, Pres.-Mgr., Coeur d'Alene. **Inc.:** Feb. 13, 1923. **Capital:** 5,000,000 shares; par value unknown; 3,000,000 shares issued. **Property:** 15 unpatented claims, Wolf Lodge dist.; Coeur d'Alene. **Development:** By 600 ft. of tunnels. **Ore:** Gold-silver-copper. **Remarks:** Annual labor only.

HAMBURG-AMERICAN COPPER MINING & MILLING CO.
Office: Kellogg. **Officers:** W. Schaefer, Pres.; Mrs. Augusta Loch, Sec., both of Kellogg. **Inc.:** Nov. 30, 1908. **Capital:** 1,500,000 shares; par value $1; 1,000,000 shares issued. **Property:** 3 patented, 4 unpatented claims, Little North Fork dist.; Linfor. **Development:** Principally by 2 tunnels, the longest of which is 950 ft. **Ore:** Copper, lead-silver.

HAYDEN LAKE MINING & MILLING CO.
Office: Rathdrum. **Officers:** Fred H. Bradbury, Pres.; Chas. E. Gillespie, Sec., both of Rathdrum. **Inc.:** May 8, 1917. **Capital:** 1,000,000 shares; par value 5c; 585,372 shares issued. **Property:** Bradbury group; 14 unpatented claims, Hayden Lake dist.; Garwood. **Development:** By 2 tunnels: No. 1, 200 ft.; No. 2, 800 ft. **Plant:** Small gas-driven compressor; complete mining equipment. **Ore:** Lead-silver, copper. **Remarks:** Annual labor only.

LITTLE NORTH FORK COPPER MINING & MILLING CO., LTD.

Officers: T. R. Mason, Pres., Kellogg. **Inc.:** Sept. 29, 1903. **Capital:** 1,500,000 shares; par value $1; 1,100,000 shares issued. **Property:** Hand Spike group; 3 patented claims, Little North Fork dist.; Linfor. **Development:** 2 tunnels: No. 1, 1600 ft. long; No. 2, 500 ft. long. **Ore:** Copper.

PALISADE MINING & MILLING CO.

Office: Coeur d'Alene. **Officers:** T. W. Schmidt, Pres.-Mgr., Coeur d'Alene; A. K. Rogers, Sec., E. 1301 Providence Ave., Spokane, Wash. **Inc.:** Jan. 31, 1912. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Palisade group; 16 unpatented claims, unorganized dist.; Kellogg. **Development:** Approximately 1250 ft. of tunnels, the principal of which is No. 2, 1130 ft. long. **Ore:** Silver-lead. **Men employed:** Average, 3. **Remarks:** In addition to extending the principal tunnel 40 ft. during the year, a large amount of road construction was performed. Funds for this work were derived from stock assessments.

RADIO MINING CO.

Office: 121 Second St., Coeur d'Alene. **Officers:** W. P. Brennan, Pres.-Mgr.; G. M. Palmerton, Sec., both of Coeur d'Alene. **Inc.:** Dec. 13, 1928. **Capital:** 1,500,000 shares; par value 10c; no shares issued. **Property:** 3 unpatented claims, Wolf Lodge dist.; Coeur d'Alene. **Development:** By 3 short tunnels. **Ore:** Lead-silver.

RED HORSE MINING CO.

Office: Harrison. **Officers:** M. W. Frost, Pres.; J. B. Manifold, Sec., both of Harrison. **Inc.:** July 14, 1904. **Capital:** 1,500,000 shares; par value $1; 250,000 shares issued. **Property:** Red Horse group; 18 unpatented claims, Lake Front dist.; Springston. **Development:** Approximately 2720 ft. of underground workings. **Plant:** MINE: 40-h. p. F-M gas engine driving a 2-drill Sullivan compressor; complete mining equipment and camp. MILL: 5-ton gas-driven concentrator. **Ore:** Copper. **Remarks:** Annual labor only, performed by contract.

RIVERSIDE COPPER MINING CO., LTD.

Office: Kellogg. **Officers:** T. R. Mason, Pres., Kellogg; S. S. Bonham, Sec., Spokane. **Inc.:** Sept. 17, 1906. **Capital:** 1,000,000 shares; par value $1; 900,000 shares issued. **Property:** 5 patented claims, Little North Fork dist.; Linfor. **Development:** 1 tunnel, 530 ft. long. **Ore:** Lead-silver.

ROYAL MINING CO.

Office: Coeur d'Alene. **Officers:** A. H. Moe, Pres.-Mgr.; Soren Simonson, Sec., both of Coeur d'Alene. **Inc.:** Dec. 24, 1910. **Capital:** 1,500,000 shares; par value $1; 706,653 shares issued. **Property:** 6 unpatented claims, Wolf Lodge dist.; Coeur d'Alene. **Remarks:** Small amount of prospecting work during the summer months, funds for which were derived from stock assessments.

SILVERTIP MINING ASSOCIATION

Office: Coeur d'Alene. **Officers:** B. A. Loveless, Pres.; F. W. Reed, Sec., both of Coeur d'Alene. **Inc.:** An association. **Property:** Silvertip group; 16 unpatented claims, Wolf Lodge dist.; Coeur d'Alene. **Development:** By 1 tunnel, 600 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** Active throughout the year in extending its No. 1 tunnel, in which the disclosure of some high-grade lead-silver ore was reported. Funds for work were derived from stock assessments.

TWIN GULCH MINING CO.

Office: 721 Harrison Ave., Coeur d'Alene. **Officers:** J. O. Holman, Pres.-Mgr.; G. W. Sonnichsen, Sec., both of Coeur d'Alene. **Inc.:** Feb. 2, 1924. **Capital:** 1,000,000 shares; par value 10c; 352,000 shares issued. **Property:** Twin Gulch group; unorganized dist.; Coeur d'Alene. **Development:** By 2 short tunnels. **Ore:** Lead-silver.

WOLF LODGE MINING CO.

Office: 108 N. 4th St., Coeur d'Alene. **Officers:** S. J. Nesdrom, Pres., Seattle, Wash.; Oscar W. Nelson, Sec.; F. N. Kilborn, Mgr., both of Coeur d'Alene. **Inc.:** Nov. 7, 1925. **Capital:** 2,000,000 shares; par value 25c; 800,000 shares issued. **Remarks:** This company is a reorganization of the Home Builder Mining & Development Co. The reorganization was perfected in 1925, since which time the officers of the company have refused to file their necessary reports, yet throughout the greater part of this period a large number of stock assessments have been levied.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Commander et al.	Medimont	Albert T. Allen	Medimont
Elizabeth	Unorganized	H. C. Cullom et al	Coeur d'Alene
Fortune	Medimont	Anna M. Blessing	Medimont
Island Quartz	Killarney L.	Max R. Crosby	Kellogg
Joe et al.	Wolf Lodge	Soren Simonson	Coeur d'Alene
Kaiser William et al.	Unorganized	Frank Costin	Coeur d'Alene
Keinwood	Unorganized	R. L. Keinholz	Corbin
Pine et al.	Medimont	W. D. Tuck	Lane
Porcupine et al.	Hayden Lake	Arthur Jacobson	Enaville
Quebeck	Medimont	Achille Fortier	Medimont
Ridge et al.	Burnt Cabin	Adolf V. Johnson	Coeur d'Alene
Ruby	Unorganized	A. Benjamin	Athol
Seven Stubbs et al.	Medimont	R. W. Metler et al.	Rose Lake
Spokane Valley Zinc	Unorganized	H. J. Neely et al.	Spokane, Wash.
Sunset Gr.	Unorganized	G. C. Staggs et al	Athol

BIBLIOGRAPHY

See pages 13-14 for publisher's address, meaning of reference marks, and abbreviations.

A geological reconnaissance in northern Idaho and northwestern Montana, by F. C. Calkins, with notes on the economic geology, by D. F. MacDonald: U. S. Geol. Survey Bull. 384, **1909.***

Guidebook of the western United States, by M. R. Campbell and others: U. S. Geol. Survey Bull. 611, pp. 150-156, 160, **1915.**‡

The mining districts of northern Idaho, by E. K. Soper: Min. & Sci. Press, vol. 116, p. 125, **1918.***

Preliminary report on the clays of Idaho, by F. H. Skeels: Idaho Bureau of Mines and Geology Bull. 2, **1920.****

Coeur d'Alene Lake, Idaho, and the overflow lands, by R. W. Davenport: U. S. Geol. Survey Water-Supply Paper 500, **1921.***

Geology of the Latah formation in relation to the lavas of the Columbia plateau near Spokane, Washington, by J. T. Pardee and Kirk Bryan: U. S. Geol. Survey Prof. Paper 140A, **1926.**‡

Some Miocene and Pleistocene drainage changes in northern Idaho, by A. L. Anderson: Idaho Bureau of Mines and Geol. Pamphlet 18, **1927.****

LATAH COUNTY

Latah County is bounded on the north by Benewah, on the south by Nez Perce, on the west by the State of Washington, and on the east by Shoshone and Clearwater counties. It has an area of 1071 square miles, and was accredited with a population of 18,092 in the 1920 census. Moscow is the largest town and county seat, as well as the location of the University of Idaho and the Idaho Bureau of Mines and Geology. The county is recognized primarily as an agricultural community, particularly for wheat raising.

The principal mineral resources are copper, gold, silver, opals, mica, feldspar, and high-grade fire clay. The clay occurs near the town of Troy and two companies are engaged in manufacturing it into brick, which is used by

different smelters in the northwestern states. The copper, gold, silver, and mica occur in the northern part of the county, north of the towns of Harvard and Vassar, in the Gold Hill, or Blackfoot, Hoodoo, and Avon districts. These districts are served by the Washington, Idaho and Montana Railroad, which connects with the Northern Pacific and the Spokane and Eastern railroads at Palouse, Washington, and the St. Maries-Elk River branch of the Chicago, Milwaukee and St. Paul Railroad at Bovill.

The mica mines have produced a large tonnage of high-grade mica. The resources of the old ones have not been exhausted, many of the prospects justify further development, and there are still many possibilities for the discovery of new veins. As there are many chances for the development of profitable enterprises, these deposits are worthy of more attention than they have been receiving in the past few years.

The development of the mica deposits in this county was resumed during the year. The principal one of these was the Muscovite Mica Co., which reported that it had driven a 300-ft. tunnel to intersect the vein at greater depth.

ACE MINING CO.

Office: Orchard Ave., Spokane, Wash. **Officers:** Chas. G. Taylor, Pres.-Mgr.; W. F. Clausen, Sec., both of Spokane, Wash. **Inc.:** Oct. 29, 1926. **Capital:** 1,500,000 shares; par value 10c; 607,010 shares issued. **Property:** 4 patented, 2 unpatented claims, Hoodoo dist.; Harvard. **Development:** By 2 tunnels: No. 1, 300 ft. long; No. 2, 90 ft. long. **Ore:** Gold. **Remarks:** Idle.

CASSIDY GOLD MINING & MILLING CO., LTD.

Officers: N. J. Stockbridge, Sec., Wallace. **Inc.:** Mar. 12, 1899. **Capital:** 600,000 shares; par value 5c; 437,000 shares issued. **Property:** Cassidy; 1 patented claim, Blackfoot dist. **Ore:** Gold.

COPPER CHIEF MINING & MILLING CO., LTD.

Office: Troy. **Officers:** Robert Olson, Pres.; Alex Johanson, Sec., both of Troy. **Inc.:** July 27, 1914. **Capital:** 1,000,000 shares; par value $1; 485,129 shares issued. **Property:** Copper Chief group; 2 unpatented claims and 10 acres of deeded land, unorganized dist.; Troy. **Development:** By 3 tunnels: No. 1, 300 ft. long; No. 2, 500 ft. long; No. 3, 550 ft. long. **Ore:** Copper. **Remarks:** Annual labor only.

COPPER MOUNTAIN MINING CO.

Office: Palouse, Wash. **Officers:** R. A. Belvail, Pres.; J. C. Northrup, Sec., both of Palouse. **Inc.:** Oct. 29, 1925. **Capital:** 3,750,000 shares; par value 1c; 1,296,765 shares issued. **Property:** Mizpah group; 20 unpatented claims, Hoodoo dist.; Harvard. **Development:** Total development approximately 2600 ft. **Plant:** A 12x14 gas-driven compressor; complete mining equipment, and camp. **Ore:** Copper. **Remarks:** A reorganization of the Merger Mining Co., Ltd. Annual labor only.

GOLD HILL MINING & MILLING CO.

Office: Harvard. **Officers:** K. F. Pinnell, Pres.-Mgr.; May Pinnell, Sec., both of Harvard. **Inc.:** Nov. 6, 1922. **Capital:** 1,000,000 shares; par value 25c; 612,959 shares issued. **Property:** Gold Bug group; 4 patented claims, 65 acres; held under lease and bond from the Garfield Mining & Milling Co., of Garfield, Wash.; Blackfoot dist.; Harvard. **Development:** Approximately 1200 ft. of tunnels and drifts, and 1 vertical shaft 300 ft. deep. **Plant:** Steam-driven hoist and compressor. **Ore:** Gold, silver, copper.

IDAHO CERAMIC MATERIALS CO.

Office: W. 326 First Ave., Spokane, Wash. **Officers:** Carl R. Suksdorf, Pres.-Mgr., Troy; L. P. Mills, Sec., Spokane, Wash. **Inc.:** Sept. 17, 1927. **Capital:** 275,000 shares; par value $1; 100,000 shares issued. **Property:** 288 acres of patented farm land near Troy; held under lease and option. **Mineral sought:** Koalin, silica, mica. **Remarks:** A small amount of development work.

MUSCOVITE MICA CO.

Office: Box 166, Lewiston. **Officers:** Jack Wills, Pres., Kooskia; W. E. Parry, Sec., Lewiston. **Inc.:** Feb. 7, 1927. **Capital:** 5000 shares; par value $100; 3000 shares issued. **Property:** Muscovite Mica group; 2 unpatented claims and 35 acres held under State lease. **Mineral sought:** Mica. **Men employed:** Average, 3. **Remarks:** During the year the road was reconstructed, and a projected 500-ft. tunnel was driven 300 ft.

TROY GOLD & COPPER MINING CO., LTD.

Office: Troy. **Officers:** E. J. Gemmill, Pres.-Mgr., Moscow; T. H. Christie, Sec., Troy. **Inc.:** May 26, 1909. **Capital:** 1,000,000 shares; par value $1; 510,100 shares issued. **Property:** 20 acres patented farm land, unorganized dist.; Troy. **Ore:** Copper. **Remarks:** Idle.

MINING DIST.	NAME OF MINE	OWNER	P. O. ADDRESS
Anny Gr.	Hoodoo	P. Doffner	Harvard
Avon	Hoodoo	J. H. Nesbit	Deary
Blake Gr.	Hoodoo	M. W. Nelson	Spokane, Wash.
Bonanza Gold Pl.	Gold Creek	Wm. J. Schmidt	Potlatch
Carrico Pl.	Gold Creek	Paul Bockmier	Paulsen Bldg., Spokane, Wash.
Clara Lester Gr.	Gold Creek	James C. Throop	Palouse
Eureka Gr.	Gold Creek	Edwin N. Carrico	Potlatch
Excelsior	Gold Creek	Arthur P. Gilliam	Potlatch
Gold Bug	Gold Creek	Arthur P. Gilliam	Potlatch
Idaho	Hoodoo	G. E. Arrasmith	Harvard
Knapp Bros.	Hoodoo	Harry Knapp	Harvard
Midas	Hoodoo	H. N. Gray	Potlatch
Monday	Hoodoo	V. P. Wiesenthal	Palouse, Wash.

BIBLIOGRAPHY

See pages 13-14 for publisher's address, meaning of reference marks, and abbreviations.

Geology and water resources of Nez Perce County, Idaho, by I. C. Russell: U. S. Geol. Survey Water-Supply Papers 53 and 54, **1901.**‡*

A geological reconnaissance across the Bitterroot Range and Clearwater Mountains in Montana and Idaho, by Waldemar Lindgren: U. S. Geol. Survey Prof. Paper 27, **1904.***

Mica in Idaho, New Mexico, and Colorado, by D. B. Sterrett: U. S. Geol. Survey Bull. 530, pp. 375-390, **1911.***

A preliminary report of the clays of Idaho, by F. H. Skeels, Idaho Bureau of Mines and Geology Bull. 2, **1920.****

The copper deposits of the Seven Devils and adjacent districts, by D. C. Livingston and F. B. Laney: Idaho Bureau of Mines and Geology Bull. 1, **1920.***

Mica deposits of the United States, by D. B. Sterrett: U. S. Geol. Survey Bull. 740, **1923.**‡

Mica deposits of Latah County, Idaho, by A. L. Anderson: Idaho Bureau of Mines and Geology Pamphlet 14, **1925.****

Ground water for municipal supply at Potlatch, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 23, **1927.****

LEMHI COUNTY

Lemhi County is situated in central-eastern Idaho, bounded on the north and east by the State of Montana, on the west by Idaho and Valley counties, and on the south by Custer, Butte, and Clark counties. It has an area of 4597 square miles, which is about equal to the State of Connecticut, and was accredited with a population of 5164 in the 1920 census, or 1.1 persons to the square mile. A provisional county government was organized in July, 1867, and in January, 1869, the Territorial Legislature permanently established the county with Salmon City as the county seat, an honor which it has always retained. The larger part of the population is located in the Lemhi River and Pahsimeroi River valleys, and is engaged in the pursuits of agriculture and stockraising.

It is one of the principal mining counties of the State, and always ranks as one of the largest producers. The extensive and varied mineral resources; the many veins that have been discovered, yet not developed; the many undiscovered veins; the excellent mining conditions; the many producing mines and prospects; and its location, both geographically and geologically, place this county within the area known as Central Idaho's Mineral Empire.

The county is served by the Pittsburg & Gilmore Railroad, which plies between Armstead, Montana, and Salmon, with a branch line from Leadore to Gilmore; by the Sawtooth Park State highway from Challis to Salmon, which follows the Salmon River and which is fully completed; and by a system of county roads which lead into all the outlying settlements and mining districts.

The principal mineral resources are lead, copper, silver, gold, zinc, tungsten, manganese, molybdenum, nickel, cobalt, gypsum, tin, and lignite. The formations in which the various mineral deposits occur range from early sedimentary rocks to late igneous rocks and include all those which are favorable to the deposition of ore in commercial quantities. The deposits are widely distributed throughout the vast mountainous areas which comprise a large part of the county. The wide distribution of the deposits, the diversity of mineralization, the favorable geological conditions, and the many opportunities for the development of profitable enterprises, make this county an exceptionally favorable field for prospectors and development companies.

In point of production and number of men employed, Gilmore continues to be the most active mining camp in Idaho outside of the Coeur d'Alene district. The Pittsburgh-Idaho mine of the United Idaho Mining Co., a subsidiary of the U. S. Smelting, Refining & Mining Co., is the largest lead-producing mine and maintains the second largest pay roll in southern Idaho. During the year this company extended its shaft from the 800-foot level to the 1000-foot level, where the ore bodies proved to be of greater extent than on the 800-foot level. In addition to sinking the shaft, this company performed a large amount of development work and produced and marketed a large tonnage of high-grade, direct-shipping ore, some of which was obtained by lessees. During the year the United States Smelting, Refining & Mining Co. obtained a lease and option on the Allie mine and commenced developing it through what is known as the Transportation tunnel. This tunnel is about 600 feet under the upper workings, which were operated throughout the year by lessees who produced a substantial tonnage of direct-shipping ore. Two small organizations developing prospects in the Gilmore district were also active during the year. The Spring Mountain and Nicholia districts witnessed a little increase in activity over the previous year, and one small organization shipped two carloads of hand-sorted ore.

The only work done in the Leadore district during the year was necessary annual labor. In the vicinity of Salmon there was a marked improvement in mining conditions which was principally brought about by the operations at the Pope-Shenon mine by the lessee, the Winder-Stillman Copper Co., which rebuilt the mill, added flotation cells, performed a large amount of development work in the mine, and produced and marketed a

substantial tonnage of high-grade copper concentrate. The Tendoy-Copper Queen Mining Co., operating the Copper Queen mine, rebuilt the mill, constructed new mine camp buildings, and placed the mine in condition for operation. The Harmony Mines Co. performed a small amount of development work and operated its mill for a short period, although the company's principal activity appeared to be that of raising more funds.

In the Leesburg district the principal new activities were based on the revival of hydraulic placer mining. Four enterprises constructed ditches, dams, and flumes, completed the installation of hydraulic mining equipment and performed a small amount of hydraulicking. These were: Bonanza Placer, Inc.; H. F. Byram at the McNutt Placers on Moose Creek; Montana Mining & Livestock Co.; and Leesburg Placer Mine Co. The Patterson Mines Corporation, which is operating the Ima mine on Patterson Creek in the Pahsimeroi district, completed the rehabilitation of the power plant and mill and commenced active mine development work. The Clipper Bullion mine in the Shoup district was acquired by H. W. Ingalls and associates of Mullan, and development work started in October. The Buckhorn Mining Co., a new organization on the Sellers Bros. property on Little Eight-Mile, installed a compressor, complete mining equipment, and began the active development of the property.

ALLIE MINE

Office: Gilmore. **Officers:** Edgar C. Ross, Lessee; Ervin Jewett, Mgr. both of Gilmore. **Property:** Allie group; 12 patented claims, Texas dist. Gilmore; operated under lease from the Gilmore Mercantile Co. **Development:** Principally by 1 tunnel, 6000 ft. long, in which are 2 inclined shafts with 6 intermediate levels, opening the vein 290 ft. below the tunnel. **Plant:** 40-kw. electric generator, driven by Fairbanks-Morse semi-Diesel engine; 2 electrically-driven hoists; 1200-ft. aerial tramway; mine buildings. **Ore:** Lead-silver. **Men employed:** Average, 16. **Remarks:** A large amount of development work was performed and a substantial tonnage of ore was produced and marketed. During the year the property was optioned to the United States Smelting, Refining & Mining Co. who commenced developing it through what is known as the Transportation tunnel. This tunnel is about 600 ft. under the upper workings.

BEAVERHEAD LEAD MINES CO.

Office: Cheney Bldg., Reno, Nev. **Officers:** John Salsberry, Pres., Mill Bldg., San Francisco; J. E. Sullivan, Sec., Cheney Bldg., Reno, Nev. **Inc.:** Filed in Idaho, May 12, 1927. **Capital:** 3,000,000 shares; par value 10c; 2,000,000 shares issued. **Property:** Viola group; 1 patented, 1 unpatented claim, Nicholia dist.; Gilmore. **Ore:** Lead-silver. **Remarks:** Operated throughout the year by 2 lessees, who produced and shipped a small tonnage of ore.

BONANZA PLACER, INC.

Office: Leesburg. **Officers:** Carl A. Poulsen, Pres.-Mgr.; G. C. Hodson Sec., both of Leesburg . **Inc.:** Filed in Idaho, Dec. 6, 1926. **Capital:** 2,500,000 shares; par value 10c; 1,900,000 shares issued. **Property:** 1 unpatented placer claims, Mackinaw dist.; Leesburg. **Ore:** Placer gold. **Men employed:** Average 10. **Remarks:** Construction of ditches, dams and flumes completed, hydraulic equipment installed, and a small amount of mining done prior to freezing weather.

CONTINENTAL STANDARD MINING CO.

Office: Pocatello. **Officers:** C. M. Sonoda, Pres., Pocatello; M. F. Barrett, Sec.; C. N. Friday, Mgr., both of Leadore. **Inc.:** Jan. 2, 1926. Charter forfeited Nov. 30, 1928. **Capital:** 100,000 shares preferred, 1,000,000 shares common; par value $1; 782,350 shares issued. **Property:** Grizzly Hill group; 33 unpatented claims, Junction dist.; Leadore. **Development:** By 5 tunnels, totaling approximately 1000 ft. **Ore:** Lead-silver. **Men employed:** Average, 6. **Remarks:** Small amount of development during the summer months.

GOLD FLOTATION DEVELOPMENT CO.

Office: 402 Empire State Bldg., Spokane, Wash. **Officers:** Harold Williams, Pres., Masonia; H. G. Loop, Sec., Spokane, Wash. **Inc.:** May 9, 1927. **Capital:** 1,500,000 shares; par value 10c; 861,050 shares issued. **Property:** Singiser group; 6 patented claims, Gravel Range dist.; Forney. **Ore:** Gold.



PLACER MINING IN LEMHI COUNTY

GOLDSTONE MINES CORPORATION

Office: 409 Empire State Bldg., Spokane, Wash. **Officers:** Geo. H. Walters, Pres.; O. C. Lapp, Sec., both of Spokane; Andrew Prader, Mgr., Baker. **Inc.:** Apr. 9, 1928. Charter forfeited Nov. 30, 1928. **Capital:** 2,000,000 shares; par value 25c; 107,000 shares issued. **Property:** Goldstone group; 11 unpatented claims held under lease and option. **Development:** Principally by one tunnel 1000 ft. long. **Plant:** MINE: Steam-driven compressor; complete mining equipment and camp. MILL: 10-stamp mill. **Ore:** Gold. **Remarks:** Small amount of development work and a short mill-run during the year.

HAYNES-STELLITE CO.

Office: 30 E. 42d St., New York City. **Officers:** B. O'Shea, Pres.; A. G. Cornell, Sec., both of New York City; F. P. Gormely, Mgr., Kokomo, Ind. **Inc.:** Feb. 8, 1917. **Capital:** 7500 shares; par value $100; 2250 shares issued. **Property:** Cobalt group; 10 patented, 24 unpatented claims, Blackbird dist.; Leesburg. **Development:** 2 tunnels: No. 1, 440 ft. long; No. 2, 550 ft. long; and numerous crosscuts and raises totaling approximately 3600 ft. **Plant:** MINE: 200-cu.-ft. gas-driven compressor; gravity tramway. MILL: Small steam-driven concentrator. **Ore:** Cobalt. **Remarks:** Idle.

HORSE CREEK MINING CO.

Office: Salmon. **Officers:** P. H. Martin, Pres.-Mgr., Alta, Mont.; H. C. Packer, Sec., Hamilton, Mont. **Inc.:** May 1, 1923. **Capital:** 100,000 shares; par value $1; 56,872 shares issued. **Property:** Horse Creek group; 7 unpatented claims, 140 acres; Mineral Hill dist.; Alta, Mont. **Development:** About 500 ft. of tunnels. **Ore:** Lead-silver. **Remarks:** In addition to annual labor, a small amount of road building was done during the year.

IDAHO MINERALS CO.

Office: Idaho Falls. **Officers:** Simon Martin, Pres.-Mgr.; Louis Saar, Sec., both of Idaho Falls. **Inc.:** Aug. 13, 1919. **Capital:** 500 shares; par value $100; 325 shares issued. **Property:** Red Warrior group; 3 unpatented claims, Spring Mountain dist.; Gilmore. **Development:** By 2 tunnels: No. 1, 180 ft. long; No. 2, 275 ft. long. **Plant:** 50-ton steam-driven concentrator, built in 1921. **Ore:** Lead-silver. **Remarks:** Annual labor only.

IDAHO PREMIER MINES CORPORATION

Office: Kellogg. **Officers:** A. C. Beal, Pres.-Mgr.; Lester S. Harrison, Sec., both of Kellogg. **Inc.:** Mar. 28, 1927. **Capital:** 1,200,000 shares; par value $1; shares issued, unknown. **Property:** Leadore group; 36 unpatented claims, Junction dist.; Leadore. **Development:** By 2 tunnels: No. 1, 500 ft. long; No. 2, 876 ft. long. **Plant:** MINE: Small gas-driven compressor. MILL: Small gas-driven concentrator. **Ore:** Lead-silver. **Remarks:** Annual labor only.

IMA CONSOLIDATED MINING & MILLING CO.

Office: 608 Deseret Bank Bldg., Salt Lake City, Utah. **Officers:** Oscar W. Moyle, Pres.; Harry W. Rudine, Sec., both of Salt Lake City, Utah. **Inc.:** Dec. 16, 1902. **Capital:** 200,000 shares; par value 1c; all shares issued. **Property:** Ima group; 21 patented, 4 unpatented claims, Blue Wing dist.; May. **Development:** By 2 tunnels: No. 1, 1250 ft. long; No. 2, 1000 ft. long. **Plant:** MINE: Water-driven compressor; complete mining equipment and camp. MILL: 100-ton water-driven concentrator, constructed in 1915. **Ore:** Silver, copper, tungsten. **Remarks:** Property under lease to Patterson Mines Corporation.

LATEST OUT MINING & SMELTING CO., LTD.

Office: Salmon. **Officers:** D. L. Nichols, Sec.-Mgr., Salmon. **Inc.:** May 23, 1910. **Capital:** 500,000 shares; par value $1; all shares issued. **Property:** Latest Out; 1 patented claim, Texas dist.; Gilmore. **Development:** 1 tunnel, 365 ft. long; 2 inclined shafts, totaling 1100 ft., giving a vertical depth on the vein of 700 ft. Total development approximately 32,000 ft. **Plant:** F-M 40-h. p. gas-driven hoist; 145-cu.-ft. I-R gas-driven compressor; gravity tram; complete mining equipment and camp. **Ore:** Lead-silver. **Remarks:** Idle on account of litigation.

LEADORE-LEMHI COPPER MINING CO.

Office: Leadore. **Officers:** J. D. Pritchett, Pres.-Mgr.; Roland Davidson, Sec., both of Leadore. **Inc.:** Aug. 22, 1927. **Capital:** 500,000 shares; par value 10c; 150,000 shares issued. **Property:** Baltimore group; 3 unpatented claims, McDevitt dist.; Leadore. **Development:** By 2 short tunnels. **Ore:** Copper-silver. **Men employed:** Average, 1. **Remarks:** Active during the summer months.

LEMHI MINING CO.

Office: Winchester, Ind. **Officers:** R. W. Knowlton, Pres., Ashtabula, Ohio; A. L. Nichols, Sec., Winchester, Ind.; R. E. Lee Ramey, Mgr., Salmon. **Inc.:** Jan. 16, 1924. **Capital:** 5000 shares; no par value; 4942 shares issued. **Property:** Rabbit Foot group; 8 unpatented claims, Gravel Range dist.; Forney. **Development:** By 3 tunnels, the principal one of which is 1700 ft. long. **Plant:** MINE: Steam-driven hoist. MILL: 10-stamp amalgamation. **Ore:** Gold. **Remarks:** Annual labor only.

McNUTT PLACER

Lessee: H. F. Byram, Route 8, Portland, Ore. **Property:** McNutt placer; 2 patented, 3 unpatented claims, Leesburg dist.; Leesburg; held under lease from John E. Mullen, Salmon. **Plant:** Hydraulic equipment. **Ore:** Placer gold. **Men employed:** Average, 7. **Remarks:** Ditches, dams, and flumes were constructed; mining equipment was installed; and a small amount of hydraulicking was performed during the year.

MONTANA MINING & LIVESTOCK CO.

Office: 1027 S. Flower St., Los Angeles, Calif. **Officers:** C. A. Devlan, Pres.-Mgr., Leesburg; E. H. Devlan, Sec., Los Angeles, Calif. **Inc.:** Mar. 8, 1919. **Capital:** 5,000,000 shares, par value 10c, 961,493 shares issued. **Property:** Leesburg group: 11 unpatented placer claims, Meadow dist., Leesburg. **Plant:** Steam-driven hoist and 100-cu.-ft. I-R compressor; complete mining and logging equipment; saw mill; complete camp and buildings. **Ore:** Placer gold. **Remarks:** Small amount of work during the summer months.

NORTHWESTERN DEVELOPMENT CO., LTD.

Office: Ashland, Ky. **Officers:** C. E. Williams, Pres.; Thomas Boggess, Sec., both of Ashland, Ky. **Inc.:** Aug. 24, 1916. **Capital:** 500,000 shares, par value $1; 233,846 shares issued. **Property:** Primrose group: 4 patented claims, Eldorado dist.; Salmon. **Plant:** Gas-driven compressor; complete mining equipment and mine camp. **Ore:** Gold-silver-copper. **Remarks:** Idle.

PATTERSON MINES CORPORATION

Office: First National Bank Bldg., Pocatello. **Officers:** Finis Bentley, Pres.; W. R. Howard, Sec., both of Pocatello; W. P. Barton, Mgr., May. **Inc.:** Apr. 3, 1927. **Capital:** 1,000,000 shares, par value $1; 121,107 shares issued. **Property:** Lease and option on property of Ima Consolidated Mining & Milling Co. **Men employed:** Average, 12. **Remarks:** In addition to a small amount of development work being performed, mill and power plant were further repaired during the year.

POCATELLO-LEMHI MINING & EXPLORATION CO.

Office: 231 N. Main St., Pocatello. **Officers:** W. E. Magnuson, Pres.; Al. Hawkins, Sec., both of Pocatello; M. F. Barrett, Mgr., Leadore. **Inc.:** Oct. 22, 1925. **Property:** Jamieson group, 18 unpatented claims, Junction dist.; Leadore. **Development:** By 4 tunnels. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Small amount of development work during the summer months. A short assessment of 3 miles was levied on February 27.

PORTLAND MINING CO.

Office: Butte, Mont. **Officers:** E. J. Carleton, Pres., N. Y. Life Bldg., Minneapolis, Minn.; W. S. Shaw, Sec., Butte, Mont. **Inc.:** Aug. 11, 1916. **Capital:** 500,000 shares, par value $1; all shares issued. **Property:** Portland group: 3 patented, 11 unpatented claims, Texas dist., Gilmore. **Remarks:** Small amount of development work by lessees.

RESCUE GOLD MINES CO.

Office: P. O. 824, Pasadena, Calif. **Officers:** Chas. Muehrcke, Pres.; Willis H. Brown, Sec., both of Pasadena, Calif. **Inc.:** Apr. 27, 1916. Charter forfeited Nov. 30, 1924. **Capital:** 50,000 shares, par value $1; 18,891 shares issued. **Property:** Rescue group: 21 patented claims, Patterson dist.; Gibbonsville. **Ore:** Gold. **Remarks:** Idle.

SPRING MOUNTAIN MINING CO., INC.

Office: Gilmore. **Officers:** E. G. Carlson, Pres.; A. S. Weiss, Sec., both of Gilmore. **Inc.:** Filed in Idaho, Dec. 14, 1927. **Capital:** 1,000 shares, par value $100; all shares issued. **Property:** Big Windy group, 1 unpatented claims, Spring Mountain dist.; Gilmore; held under lease and option. **Development:** By 3 tunnels: No. 1, 275 ft.; No. 2, 875 ft.; No. 3, 200 ft. **Ore:** Lead-silver. **Men employed:** Average, 6. **Remarks:** Mine buildings repaired; small amount of development work performed; small tonnage of ore produced and marketed.

TENDOY COPPER QUEEN MINING CO.

Office: Salmon. **Officers:** C. B. Bash, Pres.-Mgr., Salmon; H. T. Rosecrans, Sec., Toledo, Ohio. **Inc.:** Feb. 14, 1924. **Capital:** 100,000 shares common, par value $1; 2000 shares preferred, par value $10; 10,000 shares common, 375 shares preferred issued. **Property:** Copper Queen group; 3 patented, 6 unpatented claims, held under lease and option, McDevitt dist.; Tendoy. **Development:** By 3 tunnels and a 300-ft. shaft. **Plant:** MINE: Gas-driven compressor; complete mining equipment and

camp. MILL: 50-ton gas-driven concentrator. **Ore:** Copper-gold. **Men employed:** Average, 12. **Remarks:** During the year camp buildings were reconstructed, mill was rehabilitated, a small amount of development work performed, and small tonnage of crude ore marketed.

UNCLE SAM MINING & DEVELOPMENT CO., LTD.
Office: Salmon. **Officers:** Owen Swift, Pres.-Mgr.; L. E. Glennon, Sec., both of Salmon. **Inc.:** May 20, 1926. **Capital:** 250,000 shares; par value 10c; 125,000 shares issued. **Property:** Uncle Sam group; 4 unpatented claims, Eldorado dist.; Tendoy. **Development:** By 1 tunnel 250 ft. long. **Men employed:** Average, 2. **Ore:** Copper. **Remarks:** This property is owned and financed by local people, who actively prosecuted the driving of the tunnel throughout the year.

UNITED IDAHO MINING CO.
Office: No. 1, State St., c|o U. S. Smelting, Refining & Mining Co., Boston. **Officers:** C. A. Hight, Pres.; F. W. Batchelder, Sec., both of Boston; D. D. Muir, Jr., Mgr., Newhouse Bldg., Salt Lake City. **Inc.:** Oct. 18, 1924. **Capital:** 10,000 shares common, no par value; 10,000 shares preferred, par value $10; 7053 shares common issued. **Property:** Pittsburg-Idaho group; 5 patented claims, Texas dist.; Gilmore. **Development:** 4 tunnels: No. 1, 600 ft. long; No. 2, 950 ft. long; No. 3, 1600 ft. long; No. 4, 1300 ft. long, in which is an inclined shaft 1200 ft. long, which gives a vertical depth of 950 ft. on the vein. **Plant:** MINE: 2 200-kw. Allis-Chalmers Diesel engines with generator, 1 I-R electrically-driven 9x8, and 1 C-P gas-driven compressor; 100-h.p. electrically-driven double-drum hoist; complete mining equipment, camp, and buildings. MILL: 50-ton gas-driven concentrator. **Ore:** Lead-silver. **Men employed:** Average, 94. **Remarks:** This mine is the largest lead-silver mine in southern Idaho and maintains the second largest payroll. A large tonnage was produced and marketed, part of which was extracted by lessees; and active mine development work was maintained throughout the year, consisting principally of sinking the shaft from the 850 to the 950-ft. level. One new 200-kw. Allis-Chalmers Diesel engine with generator was installed during the year.

UTANA MINING CORPORATION
Office: 205 Felt Bldg., Salt Lake City, Utah. **Officers:** W. H. Penner, Pres.-Mgr.; Web Greene, Sec., both of Salt Lake City. **Inc.:** Aug. 4, 1921. **Capital:** 1,000,000 common, par value 10c; 100,000 preferred, par value $1; 119,000 shares issued. **Property:** Big Dyke group; 22 unpatented claims, Freeman dist.; Salmon. **Development:** Approximately 1600 ft. of underground workings. **Plant:** Steam-driven compressor; complete mining equipment and camp; complete machinery and equipment for a cyanide plant. **Ore:** Lead, silver, copper, zinc. **Remarks:** Annual labor only.

VIRGINIA GOLD MINING & MILLING CO.
Office: 1462 S. 9th E., Salt Lake City, Utah. **Officers:** W. A. Shaw, Pres.; L. M. Byers, Sec., both of Salt Lake City. **Inc.:** Aug. 21, 1925. **Capital:** 2,500,000 shares; par value 1c; 2,000,000 shares issued. **Property:** Virginia group; 9 patented, 13 unpatented claims, Eureka dist.; Baker.

WINDER-STILLMAN COPPER CO.
Office: Salmon. **Officers:** R. H. Winder, Pres., Salt Lake City; J. W. Jones, Sec.-Mgr., Salmon. **Inc.:** Unknown. **Capital:** 1,000,000 shares; par value 1c; 330,275 shares issued. **Property:** Pope-Shenon group; 12 patented claims, Eureka dist.; Salmon. **Development:** 6 tunnels: No. 1, 70 ft. long; No. 2, 80 ft. long; No. 3, 400 ft. long; No. 4, 130 ft. long; No. 5, 800 ft. long; No. 6, 1000 ft. long. Total development approximately 3000 ft. of underground workings. **Plant:** MINE: 12x10 I-R electrically-driven compressor; Sullivan steel sharpener; complete mining equipment and camp. MILL: 60-ton electrically-driven concentrator, including fine grinding and flotation. **Ore:** Copper. **Men employed:** Average, 33. **Remarks:** Active throughout the year, and a substantial tonnage of concentrate marketed.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Alex Stevens	Texas	Wm. Howard	Gilmore
Anaconda Gr.	Eldorado	J. H. Adams Est.	Salmon
Anaconda et al.	Blackbird	A. C. Ludwig	Salmon
Andy Lee	Gravel Range	F. M. Pollard	Los Angeles, Cal.
Arnett Creek Pl.	Mackinaw	Busch & Stuckey	Leesburg
Baby Joe Gr.	Junction	W. F. Stone	Leadore
Belcher	Gibbonsville	Chas. Goff	North Fork
Big 8-Mile	Junction	J. D. Pritchett	Leadore
Big Windy	Spring Mountain	Joe Jugovich	Gilmore
Blue Bird	McDevitt	E. G. Lynch	Digby, N. S.
Boulder Gulch	Mineral Hill	John Brittain	Salmon
Brown Bull	Texas	E. C. Ross	Gilmore
Bryn Mawr et al.	Indian Creek	Davis Davies	North Fork
Buck-a-roo	Silverton	W. J. Shoup	Salmon
Cabin	Unorganized	Frank G. Worthing	Reno, Idaho
California Pl.	Mackinaw	A. C. Ludwig	Salmon
Carrie Cody	Texas	H. S. Knight	222 Kearns Bldg., Salt Lake City, U.
Castle Rock	Blue Wing	C. B. Graves	Patterson
Clara Morris Gr.	Gibbonsville	Largey Est.	46 E. Broadway, Butte, Mont.
Clipper Bullion	Mineral Hill	E. S. Suydam	North Fork
Columbia	Yellow Jacket	A. C. Ludwig	Salmon
Copper Glance	Yellow Jacket	Chas. Anderson	Leesburg
Copper King	Mackinaw	Earl R. Galbraith	Salmon
Daly Creek	Mackinaw	John M. Smith	Salmon
.....	Indian Creek	W. W. Smith	Ulysses
Democrat	Texas	Thos. Grooms	Gilmore
Diamond Gulch	Eureka	Geo. Matics	Salmon
Dig More No. 1	Junction	Rouche & Pottle	Leadore
Dreamer Gr.	Junction	Dr. I. B. Keller	Meridian
Dunton Placer	Gibbonsville	Fred Dunton	Gibbonsville
Eagle Mine	Gibbonsville	Alfred Anderson	Gibbonsville
Florence	Eight Mile	Fred Chase	Leadore
Forney Gr.	Gravel Range	R. E. Lee Ramey	Forney
Gladstone	Pratt Cr.	Mrs. Isadore Gies	Great Falls, Mont.
Golden Rule	Eureka	W. B. Horn	Salmon
Goldfield Gr.	Gibbonsville	A. W. Beason	Salmon
Gold Point	Eldorado	Dave Stilles	Salmon
Gold Star	Mackinaw	J. A. Fry	Leesburg
Gold Stone Gr.	Pratt Creek	Mrs. Isadore Gies	Great Falls, Mont.
Governor	Gibbonsville	F. C. Nohle	Gibbonsville
Grace	Mackinaw	Thos. Pope	Salmon
Greenhorn Mines	Eureka	F. S. Wright	Salmon
Grizzly Hill	Junction	W. F. Stone	Leadore
Grunter Gr.	Mineral Hill	M. M. McPherson	Pacific Grove, Cal.
Hard Carbonate	Spring Mountain	P. H. Clarke	Gilmore
Hawkeye Gr.	Blackbird	South & Weidner	Salmon
High Ore	Spring Mountain	J. W. Spiers	Gilmore
Hockensmith	Mackinaw	Chas. Goff	Leesburg
Hughes Creek Pl.	Gibbonsville	Justin Finch	Helena, Mont.
Iron Mask	Spring Mountain	F. L. Clark	Gilmore
Italian	Mackinaw	J. A. Herndon	Salmon
King Solomon	Eureka	Henry Pobst	Salmon
Last Chance	Mackinaw	Grant Rood	Leesburg
Last Chance	Gibbonsville	Henry Schreiber	Gibbonsville
Liberty Bell	Pratt Creek	Jasper Lyne	Tendoy
Liberty Bond Gr.	McDevitt	R. F. Morphey	Leadore
Lloyd Gr.	Junction	Chas. F. Lloyd	Dillon, Mont.
Lone Star	Eureka	Geo. Matics	Salmon

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Lone Star	Pratt Creek	Mrs. Jennie Turnblade	Salmon
McCarty et al.	Gibbonsville	Percy Anderson	Salmon
McKinley Gr.	Eureka	Geo. Coronkrite	Salmon
Mahogany	Mineral Hill	A. C. Amonson	Salmon
Maine Silver Moon	Texas	J. A. Nash	Gilmore
Mayflower	Mackinaw	Earl R. Galbraith	Salmon
Miser's Dream	Mineral Hill	R. A. Joseph	Gilmore
Moonshine	Silverton	W. W. St. Clair	Salmon
Modock Chief	Gibbonsville	J. Rathbun	Carmen
Moose Creek	Eureka	John E. Mullen	Salmon
Mountain Boy	Texas	Hugh Ferguson	512 W. Pearl St., Butler, Pa.
Murphy Gr.	Texas	Joe Denton	Gilmore
Musgrove Mine	Blackbird	Arthur Green	Salmon
Never Sweat Pl.	Mackinaw	Thos. Hungate	Leesburg
Patton Gr.	Junction	A. J. Smith, Mgr.	Leadore
Pope Gr.	Mackinaw	Thos. Pope	Salmon
.....	Spring Mountain	Oakley & Ellis	Dubois
Rabbit Foot	Gravel Range	R. E. Lee Ramey	Forney
Rainbow	Eureka	William Swan	Salmon
Ranger	Eldorado	Camele Rock	Salmon
Rattler	Kirtley Creek	Homer Harris	Salmon
Ready Cash	Mineral Hill	Peter Wasescha	Shoup
Red Cross Gr.	Unorganized	J. T. Pugh	Salmon
Red Gravel	Mackinaw	Ah Moon	Leesburg
Richardson Pl.	Mackinaw	Will Shoup	Salmon
Ring Bone Cayuse	Mackinaw	Fred Brough	Salmon
Road Agent	Junction	Dick Roach	Leadore
Robinson Lode	Blackbird	Chas. S. Miller	Leesburg
Rosebud	Texas	Rock Vezina	Leadore
Rose & Bohannon	Blackbird	Bohannon Est.	Salmon
Roxie	Silverton	Lemm Cummings	Salmon
Roy	Junction	W. F. Stone	Leadore
Royal Gold	Eureka	Blanche G. Williams	1059 Lexington Av., New York
Ruby	Eldorado	Alfred Erickson	Baker
Silver Moon	Texas	J. H. Lanyon	Gilmore
Sky Scraper	Junction	P. C. Sellers	Leadore
Smuggler et al.	Texas	Mac Carson	Gilmore
Speculation	Mineral Hill	Dave Sandilands	Salmon
Standard Placer	Eureka	Harry Kelly	Salmon
Sunbeam	Blackbird	Chas. Schultz	Salmon
Sunnyside	Texas	Jas. Sims	Salmon
Sunset	Mackinaw	Crist Stuckey	Leesburg
Tempest Gr.	Spring Mountain	Joseph G. Sims	Salmon
Tendoy	Unorganized	S. A. Matthews	Salmon
Tormey Gr.	Unorganized	Dr. F. S. Wright	Salmon
Uncle Sam	Spring Mountain	J. A. Nash	Gilmore
Union	Spring Mountain	James Sims	Salmon
Vaughn Placer	Mackinaw	T. Hungate	Leesburg
Verdun	Unorganized	Dr. F. S. Wright	Salmon
Vimedii	Carmen Creek	Burt W. Simer	Salmon
Viola	Nicholia	A. F. Shear	Reno
Walkover Placer	Hughes Creek	O. P. Kimmell	Salmon
White Horse	Spring Mountain	O. M. Perkins	Gilmore
Wickham & Bleness	Eureka	R. E. Wickham	Salmon
Yellow Jacket Pl.	Yellow Jacket	J. M. Burkhart, Jr.	Salmon

BIBLIOGRAPHY

See pages 13-14 for publisher's address, meaning of reference marks, and abbreviations.

A geological reconnaissance across Idaho, by G. H. Eldridge: U. S. Geol. Survey, Sixteenth Ann. Rept., pt. 2, pp. 217-276, **1895.***

Central Idaho gold field, by Don Maguire: Mines and Minerals, vol. 19, pp. 289-291, February, **1899.***

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey, Twentieth Ann. Rept., pt. 3, pp. 75-256, **1900.***

The Hayden Creek, Idaho, meteoric iron, by W. E. Hidden: Am. Jour. Sci., 4th ser., vol. 9, pp. 367-368, **1900.**§

An outline of Idaho geology and of the principal ore deposits of Lemhi and Custer counties, by R.N.Bell: Proc. Int. Min.Cong.,4th sess., pp.64-80 **1901.**§

An extinct glacier of the Salmon River Range, by G. H. Stone: Am. Geology, vol. 11, pp. 406-409, **1903.**§

Mineral deposits of the Bitterroot Range and Clearwater Mountains, Montana, by Waldemar Lindgren: U. S. Geol. Survey Bull. 213, pp. 66-70, **1903.***

A geological reconnaissance across the Bitterroot Range and Clearwater Mountains in Montana and Idaho, by Waldemar Lindgren: U. S. Geol. Survey Prof. Paper 27, **1904.***

A complicated fault system (Gibbonsville, Idaho,) by H. C. Bacon: Eng. and Min. Jour., vol. 79, p. 324, Feb. 16, **1905.**§

Vein structure in the Monument mine, by H. C. Carr: Min. and Sci. Press, vol. 98, pp. 557-558, Apr. 17, **1909.***

Resources of Custer and Lemhi counties, Idaho: Salt Lake Min. Review, vol. 12, pp. 17-19, Mar. 15, **1911.**§

The Yellow Jacket mine, Idaho, by G. L. Sheldon: Eng. and Min. Jour., vol. 93, pp. 221-222, Jan. 27, **1912.**§

Gold deposits at Gibbonsville, Idaho, by F. C. Lincoln: Min. and Sci. Press, vol. 105, pp. 47-49, July 13, **1912.***

Lead-silver mines of Gilmore, Idaho, by Ralph Nichols: Trans. Am. Inst. Min. Eng., vol. 46, pp. 937-939, August, **1913.**§

Geology and ore deposits of Lemhi County, by J. B. Umpleby: U. S. Geol. Survey Bull. 528, **1913.***

Idaho placer operations, by Julius Hornbein: Eng. and Min. Jour., vol. 103, pp. 95-97, Jan. 13, **1917.**§

Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****

Note on cobalt-bearing veins, Lemhi County, Idaho (abstract), by F. L. Hess: Washington Acad. Sci. Journal., vol. 9, No. 16, p. 501, October 4, **1919.**§

Mining experiences in Idaho in the nineties, by G. L. Sheldon: Eng. and Min. Jour., vol. 110, pp. 1212-1214, Dec. 25, **1920.**§

The volatilization process at the Pope Shenon mine, by R. H. Bradford: Min. and Sci. Press, vol. 123, pp. 263-266, August 20, **1921.***

A new copper district near Salmon, Idaho, by C. P. Ross: Eng. and Min. Jour. Press, vol. 118, pp. 205-208, Aug. 9, **1924.**§

A glacially transported mine, by R. T. Walker: Eng. and Min. Jour.-Press, vol. 118, pp. 295-296, Aug. 23, **1924.**§

Ground water in Pahsimeroi Valley, Idaho, by O. E. Meinzer: Idaho Bureau of Mines and Geology Pamphlet 9, **1924.****

The copper deposits near Salmon, Idaho, by C. P. Ross: U. S. Geol. Survey Bull. 774, **1925.**‡

Geology and water resources of the Mud Lake Basin, Idaho, by H. T. Stearns and L. L. Bryan: U. S. Geol. Survey Water-Supply Paper 560-D, **1925.**‡

A geologic reconnaissance of Clark and Jefferson, and parts of Butte, Custer, Fremont, Lemhi and Madison counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 19, **1927.****

Ore deposits in Tertiary lava in the Salmon River Mountains, Idaho, by C. P. Ross: Idaho Bureau of Mines and Geology Pamphlet 25, **1927.****

Geology and ore deposits of the Birch Creek district, Idaho, by P. J. Shenon: Idaho Bureau of Mines and Geology Pamphlet 27, **1928.****

LEWIS COUNTY

Lewis is one of the northern counties, being bounded on the north and west by Nez Perce, on the northeast by Clearwater, and on the east and south by Idaho County. Containing an area of but 470 square miles, and a population of 12.4 persons to the square mile, it is one of the smallest counties in the State in area and one of the largest in density of population. Excepting the small area occupied by Craig Mountains, practically all the county is tillable, and the principal industries are wheat raising and lumbering.

The county is served by the North and South State highway, by the Lewiston-Stites branch of the Northern Pacific Railroad, by the Lewiston-Grangeville branch, which is owned jointly by the Union Pacific and Northern Pacific railroads, by the Nez Perce & Idaho Railroad from Craigmont to Nez Perce, the county seat, and by the Craig Mountain Railroad from Reubens to Winchester.

The principal mineral resources are copper, gold, silver, marble, and limestone. Veins containing copper, gold, and silver have been discovered and developed in the Craig Mountains, principally along Deer Creek. At one time this section received considerable attention, and a small mill was constructed at one of the mines. The marble and limestone occur on Mission Creek near the Nez Perce County line. The marble occurs in all shades, colors, and diagrams familiar to the marble industry; it is exceptionally adaptable to commercial use and one enterprise has been started to utilize and manufacture the marble and limestone into marketable products.

The Winchester Copper Mining & Smelting Co., which acquired the Forest group of copper claims on Deer Creek in 1926, was active throughout the year.

CRAIG MOUNTAIN MINING & MILLING CO.

Office: Lewiston. **Officers:** Ben L. Schultz, Pres.-Mgr., Lewiston; W. W. Burr, Sec., Genesee. **Inc.:** Nov. 30, 1925. **Capital:** 600,000 shares; par value $1; 475,000 shares issued. **Property:** Craig Mountain group; 26 unpatented claims, Deer Creek dist.; Winchester. **Development:** Total development, approximately 5000 ft. **Plant:** Old mining and milling plant and equipment, installed in 1915. **Ore:** Copper. **Remarks:** Annual labor only.

WINCHESTER COPPER MINING & SMELTING CO.

Office: Winchester. **Officers:** D. Nicholson, Pres.; W. M. Nicholson, Sec., both of Winchester. **Inc.:** Aug. 7, 1926. **Capital:** 1,500,000 shares; par value 10c; 1,218,890 shares issued. **Property:** Forest group; 11 unpatented claims, Deer Creek dist.; Winchester. **Development:** By 3 tunnels: No. 1, 600 ft. long; No. 2, 600 ft. long; No. 3, 1000 ft. long. **Plant:** Gas-driven Sullivan compressor; complete mining equipment and camp. **Ore:** Copper-silver. **Men employed:** Average, 7. **Remarks:** Active throughout the year in extending No. 3 tunnel.

BIBLIOGRAPHY

See pages 13-14 for publisher's address, meaning of reference marks, and abbreviations.

A geological reconnaissance across the Bitterroot Range and Clearwater Mountains in Montana and Idaho, by Waldemar Lindgren: U. S. Geol. Survey Prof. Paper 27, **1904.***

Central Idaho gold districts, by S. P. Jellum: Northwest Min. News, vol. 3, pp. 83-91, 107-114, 134-139, **1908;** vol. 4, pp. 2-6, 31-37, 66-73, **1909.***

The Orofino coal field, Clearwater, Lewis, and Idaho counties, Idaho, by C. T. Lupton: U. S. Geol. Survey Bull. 621, pp. 99-108, **1915.***

A preliminary report on the clays of Idaho, by F. H. Skeels: Idaho Bureau of Mines and Geology Bull. 2, p. 59, **1920.****

The copper deposits of the Seven Devils and adjacent districts, by D. C. Livingston and F. B. Laney: Idaho Bureau of Mines and Geology Bull. 1, **1920.***

NEZ PERCE COUNTY

Nez Perce is one of the principal northern counties, bounded on the south and east by Idaho and Lewis counties, on the north and east by Clearwater and Latah counties, and on the west by the States of Washington and Oregon. It has an area of 851 square miles and was accredited with a population of 15,253 in the 1920 census. It is primarily an agricultural county, and Lewiston, the largest town and civic center of north-central Idaho, is the county seat. The county was originally organized under an act of the Legislature of Washington Territory before the Territory of Idaho was organized, and Lewiston was first settled in 1861, consequent to the discovery of, and as a supply point for, the placer mines in Clearwater and Idaho counties.

Lewiston is at the junction of the Snake and Clearwater rivers; steamboats can reach it from Portland, Oregon, although they are not used as a means of transportation from that point, and both rivers are navigable for boats of light draft. In addition to river boats, the county is served by the Union Pacific and Northern Pacific railroads, and by the North and South, and Lewis and Clark State highways.

The principal mineral resources are copper, silver, gold, marble, and limestone. The metals occur in isolated sections of the county and have never received much attention. The limestone, which is adaptable to Portland cement, occurs on the Snake River north of Lewiston, but the deposits have never been developed. The marble, which is of excellent grade and quality, occurs on the Clearwater River near Agatha. A little attempt has been made to exploit the marble deposits.

BONANZA GOLD MINING & MILLING CO.

Office: Lewiston. **Officers:** Geo. C. Ettershank, Pres.; Earl Parks, Sec., both of Lewiston. **Inc.:** Apr. 21, 1928. **Capital:** 250,000 shares; par value $1; 50,000 shares issued. **Property:** Bonanza group; 3 unpatented claims, unorganized dist.; Cove Gulch; Lewiston. **Development:** By 2 tunnels: No. 1, 250 ft. long; No. 2, 105 ft. long. **Ore:** Copper-silver-gold. **Men employed:** Average, 2. **Remarks:** Small amount of work during the summer months.

INDEPENDENT MARBLE & LIME CO.

Office: Lewiston. **Officers:** F. S. Johnson, Pres., Nez Perce; P. R. Bevis, Sec., Lewiston. **Inc.:** Jan. 25, 1926. **Capital:** 1,000,000 shares; par value $1; 250,000 shares issued. **Property:** 220 acres held under lease and option; on Mission Creek. **Mineral sought:** Limestone.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Gold Standard	Cave Gulch	G. C. Ettershank	Lewiston
Homestead Entry	Clearwater	G. H. Gibbs	R. F. D. No. 2, Juliaetta
Iron Cap	Peck	W. H. Rugg	Peck
Montana	Unorganized	Frank Cole	Lewiston

BIBLIOGRAPHY

See pages 13-14 for publisher's address, meaning of reference marks, and abbreviations.

Geology and water resources of Nez Perce County, Idaho, by I. C. Russell: U. S. Geol. Survey Water-Supply Papers 53 and 54, **1901.**‡*

A geological reconnaissance across the Bitterroot Range and Clearwater Mountains of Montana and Idaho, by Waldemar Lindgren: U. S. Geol. Survey Prof. Paper 27, **1904.***

Central Idaho gold districts, by S. P. Jellum: Northwest Min. News, vol. 3, pp. 83-91, 107-114, 134-139, **1908**; vol. 4, pp. 2-6, 31-37, 66-73, **1909.***

Portland cement materials and industry in the United States, by E. C. Eckel, with contributions by E. F. Burchard and others: U. S. Geol. Survey Bull. 522, pp. 135-140, **1913.***

Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 60, art. 3, pp. 1-33, **1921.**‡

OWYHEE COUNTY

Owyhee is one of the historic counties of Idaho. It is situated in the southwestern portion of the State, and is bounded on the north by Canyon, Ada and Elmore counties, on the east by Twin Falls County, on the south by the State of Nevada, and on the west by the State of Oregon. Its area is 7956 square miles, being larger than the State of New Jersey, and its population according to the 1920 census was only 4694, or 0.6 persons to the square mile. The principal industries are farming, stockraising, and mining. Silver City, one of the oldest towns in the State, is the county seat.

The history of this county dates back to the discovery of placer gold and the rich veins of War Eagle Mountain in 1863. The first quartz mill was constructed in 1864, and for many years thereafter Owyhee was the principal mining county. The ores which occur in this county are the richest gold-silver ores ever discovered in the State, and many tons which were either milled or sent directly to smelter had a phenomenal value. Early statistics are not very reliable, but from the best sources available, an estimated production of over $40,000,000 is conservative.

The principal mineral resources of the county are silver, gold, copper, lead, zinc, antimony, diatomaceous earth, opals, manganese, and nitrates. The diversity of mineralization, the favorable geological conditions, and the wide distribution of the deposits throughout the county make it an exceptionally favorable field for prospectors and development companies, particularly because all the high-grade ore in the old mines has not been exhausted, nor have all the veins been discovered.

The new dredge of the American Gold Dredging Corporation, being of the flume type, was completed and placed in operation in January, 1928, and continued without much interruption throughout the year. During the year three new development enterprises were started, and a large number of investigations by those seeking gold-silver mines were conducted.

AFTERTHOUGHT MINING CO.

Office: 434 First Nat'l Bank Bldg., Boise. **Officers:** James Munro, Vice.-Pres.; S. L. Tipton, Sec., both of Boise. **Inc.:** Feb. 15, 1927. **Capital:** 400,000 shares common, 100,000 shares preferred; par value $1; 165,030 shares common, 3300 shares preferred issued. **Property:** Afterthought group; 1 patented, 4 unpatented claims, French dist.; Silver City; held under lease and option from E. V. Orford, Boise. **Development:** Principally by a vertical shaft 470 ft. deep, in which there are 5 intermediate levels. **Ore:** Silver-gold. **Remarks:** Idle throughout the year.

AMERICAN GOLD DREDGING CORPORATION

Office: 1920 Dime Bank Bldg., Detroit, Mich. **Officers:** Walter J. Long, Pres.-Mgr., 8th St. & Garden Ave., Boise; Louis B. Hyde, Sec., Detroit, Mich. **Inc.:** Filed in Idaho, Jan. 2, 1926. **Capital:** 300,000 shares common, 200,000 shares preferred; par value $1; 155,000 shares common, 164,000 shares preferred issued. **Property:** Meadow Creek group; 18 unpatented placer claims, containing 360 acres, part of which are held under lease and option; Steele dist.; Triangle. **Plant:** Electrically-driven flume-type Yuba dredge with 2½-cu.-ft. buckets close connected. **Ore:** Placer gold. **Men employed:** Average, 15. **Remarks:** During 1927 this company constructed its dredge, new mine camp, and 4-mile electric transmission line. Dredging operations were commenced in January, 1928, and continued until freezing weather interrupted. During part of the year the manager was displaced for a few months and operations were conducted from the Detroit office; this handicapped the company and its affairs.

BANNER MINING & MILLING CO.

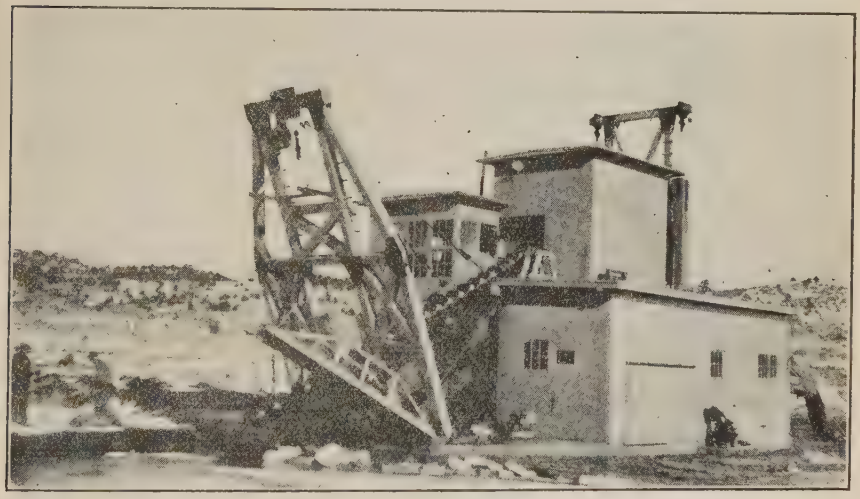
Office: 1122 State St., Boise. **Officers:** Peter Steele, Pres.-Mgr., Silver City; F. S. Heer, Sec., Boise. **Inc.:** June 15, 1905. **Capital:** 1,500,000 shares; par value $1; 1,200,000 shares issued. **Property:** Banner group; 10 patented, 12 unpatented claims, Carson dist.; Silver City. **Development:** Over 11,000 ft. of underground workings. **Remarks:** Idle since 1923.

BIG FOUR DEVELOPMENT CO.

Office: Box 1061, Boise. **Officers:** C. C. Zumwalt, Pres.-Mgr., Boise; M. H. Eustace, Sec., Caldwell. **Inc.:** Apr. 2, 1924. **Capital:** 500,000 shares; par value $1; 260,000 shares issued. **Property:** Cumberland group; 3 patented claims, War Eagle Mountain, French dist.; Silver City; held under lease and option.

CASTLE CREEK MINING & MILLING CO.

Office: 319 Yates Bldg., Boise. **Officers:** C. E. Beymer, Pres.-Mgr.; W. P. Nelson, Sec., both of Boise. **Inc.:** An association. **Capital:** 500,000 shares; par value $1; 495,000 shares issued. **Property:** 8 patented, 2 unpatented claims in Pixley Basin, unorganized dist.; Grandview. **Development:** Principally by 3 tunnels: No. 1, 150 ft. long; No. 2, 350 ft. long; No. 3, 1100 ft. long; an inclined shaft 220 ft. long. **Plant:** MINE: 10x10 gas-driven compressor; complete mining equipment and camp. MILL: 30-ton gas-driven concentrator including flotation. **Ore:** Silver. **Men employed:** Average, 2. **Remarks:** No. 3 tunnel extended during the year.



AMERICAN GOLD DREDGING CORPORATION'S DREDGE

COSMOPOLITAN MINING CO., LTD.

Office: Murphy. **Officers:** Fred L. Barlow, Pres., Nampa; Oscar Brunzell, Sec., Murphy. **Inc.:** Nov. 17, 1923. **Capital:** 500,000 shares; par value $1; 127,327 shares issued. **Property:** Hammond group; 5 unpatented claims, Carson dist.; Silver City. **Development:** By 2 tunnels: No. 1, 420 ft. long; No. 2, 344 ft. long. **Ore:** Antimony-silver. **Remarks:** A small amount of work during the year.

EMPIRE MINES CO.

Office: 1122 State St., Boise. **Officers:** Peter Steele, Pres.-Mgr., Silver City; F. S. Heer, Sec., Boise. **Inc.:** Sept. 15, 1923. **Capital:** 2,500,000 shares; par value $1; 2300 shares issued. **Property:** Trade Dollar group; 37 patented, 6 unpatented claims, Carson dist.; Silver City. **Remarks:** Part of mine under lease to the Hoosier Leasing Co.

GOLCONDA GROUP MINING CO.

Office: N. 610 Washington St., Spokane, Wash. **Officers:** G. A. Sonneman, Pres.-Mgr.; E. W. Sonneman, Sec., both of Spokane, Wash. **Inc.:** Jan. 11, 1908. **Capital:** 1,500,000 shares; par value 1c; all shares issued. **Property:** South Mountain group; 15 patented claims, South Mountain dist.; Jordan Valley, Ore. **Plant:** Small gas-driven compressor. **Ore:** Lead-zinc-silver. **Remarks:** Idle.

GREAT WESTERN MINES CO.

Office: Room 169, Republican House, Milwaukee, Wis. **Officers:** A. J. Kraemer, Pres., Menomonee Falls, Wis.; F. H. Mayhew, Sec., Milwaukee, Wis.; T. W. Galigher, Agent, 915 N. 21st St., Boise. **Inc.:** Nov. 29, 1920. **Capital:** 1,500,000 shares; par value 1c; 1,308,406 shares issued **Property:** Quaker group; 3 unpatented claims, French dist.; Silver City. **Development:** By 2 tunnels: No. 1, 2600 ft. long; No. 2, 2800 ft. long. **Plant:** Electrically-driven 10x10 compressor; complete mining equipment and camp. **Ore:** Gold. **Men employed:** Average, 3. **Remarks:** Active development work throughout a large part of the year.

HOOSIER LEASING CO.

Office: Silver City. **Officers:** Charles A. Hackney, Pres.; Peter Steele, Mgr., both of Silver City; Victor Shawe, Sec., Boise. **Inc.:** Nov. 16, 1926. **Capital:** 100,000 shares; par value $1; 35,793 shares issued. **Property:** Lease on Alpine vein from Empire Mines Co.; Carson dist.; Silver City. **Development:** Operations conducted through Blaine tunnel. **Ore:** Gold-silver. **Men employed:** Average, 4. **Remarks:** A small amount of high-grade ore was produced and marketed during the early part of the year.

IDAHO GOLD & PLATINUM MERGER MINES CO.

Office: Box 88, Bruneau. **Officers:** J. R. Prentice, Pres., Mountain Home; E. A. Thom, Sec.; Phil Thom, Mgr., both of Bruneau. **Inc.:** Filed in Idaho, Oct. 30, 1928. **Capital:** 5,000,000 shares; par value 10c; 3,197,-909 shares issued. **Property:** 2 unpatented claims, 160 acres, unorganized dist.; Little Valley; Bruneau. **Ore:** Platinum. **Remarks:** This company's enterprise is based on the presence of platinum in a volcanic glass sand lying at a depth of about 250 ft. in an artesian basin. During the early part of the year, an attempt toward sinking a shaft was made, and a few test holes were driven by churn drills. This company is a reorganization of the Idaho Gold & Platinum Mining Co.

IMPERIAL MINING & MILLING CO., LTD.

Office: 816-819 Foster Bldg., Denver, Colo. **Officers:** B. M. Webster, Sec., Denver, Colo. **Inc.:** Mar. 13, 1903. **Capital:** 500,000 shares; par value $1; all shares issued. **Property:** Imperial Lode; 1 patented claim, French dist.; Silver City.

NEVER SWEAT MINING CO.

Office: Nampa. **Officers:** Windsor J. Lloyd, Pres.; D. L. Rhodes, Sec., both of Nampa. **Inc.:** July 6, 1922. **Capital:** 50,000 shares; par value $10; 27,000 shares issued. **Property:** Never-Sweat group; 12 unpatented claims, French dist.; Silver City. **Development:** By 2 tunnels: No. 1, 2200 ft. long; No. 2, 1100 ft. long, in which is a vertical shaft 50 ft. deep. **Plant:** MINE: Electrically-driven compressor and complete mining equipment. MILL: 50-ton mill; fine grinding, amalgamation plates, and concentrating tables. Complete mine camp. **Ore:** Silver-gold. **Remarks:** Mill operated for a few days on ore which was extracted by 2 lessees.

OWYHEE GOLD MINING CO.

Office: Nampa. **Officers:** M. D. Polk, Pres.; V. C. Belknap, Sec., both of Nampa; John B. Platts, Mgr., Wallace. **Inc.:** Sept. 3, 1925. **Capital:** 500,-000 shares; par value $1; 323,200 shares issued. **Property:** Mountain Chief group; 3 unpatented claims, French dist.; Silver City. **Development:** Principally by 3 tunnels: No. 1, 200 ft.; No. 2, 175 ft.; No. 3, 850 ft. Total development, approximately 1750 ft., which opens the vein to a total depth of 400 ft. **Plant:** 50-ton amalgamation mill. **Men employed:** Average, 8. **Ore:** Gold. **Remarks:** During 1927 a complete new mine camp was constructed, mill building erected, and during the early part of 1928 milling machinery was installed and the mine operated for a short period, after which operations were suspended.

OWYHEE SILVER MINES CO.

Office: Mountain Home. **Officers:** W. C. Dodge, Pres.; Frank Dodge, Sec.; Charles Sayko, Mgr., all of Mountain Home. **Inc.:** June 2, 1928. **Capital:** 2,500,000 shares; par value 10c; all shares issued. **Property:** Lucky Dog group; 7 unpatented claims, Rough Mountain dist.; Grand-

view. **Development:** By 1 tunnel 300 ft. long. **Ore:** Silver. **Men employed:** Average, 3. **Remarks:** Small amount of work during the summer months.

TRADE DOLLAR LEASING CO.

Office: Robert Noble Bldg., Boise. **Officers:** M. M. Hanson, Pres.-Mgr., Silver City; F. S. Heer, Sec., Boise. **Inc.:** Sept. 11, 1928. **Capital:** 40,000 shares; par value $1; all shares issued. **Property:** Lease on part of Trade Dollar group from Empire Mines Co. **Remarks:** Active development work was started after the date of incorporation.

WAR EAGLE CONSOLIDATED MINING CO.

Office: 919 Real Estate Trust Bldg., Philadelphia, Pa. **Officers:** Frank S. Lewis, Pres.; Edwin H. Lewis, Asst. Sec., both of Philadelphia. **Inc.:** Apr. 22, 1907. Charter forfeited Dec. 1, 1912. **Capital:** 60,000 shares preferred, 240,000 shares common; par value $50; all shares issued. **Property:** South Oro Fino and Mahogany groups; 8 patented, 2 unpatented claims, French dist.; Silver City. **Remarks:** Company operations suspended in 1923, since which time occasional lessees have performed a little work.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Addie Group	French	F. M. Orem	Salt Lake City, U.
American Eagle et al.	Carson	Idawa Gold Mng. Co.	Boise
Browney	Carson	Henry Hugg	Silver City
Chief	Unorganized	Mrs. Lois Steen	Oreana
Daly Group	Carson	J. W. Daly	Silver City
De Lamar	Carson	W. R. Helm	Jordan Valley, Ore.
Deluge et al.	Carson	John Grete	Silver City
Demming et al.	Steele	Demming Ex. Co. Trst	Nampa
Dubuque et al.	Carson	Elisha Lewis	Silver City
Gold Bug	French	Charles Cook	Silver City
Gold Hen et al.	Carson	H. P. Cox	Murphy
Gold Mile et al.	Carson	V. Richardson	Silver City
Golden Gate	Carson	Asher A. Getchell	Twin Falls
Happy Boy	Unorganized	A. T. Evans	Mountain Home
Henrietta	Carson	C. L. Norcross	168 Dartmouth St., Boston, Mass.
Home et al.	Carson	W. J. Stoddard	Silver City
Homestake	French	Mrs. George Schlack	Silver City
Lindy et al.	Carson	H. H. Bonnell	Silver City
Little Chief	Carson	James Carrolan	De Lamar
Meadow Lark	Carson	Willenegger Bros.	De Lamar
Mountain Chief	Carson	F. Robinson	Nampa
Nellie Ann No. 1	Carson	W. W. Jones, M. D.	Jordan Valley, Ore.
Ontario	Carson	Mrs. J. Mattenson	Boise
Owyhee et al.	Carson	Emma Brumbaugh	Silver City
Pauper	Carson	R. H. Leonard	Silver City
Perseverance	Flint	R. V. Thurston	Payette
Poorman	French	Fred Grete	Silver City
Potosi	Carson	Jack Stoddard	Silver City
Rich Gulch	Carson	Sam Williams	Tulsa, Okla.
Roosevelt et al.	Carson	R. Noble Est.	Boise
Rose et al.	Carson	James McNally	De Lamar
Ruth	French	Geo. Westlake	Hailey
San Juan et al.	French	Mary Grete Est.	Silver City
Silver Leaf et al.	French	N. C. Chapman	Boise
Snow Storm et al.	French	Lafe Boone	Boise
Star Gr.	Carson	Lewis Bros.	Silver City
Sugar Loaf	French	A. P. Nugent	Silver City
Sunnyside	Carson	I. E. Barber, Trus.	Boise
Tango et al.	Carson	A. J. Swan	Nyssa, Ore.
Tennesse et al.	Carson	John Nemanic	Silver City
Village Blacksmith	Carson	Duncan & Lackey	Silver City
Wennerstein Gr.	Carson	Andrew Wennerstein	Nampa
War Eagle Gr.	French	Wm. Healy	Boise

BIBLIOGRAPHY

See pages 13-14 for publisher's address, meaning of reference marks, and abbreviations.

Precious stones; opal, by G. F. Kunz: U. S. Geol. Survey Mineral Resources, **1893**, p. 698.*

A geological reconnaissance across Idaho, by G. H. Eldridge: U. S. Geol. Survey, Sixteenth Ann. Rept., pt. 2, pp. 217-276, **1895.***

An Idaho silver-gold camp (Florida Mountain district), by F. G. Corning: Eng. and Min. Jour., vol. 60, p. 244, Sept. 14, **1895.**§

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey, Twentieth Ann. Rept., pt. 3, pp. 65-256, **1900.***

Some Idaho mining districts, by Arthur Lakes: Mines and Minerals, vol. 22, pp. 203-206, December, **1901.***

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, pp. 42, 71 and 173, **1902.***

Notes on geology of southwestern Idaho and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Bull. 217, **1903.**‡

Preliminary report on artesian basins in southwestern Idaho and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Water-Supply Paper 78, **1903.**‡

Description of the Silver City quadrangle, by Waldemar Lindgren: U. S. Geol. Survey Geol. Atlas, Folio No. 104, **1904.***

Description of the Nampa quadrangle, by Waldemar Lindgren: U. S. Geol. Survey Geol. Atlas, Folio No. 103, **1904.***

South Mountain, Idaho, by R. N. Bell: Eng. and Min. Jour., vol. 83, pp. 283-284, Feb. 9, **1907.**§

The De Lamar mine of southwest Idaho, by H. S. Brown and F. G. Mudgett: California Jour. Tech., vol. 12, pp. 35-41, **1908.****

Some gold deposits of the Northwest, by F. C. Lincoln: Eng. and Min. Jour., vol. 92, p. 408, Aug. 26, **1911.**§

Nitrate deposits in southern Idaho and eastern Oregon, by G. R. Mansfield: U. S. Geol. Survey Bull. 620, pp. 19-44, **1915.***

Reopening of old De Lamar mine under way, by R. N. Bell: Eng. and Min. Jour., vol. 110, pp. 538-539, Sept. 11, **1920.**§

An occurrence of naumannite in Idaho, by E. V. Shannon: Am. Jour. Sci., 4th ser., vol. 50, pp. 390-391, November, **1920.**‡

A preliminary reconnaissance of the gas and oil possibilities of southwestern and south-central Idaho, by J. P. Buwalda: Idaho Bureau of Mines and Geology Pamphlet 5, **1923.****

Geology and water resources of the Bruneau River basin, Owyhee County, Idaho, by A. M. Piper: Idaho Bureau of Mines and Geology Pamphlet 11, **1924.****

Discovery of a Balkan fresh-water fauna in the Idaho formation of Snake River valley, Idaho, by W. H. Dall: U. S. Geol. Survey Prof. Paper 132-G, **1924.**‡

Geology and metalliferous resources of the region about Silver City, Idaho, by A. M. Piper and F. B. Laney: Idaho Bureau of Mines and Geology Bull. 11, **1926.****

The geology and ore deposits of the South Mountain mining district, Owyhee County, Idaho, by R. E. Sorenson: Idaho Bureau of Mines and Geology Pamphlet 22, **1927.****

PAYETTE COUNTY

The only known mineral resources of this county are diatomaceous earth; various clays of excellent quality; and gas, which has been developed at Payette.

Late in 1926 the Idaho Petroleum Co. at Payette acquired the property and equipment owned by the Idaho Oil & Gas Co., whose well was 1100 feet deep. Work was then started sinking the well to a further depth and was carried on intermittently throughout 1927, until a total depth of 1800 feet was gained. The encountering of gas was reported at the depths of 1485 and 1550 feet. During 1928 this company started drilling an additional well.

IDAHO-OREGON OIL & GAS CO.

Office: Payette. **Officers:** L. Haarmann, Pres.-Mgr., Payette; J. H. Forbes, Sec., Caldwell. **Inc.:** May 12, 1923. Charter forfeited Nov. 30, 1928. **Capital:** 10,000 shares; par value $10; 5574 shares issued. **Property:** Oil and gas leases on patented farm land, Little Willow Creek; Payette. **Plant:** Complete small well-drilling equipment. **Mineral sought:** Oil and gas.

IDAHO-OREGON PETROLEUM CORPORATION

Office: Payette. **Officers:** L. V. Patch, Pres.-Mgr.; C. A. Smith, Sec., both of Payette. **Inc.:** Dec. 1, 1927. **Capital:** 5000 shares; no par value; 122 shares issued.

IDAHO PETROLEUM CO.

Office: Payette. **Officers:** L. W. Spaulding, Pres.; A. S. Hincks, Sec., both of Payette. **Inc.:** June 9, 1926. **Capital:** 200 shares; par value $100; 140 shares issued. **Development:** 1800-ft. well. **Plant:** Complete well-drilling equipment, steam-driven. **Mineral sought:** Oil and gas. **Men employed:** Average, 4. **Remarks:** The drilling of a new well was started during the year.

BIBLIOGRAPHY

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Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Notes on geology of southwestern Idaho and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Bull. 217, **1903.**‡

Description of the Nampa quadrangle, by Waldemar Lindgren and N. F. Drake: U. S. Geol. Survey Geol. Atlas, Folio No. 103, **1904.***

Gas and oil prospects near Vale, Oregon, and Payette, Idaho, by C. W. Washburne: U. S. Geol. Survey Bull. 431, pp. 26-55, **1909.***

Oil and gas possibilities of eastern Oregon, by J. P. Buwalda: Oregon Bureau of Mines and Geology, vol. 3, No. 2, **1921.***

A preliminary reconnaissance of the gas and oil possibilities of southwestern and south-central Idaho, by John P. Buwalda: Idaho Bureau of Mines and Geology Pamphlet 5, **1923.****

POWER COUNTY

The most active development work done in this county during the year was that of the Independent Mining Co. at its lead-silver prospect near Rockland. The mine is equipped with small machinery and nine men were employed in sinking a shaft.

A few placer mines along the Snake River produced and marketed a small amount of placer gold.

ARBON VALLEY OIL CO.

Office: Pocatello. **Officers:** D. C. Ray, Pres.; L. B. Evans, Sec., both of Pocatello. **Inc.:** Feb. 20, 1923. **Capital:** 250,000 shares; par value $1; 122,500 shares issued. **Property:** Oil leases on patented farm land which have been assigned to Gem State Petroleum Co.

GEM STATE PETROLEUM CO.

Office: Pocatello. **Officers:** H. C. Harris, Pres.-Mgr.; S. G. Baker, Sec., both of Pocatello. **Inc.:** Oct. 2, 1923. **Capital:** 300,000 shares; par value $1; 299,851 shares issued. **Property:** Oil and gas leases on 15,000 acres of farm land in Arbon Valley. **Development:** 10-inch well, 2810 ft. deep. **Mineral sought:** Oil and gas. **Remarks:** "Depth of well May 31, 1927: 2550 ft. Depth of well May 31, 1928: 2810 ft."

IDAHO RESEARCH AND DEVELOPMENT CO.

Office: 810 S. 4th Ave., Pocatello. **Officers:** Geo. Williams, Pres., Pocatello; Geo. Stoll, Sr., Sec.-Mgr., 3152 Fuhrman Ave., Seattle, Wash. **Inc.:** Aug. 2, 1920. **Capital:** 200,000 shares; par value $5; 123,504 shares issued. **Property:** Oil and gas leases on 8000 acres in Arbon Valley. **Plant:** 15-h. p. steam-driven well-drilling rig and equipment. **Mineral sought:** Oil and gas. **Remarks:** Idle throughout the year. Leases assigned to Gem State Petroleum Co.

INDEPENDENT MINING CO.

Office: Rockland. **Officers:** G. B. Giswaldi, Pres.-Mgr.; E. J. Peterson, Sec., both of Rockland. **Inc.:** Oct. 24, 1925. **Capital:** 2,000,000 shares; par value 25c; 1,061,543 shares issued. **Property:** Independent group; 16 unpatented claims, unorganized dist.; Rockland. **Development:** By 1 shaft 230 ft. deep. **Plant:** Gas-driven 8x10 Sullivan compressor; small air-driven hoist; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 9. **Remarks:** Active for 3 months, sinking shaft additional 60 ft.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Bannock Peak	Unorganized	Frazier & McClandon	American Falls
Diamond et al Pl.	Snake River	Wm. M. Main	Aberdeen
Golden Clift Pl.	Snake River	Geo. J. Wheeler	American Falls
.....Pl.	Snake River	M. Launsberry	Minidoka
.....Pl.	Snake River	L. N. Rosencrans	American Falls
.....Pl.	Snake River	J. O. Payne	American Falls
.....Pl.	Snake River	Wm. & C. Wagstaff	American Falls

BIBLIOGRAPHY

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Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

A preliminary report on the clays of Idaho, by F. H. Skeels: Idaho Bureau of Mines and Geology Bull. 2, **1920.****

Geography, geology, and mineral resources of the Fort Hall Indian Reservation, Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 713, **1920.**‡

Possibilities of petroleum in Power and Oneida counties, Idaho, by A. M. Piper: Idaho Bureau of Mines and Geology Pamphlet 12, **1924.****

SHOSHONE COUNTY

Shoshone County lies in the northern part of the State, and is bounded on the east by the State of Montana, on the south by Clearwater County, on the west by Latah, Benewah, and Kootenai counties, and on the north by Bonner County. In area it is one of the largest counties in the State covering 2597 square miles. Lying approximately in the geographical center of the county is the famous Coeur d'Alene mining district, which contains an area of approximately 400 square miles, and which is known throughout the world as one of the largest lead-silver producing regions of the United States.

The entire county is mountainous, containing but a very small area of agricultural land, and is entirely dependent upon the mining and timber industries, particularly mining. These industries are well established, and it is to them that credit must be given for making this county one of the wealthiest in the State, as well as the county having the smallest public debt, one of the lowest tax levies, and the greatest per capita wealth.

It is the largest and most important mining county in the State, and for many years has produced 90 per cent of the lead and 85 per cent of the silver that has been derived from Idaho mines. Its importance can be better judged from the fact that Idaho ranks second in the United States in the production of lead and third in the production of silver. In addition to its production of lead and silver, Shoshone is the principal zinc producing county in the State, and one of the most important gold producers. The other metals which occur in commercial quantities are copper, antimony, and tungsten. At one time copper was one of the principal metal products and the largest copper mines ever developed in the State were those near Mullan.

The county is served by the O.-W. R. & N. and Northern Pacific railroads, by the Coeur d'Alene-Yellowstone State highway, which is paved between Mullan, Wallace, and Kellogg, and by well-maintained county roads, which reach the principal mines. Wallace is the largest town, the county seat, and the civic and business center.

During 1928 this county witnessed more new development, the starting of more new enterprises, more new profitably operating mines, a larger pay roll, and a greater production than at any time since the peak of wartime activities. At least three new producers reached the stage that places them in the list of mines with an assured future, and two others rapidly approached that position. All the large mines conducted active development work throughout the year which proved the extent of their ore bodies at increased depth and laterally. The increased ore reserves and the improvements added to mine, mill, and smelter plants, together with the new Sullivan zinc plant, have greatly enhanced the physical condition and future life of the mines, as well as assuring a long period of prosperity for the Coeur d'Alene district. The thought and attention that all of the large operators are giving to safety conditions and safety supervision were reflected in the smallest number of fatal accidents that have ever happened throughout the district in any one year.

The principal producing mines in which the ore reserves were increased by new development work during the year were: The Bunker Hill mine of the Bunker Hill & Sullivan M. & C. Co., whose ore deposits were opened on the 1900-foot level; the Hecla mine of the Hecla Mining Co., where the shaft was extended and ore opened to the 2800-foot level from the 2000-foot level; the Morning mine of the Federal M. & S. Co., opened to the 3450-foot level, and the Page mine of the same company to the 900-foot level; the Sunshine mine of the Sunshine Mining Co., to the 900-foot level; the Dayrock Mining Co., formerly the Strattons Mines Co.; Sidney Leasing Co.; Jack Waite Consolidated Mining Co.; Sherman Lead Co.; Douglas Mining Co.; Galena mine of the Callahan Zinc-Lead Co.

The most important new construction work completed during the year was the electrolytic zinc plant at Kellogg which was built by the Sullivan Mining Co. to treat the zinc ores of the Coeur d'Alene district. The Sullivan Mining Co. is owned jointly by the Bunker Hill & Sullivan M. & C. Co. and



HERCULES MINING CO.'S MILL AT WALLACE

the Hecla Mining Co. The Hercules mill at Wallace, owned by the Hercules Mining Co., was rebuilt, a zinc flotation unit added, and converted into a custom mill which now offers milling facilities for practically all the mines operating in the vicinity of Wallace. During the year this mill treated ores from the following mines: Tamarack & Custer Consolidated Mining Co.; the Humming Bird Mining Co.; the Sherman Lead Co.; and the Dayrock Mining Co., as well as from a few small producers.

Other new construction work was: New flotation concentrator of the Dickens Consolidated Mines Co.; new flotation concentrator of the Golconda Lead Mines; the rehabilitation of the Amy Matchless mill by the Lookout Mountain Mining & Milling Co.; and completion of the new flotation concentrator of the Cedar Creek Mining & Development Co.

Working conditions throughout the Coeur d'Alene district are exceptionally favorable. All the mines are well ventilated, and the operators devote much time and thought to making the mines safe and keeping them in such condition that the men can do a full day's work without expending the energy that is necessary in poorly ventilated mines. Both attention and money have been devoted to this phase of the operations, and it can safely be said that these are the best ventilated mines in the country. Serious attention is given not only to ventilation, but to safety, recreation, and general welfare. The value of the welfare work to company employees and to the communities has been demonstrated through the Morning Club at Mullan and the new club house built at the Page mine in 1928, both erected by the Federal M. & S. Co.; the Y. M. C. A. Building at Kellogg, donated by the Bunker Hill & Sullivan M. & C. Co.; and the Hercules Hall at Burke, erected by the Hercules Mining Co. Another outstanding contribution to this work is the baseball field—located a short distance above the town of Burke and named Hearn Field in honor of W. F. Hearn of that town—which the Hecla Mining Co. constructed and donated to the community during 1927. The building of the field involved engineering and construction difficulties, as level land in this vicinity is unknown; it was done in the interests of inter-mine baseball teams, which are sponsored by all the large mines and between which there is keen rivalry.

The outstanding new developments, new construction and new enterprises can best be reviewed through an outline by companies.

The extensive development work which was done during 1927 in the Bunker Hill mine greatly increased its resources. The completion of the shaft to the 1900-foot level and the opening of the ore bodies at that depth, where the ore and geological conditions were found to be normal, added much to the life of the mine which is estimated in decades instead of in years. The Bunker Hill & Sullivan M. & C. Co., because of the magnitude of the Bunker Hill mine, has become more of a manufacturing than a mining operation, and with its smelter, mills, experimental plants, and organization, is one of the largest of its kind in the world. This company maintained its usual production record throughout the year, and the many plant betterments which were added greatly increased the efficiency of the enterprise. The principal betterments were the remodeling of the Sweeny mill and enlargements and improvements at the smelter and the surface plant of the mine. The Tainton electrochemical experimental lead-leaching plant was modified and improved, and many details perfected which add greatly to the importance of the process. In addition to extensive development work in the Bunker Hill mine, this company was actively engaged in prospecting and developing other properties throughout the Coeur d'Alene district, in Valley County, and in Nevada, Alaska, and Canada. A projected tunnel one mile in length, to intersect the Crescent vein at a greater depth, was started on the property formerly owned by the Big Creek Mining Co., the portal of this tunnel being located adjacent to the Crescent mill, which was constructed in 1927.

The Hecla Mining Co., which is recognized as one of the principal lead-silver producing companies of the United States, greatly increased its ore reserves and resources in the Hecla mine. The vein was further ex-

plored on the 2800-foot level and work was completed in sinking the main shaft to this level. The mine and mill plants were enlarged and improved, and the mine maintained in first-class condition. In addition to this, the contract was let for and construction was started on the installation of a powerful new electrically operated hoist; when installed, this hoist will be the largest and most complete in the Coeur d'Alene district. At the old Tiger-Poorman mine, which was purchased in 1920, machinery and equipment were installed in 1927 and work was started on unwatering it to the 600-foot level. During 1928 this work was completed, and a large amount of exploration work was done on the 300-foot and 600-foot levels.

The Morning mine of the Federal Mining & Smelting Co., which is one of the oldest in the Coeur d'Alene district in point of continuous production, as well as one of the largest lead-silver-zinc mines in the United States, was maintained at capacity production throughout the year. The number of years that this record will continue is unknown, as development work on the 3250 and 3450-foot levels has proved the ore bodies to be larger and more extensive than on any of the upper levels. During the year the 3050-foot level was opened to the full length of the ore, and the shaft completed from the 3050 to the 3450-foot level. The mine and mill plants were greatly enlarged and improved. The principal improvement was the installation of a modern electrically operated hoist, which required the cutting of a new station for its accommodation. The change in the milling methods from jigs and tables to fine grinding and flotation resulted in a reduction of milling costs and an increase in recoveries. In addition to the ore mined under company operation, a large tonnage was extracted from the upper levels by a number of lessees; the most important of these is the Sheridan Lease, which employs over 100 men.

The Page mine of the Federal Mining & Smelting Co., in Government Gulch near Kellogg, was reopened in 1926, equipped with mine and milling plants, and placed on a producing basis. It was operated throughout 1928 on a profitable producing basis. During the year the ore bodies were fully opened on the 900-foot level, at which point they proved to be of greater extent and higher grade than on any of the upper levels. The success of this operation can be accredited entirely to flotation, because with the old milling methods it was impossible to mine and mill such low-grade ore at a profit. One of the valuable improvements added to this mine during the year by the company was the construction of a club house and recreation hall for the benefit of the employees.

The Sullivan Mining Co. suspended production in 1927 at its Star mine, pending completion of its new electrolytic zinc plant at Kellogg, and devoted all its energies to this construction and to underground development work. The 4000-foot level of the Star mine is connected with the 2000-foot level of the Hecla mine by the Star crosscut, which is 8900 feet long. This crosscut made a blind connection with the Star vein at a point 2800 feet below the Star tunnel, and a vertical operating raise, which was driven to connect the crosscut and Star tunnels, was completed during the year. In addition to this work, the mine was further placed in a position to permit production, which is anticipated early in 1929. The zinc plant, which was fully described, with flow sheet and illustrations, in the 1927 report of the mining industry of Idaho, was completed and formally placed in operation on June 24, and the first metallic zinc was produced on August 3. The metal produced by this plant is of exceptionally high grade and is finding a ready market at an increase in price over that of any other zinc metal. This part of the Sullivan Mining Co. now constitutes one of the largest and most important enterprises in the Pacific Northwest, and one which assures the perpetuation of the mining industry in Shoshone County.

The Tamarack & Custer Consolidated Mining Co., which operates one of the substantial producing mines of the Coeur d'Alene district, maintained a steady output and an extensive mine development campaign

throughout the year. During the year a sorting plant was installed at the portal of No. 7 tunnel; the mill and tramway were abandoned, and No. 7 tunnel was converted into the outlet for the ore, whence it was transported to railroad cars and then to the Hercules Mining Co.'s mill at Wallace, which began to treat the entire output from this mine.

At the Galena mine of the Callahan Zinc-Lead Co. capacity output, together with an extensive development campaign, was maintained until July, at which time the mill was placed on a one-shift basis, the men being taken from production work in order to increase development. At the same time an extensive diamond-drilling campaign was started. The diamond drilling was successful in encountering a heretofore unknown vein, and at the close of the year work had started on driving a crosscut to it. As this mine is located in the so-called "dry belt," or south side of the district, the success it is attaining has been an important factor in stimulating development throughout this area.

The Sunshine Mining Co. improved its mine and mill plants, and installed a new electrically driven hoist at the winze on the 500-foot level. The extension of the winze from the 700 to the 900-foot level was completed and the ore opened on both of these levels, at which points it proved to be of greater extent and value than at any of the upper levels. In addition to the foregoing, a large amount of lateral development on the various levels was performed. This work greatly increased the ore reserves. The payment of dividends, which was started in 1927, was continued throughout the year.

The Sidney, operated by the Sidney Leasing Co., suffered a severe handicap through the destruction by fire of the upper terminal of its tramway. This retarded production, as well as decreasing the dividend payments from those made during previous years. The terminal was reconstructed, the shaft sunk an additional 200 feet in depth, and a large amount of lateral development work performed. This work greatly increased the ore reserves. The fact that this mine, located on Pine Creek, is being operated at a substantial profit, is significant in proving that this section of the Coeur d'Alene district is not without merit.

One of the large and most active development campaigns conducted during the year, including mine improvement, was that of the Dayrock Mining Co., formerly Strattons Mines Co., at the Stratton mine. During the year the shaft was extended to the 400-foot level and a large amount of development work performed on the 300-foot level. This work greatly increased the known ore reserves. In addition to the foregoing, production was maintained throughout the year and the enterprise was placed on a profitably operating basis. This mine is fast developing into one of the important producers of the Coeur d'Alene district.

The Gold Hunter Mines, Inc., at Mullan, one of the oldest mines in Shoshone County in point of continuous production, maintained capacity output and an extensive development campaign during the year. The principal new work was drifting on the 1500 and 1600-foot levels, which resulted in exposing new ore. By proving the continuation of its ore at this depth, the company greatly increased its resources and future life. In addition to the foregoing work, the mill was enlarged and improved by the addition of more modern equipment.

In January the Jack Waite Mining Co., Ltd., which owned the Jack Waite mine on the Idaho side of the State line, and the Silver King Mining Co., a Montana corporation which owned the Jack Waite Extension on the Montana side of the line, were merged as the Jack Waite Consolidated Mining Co., after which the mine was entirely rehabilitated, electric-trolley haulage installed, the mill modernized and its capacity increased to 400 tons per day, a large amount of lateral development work performed, and a winze sunk on the ore body to a depth of 200 feet. The new improvements and the additional ore exposed added greatly to the importance of this enterprise.

The Constitution Mining & Milling Co., whose mine is on Pine Creek, was idle throughout the greater part of the year, because of fire destroying the entire surface mine plant. The plant was reconstructed, new equipment installed (including a new electrically driven hoist), and the shaft from the tunnel level to the 400-foot level was completed.



GOLCONDA LEAD MINES: MILL

The Douglas Mining Co., Ltd., whose property is located on Pine Creek near the Constitution, maintained an active development campaign until February, at which time the entire surface plant was destroyed by fire. As rapidly thereafter as possible, complete new buildings were constructed, new equipment installed (including electrically driven hoist), and operations were resumed. The development work consisted principally of extending the No. 2 and No. 3 tunnels; in December work was started extending the shaft from the 180 to the 300-foot level. This work resulted in greatly increasing the known ore reserves.

One of the largest new mills to be constructed in Shoshone County during the year was that of the Dickens Consolidated Mines Co., whose property is on Moon Creek. In addition to constructing the mill, the company maintained an active development campaign throughout the year. This work consisted principally of sinking the shaft from the No. 5 to the No. 7 level and lateral development work on both of these levels.

One of the principal new mines which started production during the year was that of the Sherman Lead Co., whose property is on Canyon Creek east of the Tamarack & Custer. Its mine is connected with the No. 5 tunnel of the Hercules mine through the Humming Bird workings, and the ore was taken to the Hercules Mining Co.'s mill at Wallace for reduction. In addition to maintaining production throughout the greater part of the year, a large amount of development work was performed. This company absorbed the Oreano Mining Co., Ltd., through an exchange of stock, thus adding five important mining claims to its holdings.

The Humming Bird Mining Co. conducted an active development campaign throughout the year and produced a substantial tonnage of ore, which was sent to the Hercules Mining Co.'s mill at Wallace for treatment.

One of the largest development campaigns on Pine Creek during the year was that of the Lookout Mountain Mining & Milling Co., which also performed some new construction and installed new equipment. In March its No. 3 tunnel encountered an excellent showing of ore, after which ore-

bins were constructed, an aerial tramway 1600 feet in length installed, new camp buildings erected, and the Amy Matchless mill acquired under lease and rehabilitated. After this work was completed, the ore was transported from the terminal of the tramway to the mill by truck and a small tonnage of concentrate was produced. The vein was opened to a depth of 150 feet below No. 3 tunnel by a shaft.

One of the principal new mills constructed during the year was the 200-ton flotation concentrator of the Golconda Lead Mines. The mill building was erected, machinery and equipment installed, and operations started on August 1, after which capacity production was maintained on a 24-hour operating basis for the remainder of the year. During construction of the mill, the mine was actively developed and placed in position for production. This work consisted principally of completing the 800-foot raise from the Mayflower tunnel to the surface and extending the vertical shaft from the 1200 to the 1400-foot level. In November this company purchased the property owned by the Mayflower Mining & Development Co., thus acquiring title to its principal operating tunnel and greatly adding to the extent of its holdings.

On Nine Mile Creek near the old Success mine, the Bell of the West Mining Co. constructed two large boarding and bunk houses, office building, blacksmith shop, and compressor building and installed an electrically driven hoist and complete mining equipment preparatory to starting an active development campaign.

At the King of Pine Creek mine the New Jersey Consolidated Mines Co. constructed a new blacksmith shop and a compressor building, installed an electrically driven compressor and an air-driven hoist, erected a headframe, and commenced sinking a 200-foot vertical shaft.

Companies which installed new equipment and conducted active development work during all or part of the year were as follows:

The Cedar Creek Mining & Development Co., Ltd., installed a large electrically driven compressor, completed adjustments on its new mill, which was built in 1927, and commenced milling operations in April. After running the mill a short period it was found necessary to suspend operations pending installation of the new compressor.

The Delaware Mines Corporation installed a new electrically driven compressor and complete mining equipment at the Red Monarch tunnel and commenced the extension of this tunnel under contract.

The Lansing Silver-Lead Mining Co. installed a small gas-driven compressor and complete mining equipment, and conducted an active development campaign throughout the greater part of the year.

The Mutual Mines Development Co. erected a new building and installed a new electrically driven compressor to replace its former equipment which was destroyed by fire in February. Excepting the time lost on account of the fire, this company maintained an active development campaign throughout the entire year.

The Blue Eagle Mining Co., whose property is on Pine Creek, installed a new electrically driven compressor and complete mining equipment, and performed a small amount of development work under contract.

The Commercial Traveler Mining Co. installed an electrically driven compressor and complete mining equipment, and drove a 500-foot crosscut tunnel under contract.

The Decker Development Co., which controls the old Stewart mine at Kellogg, installed a 4-drill electrically driven compressor and reopened the main haulage tunnel.

Companies which employed more than five men and which conducted development work throughout the year were as follows:

The Alameda Mining Co., whose property adjoins the Success mine on Nine Mile Creek, further explored the vein by drifts and raises.

The Ajax Mining Co. extended its shaft from the 200-foot to the 400-foot level, and performed a large amount of development work at the lower levels.

In April the Atlas Mining Co. commenced work on a projected 3000-foot drift on the Carbonate Hill vein. The Evolution Mining Co. performed a small amount of development work on the 300-foot level and commenced extending the shaft an additional 200 feet. The Hecla Extension Mining Co. unwatered the Anchor shaft to the 600-foot level, after which a large amount of development work was performed on that level. Part of this work consisted of diamond drilling. The Hypotheek Mining & Milling Co. performed a large amount of drifting and crosscutting on the 900-foot level of its mine.

The Independence Lead Mines, Ltd., maintained an active development campaign throughout the year. This work consisted principally of extending the No. 4 tunnel, which is the lowest level in the mine. The Little Sunshine Mining Co. completed its crosscut to a total length of 2700 feet. The Nabob Silver-Lead Mining Co. unwatered its 300-foot shaft and performed 1200 feet of development work by contract.

The Olympic Mines Co., whose property is on Pine Creek, was active throughout the year. At the property of the Silver Summit Mining Co. mine buildings were erected and work was started on a projected 4000-foot crosscut. The Wolverine Mining Co., Ltd., extended its shaft from the 150-foot level to the 450-foot level and commenced drifting at the lower level.

AETNA MINES CORPORATION

Office: Empire State Bldg., Spokane, Wash. **Officers:** Peter Reid, Pres.; Geo. H. Walters, Sec., both of Spokane, Wash. **Inc.:** Apr. 22, 1927. **Capital:** 1,000,000 shares; par value 25c; 750,000 shares issued. **Property:** Lucky Stone group; 2 patented, 22 unpatented claims, Evolution dist.; Wallace. **Development:** By numerous crosscuts and tunnels, the longest of which is No. 4 tunnel, 1000 ft. in length. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** This company is a reorganization of the Lucky Stone Mining Co.; 200 ft. of tunnel driven under contract during the year. Stock assessments were levied during the year as follows: Jan. 11, 5 mills; Aug. 13, 5 mills.

AETNA MINING & MILLING CO., LTD.

Office: Wallace. **Officers:** P. J. Maggy, Pres.; W. A. Devan, Sec., both of Wallace. **Inc.:** March 9, 1915. **Capital:** 1,500,000 shares; par value 10c; all shares issued. **Property:** 4 unpatented claims, Lelande dist.; Burke. **Development:** By 2 tunnels: No. 1, 250 ft. long; No. 2, 762 ft. long. **Remarks:** Annual labor only. A stock assessment of 1 mill levied on July 1.

AJAX MINING CO.

Office: 714 W. 14th Ave., Spokane. **Officers:** F. Moriarity, Pres.; J. A. Havighorst, Sec., both of Spokane, Wash.; A. G. Anderson, Mgr., Burke. **Inc.:** Oct. 20, 1902. **Capital:** The capital stock was increased to 2,000,000 shares on July 6, 1925; par value $1; 1,613,022 shares issued. **Property:** 15 patented claims, Lelande dist.; Burke. **Development:** Principally by 3 tunnels and 3 shafts. Total development approximately 27,000 ft. Main or Bixby tunnel is located in Gorge Gulch a short distance above the town of Burke. This tunnel intersects the Ajax vein at a distance of 6000 ft., at which point is a 400-ft. vertical shaft with 1000 ft. of drifting at the 200-ft. level. **Plant:** MINE: Type-10 I-R 550-cu.-ft. electrically driven air compressor; I-R No. 50 steel sharpener; Hoar shovel. **Ore:** Lead-silver. **Men employed:** Average, 13. **Remarks:** During the year the 200-ft. shaft in Bixby tunnel was sunk to the 400-ft. level and a large amount of drifting was performed on the latter level. Stock assessments were levied during 1928 as follows: March 6, 1c; July 5, 1c; October 8, 1c.

ALAMEDA MINING CO.

Office: Wallace. **Officers:** O. W. Lewis, Pres.; James A. Wayne, Sec.-Mgr., both of Wallace. **Inc.:** Feb. 14, 1910. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Alameda group; 4 patented, 11 unpatented claims, Lelande dist.; Wallace. **Development:** By 2 tunnels: No. 1, 500 ft. long; No. 2, 3600 ft. long. **Plant:** Electrically-driven I-R compressor and complete mining equipment. **Ore:** Lead-zinc-silver. **Men em-**

ployed: Average, 5. **Remarks:** This company's property adjoins the famous old Success mine on Nine Mile Creek and had been idle for a long period of years. During 1927 the mine plant was rehabilitated and work started at a distance of about 2000 ft. from the portal of No. 2 tunnel, at which point a raise was started on the vein. In 1928 the raise was completed and a large amount of lateral work extended from it. Stock assessments were levied during the year as follows: Feb. 14, 5 mills; June 14, 5 mills; October 15, 5 mills.

ALHAMBRA MINING CO., LTD.

Office: 504 Empire State Bldg., Spokane, Wash. **Officers:** W. J. C. Wakefield, Pres., Peyton Bldg., Spokane, Wash.; William A. Corey, Sec., Spokane, Wash. **Inc.:** Dec. 26, 1898. **Capital:** 1,000,000 shares; par value $1; 987,399 shares issued. **Property:** Alhambra group; 23 patented claims, Yreka dist.; Kellogg. **Development:** Approximately 13,200 ft. **Ore:** Lead-silver. **Plant:** MINE: 12x12 Laidlaw-Dunn Gordon electrically-driven compressor, complete mining equipment. **Remarks:** Property operated under lease by the Bunker Hill & Sullivan M. & C. Co. The 75-ton flotation concentrator which was on this property was destroyed by fire early in 1927. The lessee then rebuilt the mill formerly owned by the Big Creek Mining Co., Ltd., now known as the Crescent mill, for the treatment of ore from the Alhambra and Crescent mines. During the latter part of 1928 equipment was installed and contract let for a tunnel 1 mile in length which will open the property at a greater depth.

ALICE MINING CO.

Office: Wallace. **Officers:** James F. McCarthy, Pres.; Leo J. Hoban, Sec., both of Wallace. **Inc.:** July 30, 1902. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** 21 patented, 2 unpatented claims, Hunter dist.; 3½ miles east of Wallace. **Development:** 10,000 ft. of underground workings. **Plant:** MINE: Complete mine camp and buildings. MILL: Partly dismantled 125-ton concentrator. **Ore:** Lead-silver. **Remarks:** Idle.

ALMA RAY MINING CO.

Office: Kellogg. **Officers:** Elmer E. Brown, Pres.-Mgr.; C. B. Forbes, Sec., both of Kellogg. **Inc.:** April 21, 1917. **Capital:** 1,500,000 shares; par value 25c; 586,324 shares issued. **Property:** Alma Ray group; 5 unpatented claims, Yreka dist.; Kellogg. **Development:** Principally by 2 tunnels: No. 1, 300 ft. long; No. 2, 480 ft. long. **Ore:** Lead-silver, copper. **Men employed:** Average, 2. **Remarks:** Small amount of work by contract during the year. A stock assessment of 1 mill was levied on May 10, 1928.

ALPENA COPPER MINING CO., LTD.

Office: Wallace. **Officers:** C. W. Beale, Pres.; A. H. Featherstone, Sec.; J. C. Purcell, Mgr., all of Wallace. **Inc.:** Aug. 9, 1900. **Capital:** 1,000,000 shares; par value 10c; all shares issued. **Property:** Alpena group; 6 unpatented claims, St. Joe dist.; Adair. **Ore:** Copper-gold. **Remarks:** Annual labor only.

AMAZON MANHATTAN MINING CO.

Office: Wallace. **Officers:** P. J. Maggy, Clerk, Wallace. **Inc.:** A partnership. **Property:** Amazon Manhattan group; 9 patented claims, Beaver dist.; Carbonite. **Development:** By 3 tunnels: No. 1, 510 ft.; No. 2, 1180 ft.; No. 3, 3856 ft. **Ore:** Lead-zinc-silver. **Remarks:** Idle.

AMBERGRIS MINES CO.

Office: Wallace. **Officers:** Harry L. Day, Pres.; W. B. Heitfeld, Sec., both of Wallace. **Inc.:** June 16, 1916. **Capital:** 1,000,000 shares; par value $1; 978,452 shares issued. **Property:** Ambergris group; 8 patented claims, Lelande & Placer Center dists.; Burke. **Development:** Mine opened and operated through No. 5 Hercules tunnel, in addition to which there are 3 intermediate tunnels and 3 shafts; total development, approximately 13,000 ft. **Ore:** Lead-silver. **Remarks:** Press reports at the close of the year were to the effect that this company had been merged with the Ambergris Consolidated Mining Co.



PARTIAL VIEW, MINE AND MILL PLANTS, BUNKER HILL & SULLIVAN M. & C. CO.

AMERICAN-COMMANDER MINING & MILLING CO., LTD.
Office: Wallace. **Officers:** J. A. Glowe, Pres., Mullan; Herman Marquardt, Sec., Wallace. **Inc.:** Oct. 24, 1901. **Capital:** 2,000,000 shares; par value $1; 1,553,988 shares issued. **Property:** American-Commander group; 2 patented claims, Hunter dist.; Mullan. **Development:** By 4 tunnels: No. 1, 190 ft. long; No. 2, 1160 ft. long; No. 3, 1300 ft. long; No. 4, 2500 ft. long. **Plant:** Electrically-driven 9x12 Sullivan compressor; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Active development work in No. 2 tunnel was maintained for a period of 5 months.

AMERICAN LEAD MINES, LTD.
Office: 323 Lindelle Block, Spokane. **Officers:** R. L. Brainard, Pres., Kellogg; Matt Baumgartner, Sec.-Mgr., Spokane. **Inc.:** Feb. 2, 1925. **Capital:** 1,000,000 shares; par value 10c; 670,000 shares issued. **Property:** Crescent group; 10 unpatented claims on the West Fork of Big Creek, Yreka dist.; Kellogg. **Development:** By 1 tunnel 550 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 1. **Remarks:** Small amount of work by a lessee.

AMERICAN MINING CO., LTD.
Office: Wallace. **Officers:** Max Smith, Pres.; W. E. Stache, Sec., both of Wallace. **Inc.:** Nov. 1, 1899. **Capital:** 1,000,000 shares; par value 10c; 405,625 shares issued. **Property:** American group; 2 unpatented claims, Placer Center dist.; Wallace. **Development:** 3 tunnels: No. 1, 65 ft. long; No. 2, 80 ft. long; No. 3, 314 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

AMY MATCHLESS MINING & MILLING CO.
Office: Mankato, Minn. **Officers:** George Weidenman, Pres.; W. A. Beach, Sec., both of Mankato, Minn.; J. G. Schrodt, Mgr., Kellogg. **Inc.:** Nov. 24, 1913. **Capital:** 1,250,000 shares; par value $1; 805,544 shares issued. **Property:** Amy group; 5 patented, 18 unpatented claims, Yreka dist.; Pine Creek, Kellogg. **Development:** Principally by an inclined shaft, 200 ft. deep. Total development, approximately 8500 ft. **Plant:** MINE: Hoist and 2 compressors, both electrically driven; sawmill and camp. MILL: 75-ton concentrator, consisting of jigs, tables, and flotation. **Ore:** Lead-silver-zinc. **Men employed:** Average, 6. **Remarks:** Small amount of development work during the early part of the year.

ANACONDA COPPER MINING CO.
Office: 25 Broadway, New York City. **Officers:** C. F. Kelley, Pres.; A. H. Melin, Sec., both of New York City. **Inc.:** Filed in Idaho, Apr. 10, 1916. **Capital:** 6,000,000 shares; par value $50; 3,000,000 shares issued. **Property:** Sunset group; 3 patented claims, Beaver dist.; Wallace. **Development:** By 1 tunnel 3600 ft. long and a vertical shaft 800 ft. deep with 4 intermediate levels. Total development, approximately 10,000 ft. **Ore:** Lead-silver-zinc. **Remarks:** Property purchased from Clark-Montana Realty Co. in September, 1928.

ANCHOR MINING CO.
Office: 825 Seventh Ave., Spokane, Wash. **Officers:** G. B. Chamberlin, Pres.; J. L. Prickett, Sec., both of Spokane, Wash. **Inc.:** Nov. 18, 1897. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Anchor group; 8 patented claims, Lelande dist.; Burke. **Development:** Principally by one tunnel 6000 ft. long and one vertical shaft 210 ft. deep. **Plant:** 20-h. p. hoist and 3-drill I-R compressor, both electrically driven. **Ore:** Lead-silver. **Remarks:** Property under option to Hecla Extension Mining Co.

ARCTIC MINING & MILLING CO., LTD.
Office: Kellogg. **Officers:** Henry Lalonde, Pres., Wallace; Geo. H. Heller, Sec., Kellogg. **Inc.:** July 5, 1907. **Capital:** 1,500,000 shares; par value $1; 900,000 shares issued. **Property:** Arctic group; 5 unpatented claims, Placer Center dist.; Wallace. **Development:** By 1 tunnel 865 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

ARGENTA MINING CO., LTD.

Office: Wallace. **Officers:** W. C. Richardson, Pres.-Mgr., Mullan; C. D. Brock, Sec., Wallace. **Inc.:** Dec. 10, 1906. **Capital:** 1,500,000 shares; par value $1; 1,108,000 shares issued. **Property:** Argenta group; 3 patented claims, Hunter dist.; Mullan. **Development:** 2 tunnels: No. 1, 900 ft. long; No. 2, 250 ft. long. **Ore:** Lead-silver. **Remarks:** Idle throughout the year.

ATLANTIC MINING CO.

Office: Wallace. **Officers:** Herman J. Rossi, Pres.; Otto A. Olsson, Sec.-Mgr., both of Wallace. **Inc.:** June 11, 1897. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Atlantic group; 7 unpatented claims, Beaver dist.; Prichard. **Development:** Principally by 1 tunnel 340 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

ATLAS MINING CO.

Office: Mullan. **Officers:** Thomas F. Keeley, Pres., 516 E. 28th St., Chicago; Charles K. Cartwright, Sec.; W. Earl Greenough, Mgr., both of Mullan. **Inc.:** Mar. 4, 1924. **Capital:** 2,000,000 shares; par value $1; all shares issued. **Property:** Atlas group; 19 patented, 19 unpatented claims, Hunter dist.; Mullan. **Development:** 7 tunnels and 2 inclined shafts; the principal of which is the Horseshoe tunnel 7030 ft. long. **Plant:** Electrically-driven compressor, and complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 9. **Remarks:** The property of the Atlas Mining Co. is a consolidation of three properties, the Carbonate Hill, Idaho Giant, and Boulder Creek, on which has been done approximately 10,500 ft. of tunneling, drifting, crosscutting, and sinking. The Horseshoe tunnel was advanced to a length of 7030 ft. when operations were suspended in April, 1927. In April, 1928, work was resumed in driving a projected 3000-ft. drift on the Carbonate Hill vein. Stock assessments were levied during the year as follows: June 7, 2c; Nov. 21, 1c.

AULBACH GROUP

Owner: Adam Aulbach, Murray. **Property:** Aulbach group; 5 patented claims, Coeur d'Alene dist.; Murray. **Development:** By 3 tunnels, the longest of which is No. 2, 450 ft. long. **Ore:** Lead-silver. **Remarks:** This property is one of the oldest locations in the Coeur d'Alene district and has been held almost continuously by the present owner.

BASIN MINING CO.

Office: Wallace. **Officers:** Jerome J. Day, Pres.; P. J. Maggy, Sec., both of Wallace. **Inc.:** June 22, 1915. **Capital:** 1,500,000 shares; par value 5c; 1,000,000 shares issued. **Property:** Basin group; 5 patented claims, Lelande dist.; Burke.

BEAR PLACER MINING CO.

Office: 608 Empire State Bldg., Spokane, Wash. **Officers:** F. R. Clark, Pres.; G. M. Johnson, Sec., both of Spokane. **Inc.:** Aug. 5, 1924. **Capital:** 10,000 shares; par value $10; 5817 shares issued. **Property:** Bear Placer group: 2 unpatented placer claims, unorganized dist.; on St. Joe River; Superior, Mont. **Ore:** Placer gold. **Men employed:** Average, 5. **Remarks:** Small amount of hydraulic equipment was installed and development work performed during a period of 5 months.

BELL MINING CO.

Office: 504 Empire State Bldg., Spokane, Wash. **Officers:** Robert C. Moffitt, Pres., Seattle; Charles Hussey, Sec., Spokane, Wash. **Inc.:** Oct. 17, 1898. **Capital:** 500,000 shares; par value 25c; 495,500 shares issued. **Property:** 9 patented claims, Lelande dist.; Wallace. **Remarks:** Under development by the United Metals Co.

BELL OF THE WEST MINING CO.

Office: Wallace. **Officers:** George R. Trask, Pres.-Mgr.; M. E. Trask, Sec., both of Wallace. **Inc.:** Oct. 23, 1899. **Capital:** 1,500,000 shares; par value 5c; all shares issued. **Property:** Bell of the West group; 2 patented, 2 unpatented claims, Placer Center dist.; Wallace. **Development:** 2 tunnels: No. 1, 250 ft. long; No. 2, 1000 ft. long with 300 ft. of crosscuts. **Ore:** Lead-silver. **Remarks:** Under option to Western Mines, Ltd.

BELMONT MINING CO., LTD.
Office: Wallace. **Officers:** James H. Taylor, Pres.-Mgr.; Frank P. Hess, Sec., both of Wallace. **Inc.:** Mar. 26, 1900. **Capital:** 1,000,000 shares; par value $1; 271,175 shares issued. **Property:** Belmont group; 14 unpatented claims, Evolution dist.; Osburn. **Development:** Principally by 1 tunnel 900 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor performed under contract. A stock assessment of 3 mills was levied on June 13, 1928.

BENTON MINING CO., LTD.
Office: Wallace. **Officers:** Mary Callahan, Pres., Spokane, Wash.; E. G. Gnaedinger, Sec.-Mgr., Wallace. **Inc.:** Feb. 14, 1903. **Capital:** 1,500,000 shares; par value $1; 1,250,000 shares issued. **Property:** Benton group; 5 patented claims, Lelande dist.; Burke. **Development:** By 6 tunnels, the principal one of which is 2500 ft. long, and one vertical shaft 200 ft. deep. **Ore:** Lead-silver. **Men employed:** Average, 1. **Remarks:** Work in extending principal tunnel was conducted for 6 months. A stock assessment of 3 mills was levied on April 30, 1928.

BIG DIVIDE MINING CO., LTD.
Office: Sanger, Calif. **Officers:** Frank P. Markwell, Pres., Los Angeles, Calif.; J. F. Markwell, Sec., Sanger, Calif. **Inc.:** Aug. 23, 1904. Charter forfeited Nov. 30, 1928. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Big Divide group; 10 patented, 5 unpatented claims, Lelande dist.; Wallace. **Plant:** Large air compressor driven by 150-h. p. electric motor. **Ore:** Lead-silver.

BIG ELK MINING CO., LTD.
Office: Wallace. **Officers:** Peter Peterson, Pres.-Mgr., Saltese, Mont.; A. H. Featherstone, Sec., Wallace. **Inc.:** April 26, 1909. **Capital:** 2,000,000 shares; par value $1; all shares issued. **Property:** Big Elk group; 17 unpatented claims, St. Joe dist.; Delage. **Ore:** Copper-gold. **Remarks:** Annual labor only.

BIG IT MINING & MILLING CO.
Office: Kellogg. **Officers:** H. S. Davenport, Pres., Enaville; M. L. Pratt, Sec.-Mgr., Kellogg. **Inc.:** Dec. 5, 1916. Charter forfeited Dec. 1, 1920. **Capital:** 1,500,000 shares; par value 10c; 1,138,000 shares issued. **Property:** Big It group; 12 unpatented claims, Yreka dist.; Masonia. **Development:** By 2 tunnels: No. 1, 270 ft.; No. 2, 850 ft. **Ore:** Lead-zinc-silver. **Men employed:** Average, 2. **Remarks:** Small amount of development work by a lessee during the early part of the year.

BISMARCK MINING CO.
Office: Wallace. **Officers:** E. V. Lange, Pres., Amsterdam, Holland; W. H. Herrick, Mgr., Wallace. **Inc.:** Jan. 18, 1924. **Capital:** 1,250,000 shares; par value 10c; all shares issued. **Property:** Bismarck group; 3 unpatented claims, Big Creek, Yreka dist.; Kellogg. **Development:** By 1 tunnel 1400 ft. long. **Plant:** Gas-driven compressor; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 4. **Remarks:** Principal tunnel extended 500 ft. during the year.

BITTER ROOT MOUNTAIN MINING CO.
Office: 939 S. Cowley St., Spokane, Wash. **Officers:** W. P. Flood, Pres.; Mrs. F. A. Noteware, Sec., both of Spokane, Wash. **Inc.:** May 6, 1901. **Capital:** 1,500,000 shares; par value 5c; all shares issued. **Property:** Lookout group; 3 patented claims, Hunter dist.; Mullan. **Development:** Principally by 1 tunnel 1000 ft. long. **Ore:** Lead-silver. **Remarks:** Inactive since 1900.

BLACK BEAR MINES CO.
Office: Wallace. **Officers:** C. A. Hagan, Pres., Moscow; A. G. Kennedy, Sec., Wallace. **Inc.:** Feb. 24, 1917. **Capital:** 2,000,000 shares; par value 20c; 1,388,051 shares issued. **Property:** Black Bear group; 5 patented, 2 unpatented claims, Lelande dist.; Wallace. **Development:** Principally

by 1 tunnel 4100 ft. long. **Plant:** 750 cu. ft. electrically-driven compressor; complete mining equipment. **Ore:** Lead-zinc-silver. **Remarks:** Under option to the United Metals Co.

BLACK HAWK MINING & DEVELOPMENT CO., LTD.

Office: Wallace. **Officers:** Frederick Burbidge, Pres.-Mgr.; A. W. Hoover, Sec., both of Wallace. **Inc.:** Aug. 19, 1901. **Capital:** 1,500,000 shares; par value 10c; 1,332,352 shares issued. **Property:** Black Hawk group; 13 patented claims, Yreka dist.; Kellogg. **Development:** By 2 tunnels: Black Hawk, 2920 ft. long; Page, 2600 ft. long. **Ore:** Silver-lead-zinc. **Remarks:** Property under lease to the Federal M. & S. Co., which operated it throughout the year in conjunction with the Page mine, which see.

BLAINE & EMMETT MINING CO., LTD.

Office: Kellogg. **Officers:** Merrill Heblethwaite, Pres.-Mgr., Prichard; R. W. Skeman, Sec., Kellogg. **Inc.:** Dec. 20, 1909. **Capital:** 1,000,000 shares; par value $1; 480,812 shares issued. **Property:** Blaine & Emmett group; 6 unpatented claims, Eagle dist.; Prichard. **Development:** 2 tunnels: No. 1, 300 ft. long; No. 2, 650 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

BLUE EAGLE MINING CO.

Office: Kellogg. **Officers:** Ed McCarty, Pres.; C. B. Forbes, Sec., both of Kellogg. **Inc.:** April 18, 1925. **Capital:** 1,500,000 shares; par value 1c; 1,252,380 shares issued. Increased Dec. 8, 1928, to 3,000,000 shares; par value 10c. **Property:** Blue Eagle group; 15 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 2 tunnels: No. 2, 185 ft. long; No. 3, 500 ft. long. **Plant:** Electrically-driven 8x9 I-R compressor; complete mining equipment. **Ore:** Lead-zinc-silver. **Men employed:** Average, 2. **Remarks:** Active work throughout the year in extending No. 3 tunnel. Stock assessments were levied during 1928 as follows: Jan. 14, 1 mill; July 7, 1 mill.

BLUE RIBBON MINING CO.

Office: 601 N. Monroe St., Spokane, Wash. **Officers:** Al Harris, Sec., Spokane, Wash. **Inc.:** Oct. 22, 1914. **Capital:** 1,500,000 shares; par value 10c; 325,000 shares issued. **Property:** Blue Ribbon group; 9 unpatented claims, Hunter and Lelande dists.; Burke. **Development:** Principally by 1 tunnel 2400 ft. long. **Remarks:** Small amount of work during the summer months, funds for which were derived from stock assessments.

BLUE WING MINING CO., LTD.

Office: Wallace. **Officers:** Herman J. Rossi, Sec., Wallace. **Inc.:** July 8, 1901. **Capital:** 1,000,000 shares; par value 10c; 774,775 shares issued. **Property:** Blue Wing group; 5 unpatented claims, Placer Center dist.; Wallace. **Ore:** Lead-silver. **Remarks:** Annual labor only.

BOBBY ANDERSON GROUP MINING CO.

Office: Kellogg. **Officers:** T. R. Mason, Sec., Kellogg. **Inc.:** June 16, 1906. **Capital:** 1,500,000 shares; par value $1; 866,866 shares issued. **Property:** Bobby Anderson group; 6 unpatented claims, Yreka dist.; Kellogg. **Development:** 3 tunnels and 1 shaft. **Plant:** Electrically-driven compressor and hoist; complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Men employed:** Average, 6. **Remarks:** During the year 600 ft. of tunnel was driven and a shaft 123 ft. deep was sunk. A stock assessment of 5 mills was levied on Nov. 26, 1928.

BONANZA MINES CORPORATION

Office: Wallace. **Officers:** W. Howard Moore, Pres.-Mgr.; Therrett Towles, Sec., both of Wallace. **Inc.:** July 12, 1927. **Capital:** 1,500,000 shares; par value 25c; 613,503 shares issued. **Property:** Bonanza group; 24 unpatented claims, Eagle dist.; Prichard; held under lease and option. **Development:** By 3 tunnels: No. 1, 350 ft.; No. 2, 572 ft.; No. 3, 50 ft. **Plant:** Complete mining equipment, operated by compressed air from Jack Waite Consolidated Mining Co. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Active throughout the year.

BULLION MINING CO., LTD.

Office: Wallace. **Officers:** William Squance, Pres.; James H. Taylor, Sec.-Mgr., both of Wallace. **Inc.:** Dec. 5, 1902. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Bullion group; 16 patented, 1 unpatented claim, St. Joe dist.; Mullan. **Development:** 3 tunnels: No. 1, 500 ft. long; No. 2, 2000 ft. long; No. 3, 4800 ft. long; 1 vertical shaft 100 ft. deep. **Plant:** Pelton water wheel driving an I-R compressor. **Ore:** Copper-gold. **Men employed:** Average, 3. **Remarks:** Active throughout the summer months in driving a raise to connect No. 3 and No. 2 tunnels. A stock assessment of 5 mills was levied on May 10, 1928.

BUNKER CHANCE MINING CO.

Office: Wardner. **Officers:** Nick Petrinovich, Pres.-Mgr.; R. L. Brainard, Sec., both of Wardner. **Inc.:** May 8, 1922. **Capital:** 1,500,000 shares; par value 25c; 1,200,000 shares issued. **Property:** Bunker Chance group; 1 patented, 6 unpatented claims, Yreka dist.; Wardner. **Development:** By 4 tunnels, the principal one of which is 680 ft. long. **Plant:** Complete mining equipment; compressed air received from North Bunker Hill Mining Co., Ltd. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** Active for 3 months in extending principal tunnel.

BUNKER HILL & SULLIVAN MINING & CONCENTRATING CO.

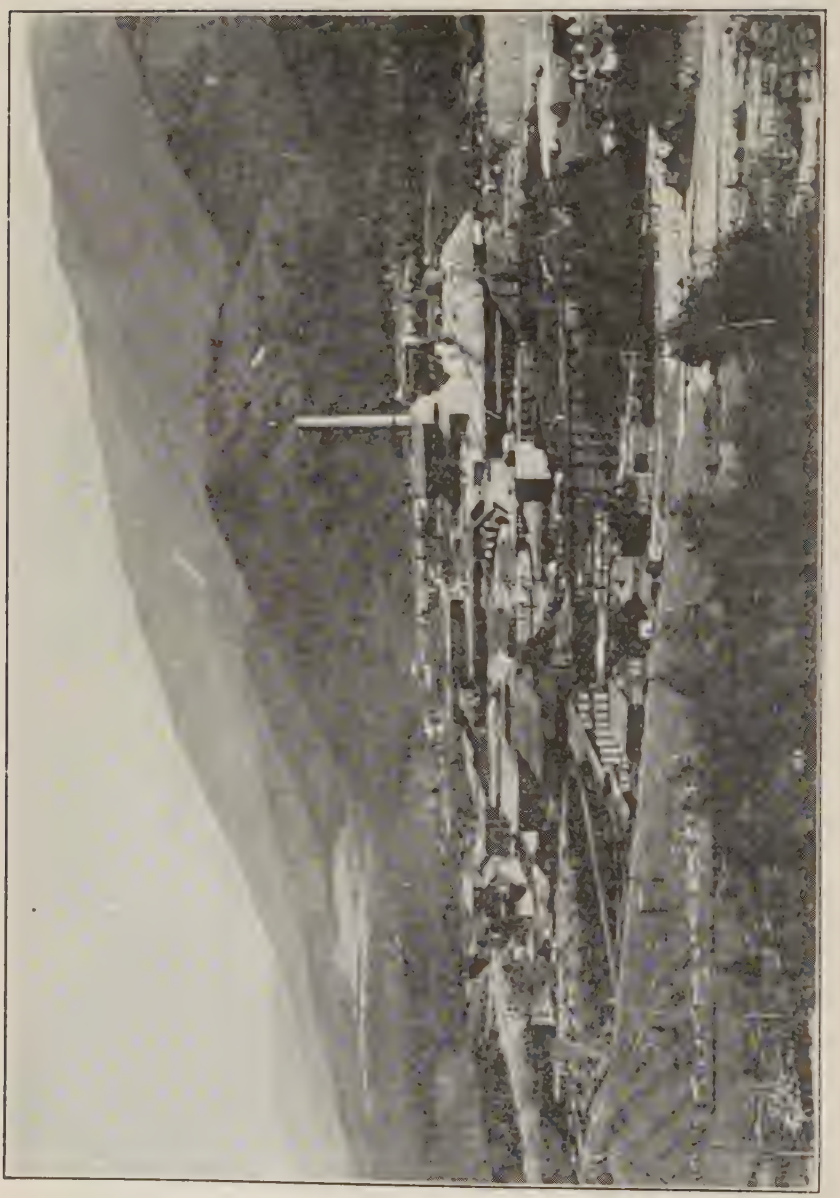
Office: Kellogg. **Officers:** F. W. Bradley, Pres.; J. W. Crosby, Sec., both of 1022 Crocker Bldg., San Francisco, Calif.; Stanly A. Easton, Mgr., Kellogg. **Inc.:** Originally incorporated in Oregon and filed in Idaho, Aug. 20, 1903; changed to a Delaware corporation and filed in Idaho, April 16, 1924. **Capital:** 327,000 shares common; par value $10; 20,000 shares preferred; par value $100; all common shares issued. **Property:** Bunker Hill; 353 patented, 32 unpatented claims, Yreka dist.; Kellogg. **Development:** The principal adit is the Kellogg tunnel, which is 24,000 ft. long, in which are the two principal inclined shafts, one of which is known as the White Raise, and the other the main shaft, which is approximately 2785 ft. long, giving a vertical depth of 2000 ft. below the Kellogg tunnel level. In the main shaft are 13 intermediate levels. Total development, approximately 58 miles. **Plant:** MINE: Two electrically-driven hoists, two electrically-driven I-R compressors, one steam-driven Nordberg compressor. Trolley locomotive haulage in Kellogg tunnel; storage battery locomotive haulage in intermediate levels. Complete and modern machine shop, blacksmith shop and change house. MILL: Three complete and modern concentrators, including flotation. Daily capacity, approximately 2100 tons. **Ore:** Lead-silver. **Men employed:** In mine, mill and smelter, average, 950.

BUNKER HILL SMELTER

Officers: Frank M. Smith, Director, 1117 Paulsen Bldg., Spokane, Wash.; A. F. Beasley, Supt., Kellogg. **Remarks:** This smelter was erected during 1917, since which time it has been continually enlarged and improved and is now one of the most modern, complete and up-to-date plants in the United States. The smelting plant covers an area of about 30 acres and consists of complete buildings and equipment for sampling, roasting, sintering, smelting and refining lead, silver, and gold ores. In addition to refined lead, silver, and gold, antimonial lead and copper sulphate are also produced. The principal supply of ore is from the company's own mine and the mines of the Coeur d'Alene district. The company is doing a general custom business and is drawing ore from all of the northwestern states as well as from British Columbia and Alaska, and is becoming a strong competitor in the smelting business. This smelter and its operations are fully described and illustrated in many of the articles listed under the bibliography of Shoshone County.

REMARKS

This company is the largest dividend payer and maintains the largest pay roll of any mine in Idaho; it is also the largest producer of lead-silver ore in the State, if not in the world; and is one of the few companies in the United States that mine, mill, smelt, refine, manufacture,



BUNKER HILL SMELTER

and sell lead ore and lead products. The enterprise, particularly the mine and mill, has been established for such a long period and all operations have become so well founded that it has practically expanded into a manufacturing operation. The mine is opened by over 58 miles of underground workings and has a sufficient tonnage of ore reserves to assure many years of continued operations.

During the past few years this organization has been actively engaged in prospecting and developing mining properties throughout the State, and during 1924 acquired the mines owned by the Hall-Interstate Mining Co. and the Lost Pilgrim Mining Co., situated near the head of the Deadwood River in Valley County. The interest shown in developing lead mines outside of the Coeur d'Alene district is having a tremendous influence in attracting attention to the State's undeveloped resources.

The management is progressive and intelligent and an unusual amount of initiative is shown in the conduct of the affairs of the company and civic activities. An excellent spirit of cooperation has been created and maintained in the employees, and everything possible is done to promote their welfare. An example of this attitude was the announcement by the company that it had arranged to give the employees an opportunity to purchase a part of the new issue of preferred stock. Three thousand shares of this stock were set aside for the employees, to be purchased for cash or upon the installment plan. This stock has a par value of $100 per share, and bears 6 per cent interest. It is also subject to a bonus of 50 cents per share per quarter, making an assured interest rate of 8 per cent, while the holder is an employee of the company, and an additional bonus of as much more per quarter as the common stock received in dividends in excess of $1.50 per share during the previous quarter. This preferred stock is redeemable at $110 a share. The common stock was listed on the New York Curb Exchange during the latter part of 1926; in January, 1927, it sold at a low of $67.50 per share; in January, 1928, it had risen to a high of $160 per share and in October dropped to a low of $128 per share, these being the highest and lowest points at which it sold during the year.

This company owns a 50 per cent interest with the Hecla Mining Co. in the Sullivan Mining Co., the owner of the Star mine in the Coeur d'Alene district; and a 50 per cent interest in the Alaska-Treadwell Gold Mining Co. and the Treadwell Yukon Co., Ltd., both of Alaska. Ore from the latter property was shipped to the smelter at Kellogg. In addition to the foregoing, the company is actively interested in developing properties in Nevada and at Sudbury, Ontario, Canada.

The extensive development work done in the Bunker Hill mine during the year greatly increased the known ore reserves. This work consisted principally of opening the 1900-ft. level, where ore and geological conditions were found to be normal. The mine, mill, and smelting plants were enlarged and improved. The Sweeny mill was further altered to accommodate custom ores, particularly those from Pine Creek.

The Tainton electrochemical experimental lead-leaching plant was modified and improved. Many details were perfected which add greatly to the improvement of the process.

Machinery and equipment were installed, and a projected tunnel one mile in length, to intersect the Crescent vein at a greater depth, was started on the property formerly owned by the Big Creek Mining Co., the portal of this tunnel being located adjacent to the Crescent mill, which was constructed in 1927.

BURKE MINING CO., LTD.

Office: Wallace. **Officers:** Wm. Bailey, Pres.-Mgr.; John C. Glahe, Sec., both of Wallace. **Inc.:** May 31, 1902. **Capital:** 1,000,000 shares; par value $1; 770,000 shares issued. **Property:** 12 patented claims, Lelande dist.; Burke. **Development:** 2 tunnels: No. 1, 125 ft. long; No. 2, 1000 ft. long. **Ore:** Lead-silver. **Remarks:** A stock assessment of 2 mills was levied on April 27, 1928.

BUTTE & COEUR D'ALENE DEVELOPMENT CO.

Office: Wallace. **Officers:** T. B. Cosgrove, Pres.-Mgr., Mullan; Elmer E. Johnston, Sec., Kellogg. **Inc.:** Sept. 17, 1927. **Capital:** 2,500,000 shares; par value $1; 902,133 shares issued. **Property:** Butte & Coeur d'Alene group; 8 patented claims; Hunter dist.; Mullan; held under lease and option from Butte & Coeur d'Alene Mining Co. **Development:** By 1 tunnel 1500 ft. long, in which is a vertical shaft 400 ft. deep. **Plant:** Electrically-driven compressor; air-driven hoist; complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 5. **Remarks:** During the early part of the year the shaft was unwatered to the 400-ft. level, on which a large amount of development work was performed. During the latter part of the year the company forfeited its option and operations at this property were suspended.

CALEDONIA MINING CO.

Office: Kellogg. **Officers:** Stanly A. Easton, Pres.-Mgr.; Lee Prather, Sec., both of Kellogg. **Inc.:** July 1, 1907. **Capital:** 2,605,000 shares; par value $1; all shares issued. **Property:** Caledonia; 3 patented claims, Yreka dist.; Kellogg. **Development:** Approximately 19,250 ft. of underground workings. **Plant:** Equipment rented from Bunker Hill & Sullivan M. & C. Co. **Ore:** Silver-lead. **Remarks:** Small amount of work by lessees throughout the year.

CALIFORNIA GULCH PLACER MINING CO.

Office: Sharon, Wash. **Officers:** A. O. Rickert, Pres.; Flora Rickert, Sec.; Julia B. Hammond, Mgr., all of Sharon, Wash. **Inc.:** Apr. 26, 1920. **Capital:** 200,000 shares; par value 25c; shares issued, unknown. **Property:** 8 unpatented placer claims, unorganized dist., on St. Joe River; nearest P .O., Superior, Mont.

CALLAHAN ZINC-LEAD CO.

Office: Wallace. **Officers:** D. A. Callahan, Pres.; C. W. Newton, Sec.-Mgr., both of Wallace. **Inc.:** July 18, 1912, as Consolidated Interstate Mining Co.; name changed March 25, 1921. **Capital:** 1,000,000 shares; par value $10; 716,592 shares issued.

CALLAHAN MINE

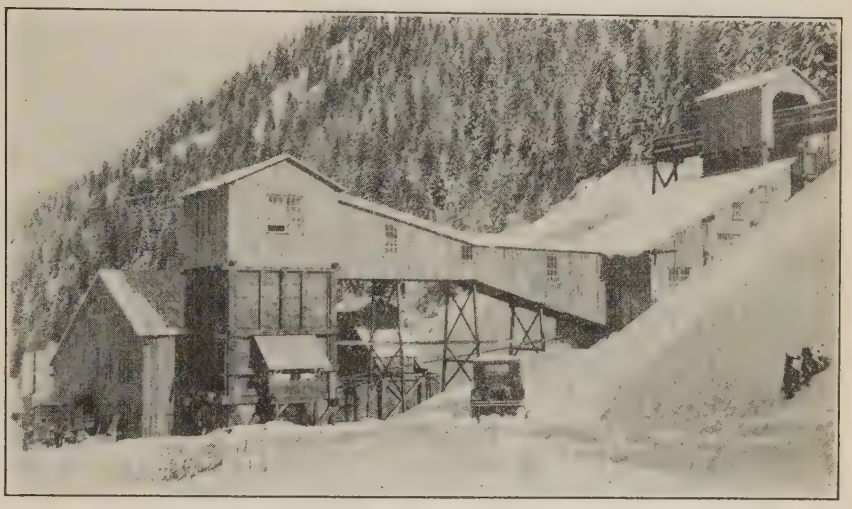
Property: Interstate-Callahan group; 81 patented, 2 unpatented claims, Beaver dist.; Interstate. **Development:** Principal development is main transportation tunnel which is 5500 ft. long and a three-compartment vertical shaft 2000 ft. deep. Total development, approximately 10 miles. **Plant:** MINE: Two single drum air-driven hoists and one 250-h. p. electrically-driven double drum hoist; three large I-R electrically-driven compressors; trolley locomotive haulage in main tunnel. Complete and modern blacksmith shop, machine shop, sawmill, mine equipment, camp and company buildings. MILL: 600-ton concentrator, including flotation. **Ore:** Zinc-lead-silver. **Men employed:** Average, 2. **Remarks:** At one time this property was one of the largest zinc mines in the United States. No ore has been mined since October, 1923.

GALENA MINE

Property: Chicago-Boston, Killbuck, Vulcan, Argentine, Wallace, and Silver Range groups; 31 patented, 66 unpatented claims, Lake Gulch, Placer Center dist.; Wallace. **Development:** By 33 tunnels and two vertical shafts. Total development, approximately 32,000 ft. **Plant:** MINE: One 150-h. p. Lidgerwood, one 200-h. p. Coeur d'Alene Hdw. electrically-driven hoist; 3 I-R electrically-driven compressors, total capacity 1500 cu. ft.; complete equipment and mine camp. MILL: 150-ton flotation. **Ore:** Lead-silver. **Men employed:** Average, 90. **Remarks:** Capacity output, together with an extensive development campaign, was maintained until July, at which time the mill was placed on a one-shift basis, the men being taken from production work in order to increase development. At the same time an extensive diamond-drilling campaign was started. The diamond drilling was successful in encountering a heretofore unknown vein, and at the close of the year work had started on

driving a crosscut to it. As this mine is located in the so-called "dry belt", or south side of the district, the success it is attaining has been an important factor in stimulating development throughout this area.

This company is well financed and intelligently directed. Its Galena mine was operated at a profit throughout the year, and as the development work greatly increased the known ore reserves, there is a strong probability that the company will again enter the list of dividend payers, a position it held when the Callahan mine was under operation.



GALENA MILL: CALLAHAN ZINC-LEAD CO.

CANYON CREEK MILLING CO.

Office: Wallace. **Officers:** C. R. Nordquist, Pres.-Mgr.; A. D. Gamble, Sec., both of Wallace. **Inc.:** May 28, 1926. **Capital:** 25,000 shares; par value $1; 21,256 shares issued. **Property:** Lease on tailings in Canyon Creek. **Plant:** 35-ton electrically-driven concentrator, including tables and flotation. **Ore:** Lead-silver.

CARBONATE MINING & MILLING CO.

Office: Wardner. **Officers:** C. Wiese, Pres.-Mgr., Wardner. **Inc.:** Oct. 7, 1899. **Capital:** 1,000,000 shares; par value 25c; 411,465 shares issued. **Property:** Carbonate group; 4 unpatented claims, Pine Creek, Yreka dist.; Beeler. **Development:** By 2 tunnels: No. 1, 600 ft.; No. 2, 300 ft. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only. A stock assessment of 2 mills was levied on March 31, 1928.

CEDAR CREEK MINING & DEVELOPMENT CO., LTD.

Office: Wallace. **Officers:** Chas. Hyle, Pres., Portland, Ore.; William Becker, Sec., Wallace. **Inc.:** June 28, 1905. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Cedar Creek group; 5 patented, 24 unpatented claims, Summit dist.; Murray. **Development:** 3 tunnels: No. 1, 800 ft. long; No. 2, 1050 ft. long; No. 3, 2550 ft. long; 1 inclined shaft 343 ft. long. Total development, approximately 8760 ft. **Plant:** MINE: 12x12 electrically-driven compressor and air-driven hoist; complete mining equipment and camp. MILL: 100-ton flotation concentrator. **Ore:** Lead-zinc-silver. **Men employed:** Average, 41. **Remarks:** During the early part of the year adjustments were completed on the mill, which was constructed in 1927, and milling operations started in April. After running for a short period it was found necessary to suspend operations on account of lack of compressed-air power. During

the latter part of the year a large electrically-driven compressor was installed and operations were resumed. A small tonnage of lead concentrate was shipped. Stock assessments were levied during the year as follows: June 23, 1c; August 23, 1c.

CENTRAL MINING CO.

Office: Burke. **Officers:** M. V. McNamee, Pres.; F. H. Richardson, Sec.; F. C. Richardson, Mgr., all of Burke. **Inc.:** Oct. 28, 1911. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Central group; 5 patented claims, lying between Hercules and Oom Paul; Lelande dist.; Burke. **Development:** Approximately 1200 ft., principally tunnels. **Ore:** Lead-silver.

CHESTER CONSOLIDATED MINING CO.

Office: Wallace. **Officers:** Arthur Schanck, Pres., Metamora, Mich.; Morgan E. Siple, Sec., Pontiac, Mich. **Inc.:** Dec. 6, 1924. **Capital:** 50,000 shares common, no par value; 50,000 shares preferred, par value $5; all shares issued. **Property:** Terrible Edith group; 21 unpatented claims, Eagle dist.; Murray. **Development:** By 4 tunnels: No. 2, 390 ft.; No. 3, 1070 ft.; No. 4, 1860 ft. **Plant:** Electrically-driven I-R compressor; complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Remarks:** Under lease to Pontiac Land & Mineral Co.

CHESTER MINING CO., LTD.

Office: Kellogg. **Officers:** P. P. Weber, Pres.; C. W. Simmons, Sec., both of Kellogg. **Inc.:** July 31, 1900. **Capital:** 1,000,000 shares; par value $1; 923,945 shares issued. **Property:** Chester group; 6 patented claims, Yreka dist.; Osburn.

CLEAR GRIT MINING CO., LTD.

Office: Wallace. **Officers:** F. C. Rood, Pres., Longview, Wash.; E. G. Gnaedinger, Sec.-Mgr., Wallace. **Inc.:** May 9, 1906. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** 5 unpatented claims, Beaver dist.; Prichard. **Development:** By 1 tunnel approximately 1600 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of 2½ mills was levied March 1, 1928.

CLIMAX SILVER-LEAD MINING CO.

Officers: James A. Wayne, Pres.; H. V. Edwards, Sec.-Mgr., both of Wallace. **Inc.:** April 22, 1914. **Capital:** 1,500,000 shares; par value 25c; 1,300,000 shares issued. **Property:** Climax group; 2 patented, 1 unpatented claim, Evolution dist.; Wallace. **Development:** By 3 tunnels, the principal one of which is 2800 ft. long. **Plant:** 10x10 electrically-driven compressor and complete mining equipment. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of 3 mills was levied on June 11, 1928.

COEUR D'ALENE BIG CREEK MINING CO.

Office: 916 Alaska Bldg., Seattle, Wash. **Officers:** E. J. Brown, Pres.; C. F. Uhden, Sec., both of Seattle. **Inc.:** Jan. 31, 1925. **Capital:** 1,500,000 shares; par value 10c; all shares issued. **Property:** 4 unpatented claims, Yreka dist.; Big Creek; Kellogg. **Development:** Principally by 1 tunnel 1407 ft. long. **Plant:** 12x10 C-P compressor, electrically driven; drill sharpener; complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 4. **Remarks:** Tunnel extended 30 ft. during the year.

COEUR D'ALENE CRESCENT MINING CO.

Office: 404 Jamieson Bldg., Spokane, Wash. **Officers:** J. B. Millspaugh, Pres.; F. W. Mauser, Sec., both of Spokane, Wash. **Inc.:** Dec. 12, 1913. **Capital:** 1,250,000 shares; par value $1; 650,000 shares issued. **Property:** Evolution group; 6 unpatented claims, Evolution dist.; Osburn. **Ore:** Lead-silver. **Remarks:** Under option to Evolution Mining Co.

COEUR D'ALENE EAGLE LEAD-SILVER MINING CO., LTD.

Office: Wallace. **Officers:** D. E. Thiebes, Pres.; Sarepta Jonas, Sec., both of 2808 W. Broadway, Spokane, Wash.; R. A. Jonas, Mgr., Kellogg. **Inc.:** Apr. 2, 1928. **Capital:** 2,000,000 shares; par value 25c; 325,000 shares issued. **Property:** 22 unpatented claims, Yreka dist.; Pine Creek. **Development:** By 2 tunnels: No. 1, 240 ft. long; No. 2, 100 ft. long. **Ore:** Lead-zinc-silver.

COEUR D'ALENES LEAD CO.
Office: 303 Hyde Blk., Spokane, Wash. **Officers:** Walter H. Hanson, Pres., Wallace; John E. Hoppe, Sec., Spokane, Wash. **Inc.:** Apr. 28, 1927. **Capital:** 4,000,000 shares; par value $1; 3,606,408 shares issued. **Remarks:** "The only assets of this company are 500,000 shares of the capital stock of the Atlas Mining Co." A stock assessment of 5 mills was levied on December 12, 1928.

COEUR D'ALENE METALS CO.
Office: Eagle Blk., Wallace. **Officers:** M. W. Neary, Pres., San Francisco, Calif.; A. G. Kennedy, Sec., Wallace. **Inc.:** Jan. 18, 1926. **Capital:** 10,000 shares; par value $100; 151 shares issued. **Property:** Lease and option on property of Great Eastern Mining Co., Ltd. **Remarks:** Company performed a small amount of repair work.

COEUR D'ALENE MINING CO.
Office: Ames Bldg., Boston, Mass. **Officers:** Burton E. Eames, Pres.; John P. Wright, Sec., both of Boston, Mass. **Inc.:** July 20, 1900. **Capital:** 125,000 shares; par value $10; 118,586 shares issued. **Property:** Placer claims, which were exhausted by Yukon Gold Co.

COEUR D'ALENE MINING & SMELTING CO.
Office: Wallace. **Officers:** A. D. Wallace, Pres.-Mgr.; F. F. Brewer, Sec., both of Wallace. **Inc.:** July 18, 1904. **Capital:** 1,000,000 shares; par value $1; 923,800 shares issued. **Property:** 9 unpatented claims, Placer Center dist.; Wallace. **Development:** By 2 tunnels: No. 1, 300 ft.; No. 2, 1400 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** Active development work throughout the year. Stock assessments were levied during 1928 as follows: April 22, 2 mills; July 31, 3 mills.

COEUR D'ALENE SILVER-LEAD MINING CO.
Office: 1004 E. 8th Ave., Spokane, Wash. **Officers:** Charles J. Heidenreich, Pres., Spokane, Wash. **Inc.:** June 16, 1916; charter forfeited Dec. 1, 1922. **Capital:** 1,200,000 shares; par value $1; 752,800 shares issued. **Property:** 6 patented claims, Hunter dist.; Mullan. **Development:** By 2 tunnels: No. 1, 1200 ft. long; No. 2, 300 ft. long. **Ore:** Lead-silver. **Remarks:** Idle for 10 years.

COEUR D'ALENE SYNDICATE MINING CO.
Office: Wallace. **Officers:** Philip Wiseman, Vice-Pres.; P. Kenneth Wiseman, Sec., both of 1206 Pacific Mutual Bldg., Los Angeles, Calif. **Inc.:** Sept. 16, 1922. **Capital:** 900,000 shares; 200,000 preferred, par value $5; 700,000 common, par value $1; 85,933 common shares issued. **Property:** Flynn and Senator groups held under lease and bond; 42 patented, 4 unpatented claims, Lelande and Hunter dists.; Gem. **Development:** 11,000 ft. of underground workings. **Plant:** Electrically-driven 900-cu. ft. I-R compressor; drill sharpener and complete mining equipment; Hoar shovel. **Ore:** Lead-silver. **Remarks:** Idle.

COLUMBIA COPPER CO., LTD.
Office: Wallace. **Officers:** Joseph Huber, Pres.-Mgr., Mullan; C. W. Betts, Sec., Wallace. **Inc.:** April 24, 1914. **Capital:** 2,500,000 shares; par value $1; 1,303,635 shares issued. **Property:** Columbia group; 22 unpatented claims, Hunter dist.; Mullan. **Development:** By 11 tunnels, totaling approximately 2500 ft. **Ore:** Lead-silver, copper. **Remarks:** Annual labor only.

COMMERCIAL TRAVELER MINING CO.
Office: W. 426 Sprague Ave., Spokane, Wash. **Officers:** H. N. Deas, Pres.; E. E. Jordan, Sec., both of Spokane; Fred McHugh, Mgr., Masonia. **Inc.:** May 6, 1926. **Capital:** 2,000,000 shares; par value 5c; 1,208,700 shares issued. **Property:** 10 unpatented claims, Pine Creek, Yreka dist.; Kellogg; held under lease and option from Shrine Mining Co. **Development:** By 4 tunnels, the principal one of which is 500 ft. long. **Plant:** Electrically-driven D-G compressor; complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Men employed:** Average, 4. **Remarks:** Mining equipment installed, after which principal tunnel was extended under contract without interruption during the year.

COMSTOCK COPPER MINING CO.

Office: Wallace. **Officers:** Therrett Towles, Pres.; Otto A. Olsson, Sec., both of Wallace. **Inc.:** Nov. 23, 1906. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Fannie group; 4 unpatented claims, Beaver dist.; Prichard. **Development:** By 3 tunnels: No. 1, 350 ft.; No. 2, 500 ft.; No. 3, 75 ft. **Ore:** Copper-gold. **Remarks:** Annual labor only.

CONSOLIDATED INDEPENDENT CALUMET MINING CO.

Office: Wallace. **Officers:** John H. Nordquist, Pres.-Mgr.; Otto A. Olsson, Sec., both of Wallace. **Inc.:** Oct. 9, 1906, as Lucky Calumet Copper Mining Co., Ltd. Name changed Nov. 24, 1928. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Lucky Calumet group; 9 patented claims, Hunter dist.; Mullan. **Development:** Principally by 2 tunnels: No. 1, 600 ft. long; No. 2, 1100 ft. long. Total development, approximately 5000 ft. **Plant:** Electrically-driven 5-drill I-R two-stage compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 4. **Remarks:** Active development work for 6 months. This company is developing its property through the lower tunnel of the National Copper Mining Co., Ltd. A stock assessment of 5 mills was levied on Nov. 26, 1928.

CONSTITUTION MINING & MILLING CO.

Office: Masonia. **Officers:** J. P. Graves, Pres.; B. H. Kizer, Sec., both of Spokane, Wash.; Wm. P. White, Mgr., Masonia. **Inc.:** Sept. 17, 1902. **Capital:** 1,750,000 shares; par value $1; 1,741,250 shares issued. **Property:** Constitution group; 12 patented, 27 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 3 tunnels: No. 1, 205 ft.; No. 2, 2508 ft.; No. 3, 2359 ft.; and an inclined shaft from the surface 240 ft. deep, extending to the 200-ft. level, in which is a 200-ft. vertical shaft. Total development, approximately 8600 ft. **Plant:** MINE: Double-drum 150-h. p. hoist and 1575-cu.-ft. I-R compressor, both electrically driven; drill sharpeners; storage-battery locomotive haulage; complete mining equipment and camp. MILL: 200-ton concentrator, fine grinding and flotation. **Ore:** Lead-zinc-silver. **Men employed:** Average, 30. **Remarks:** In June fire destroyed the entire surface mine plant which caused production to be suspended. New buildings were then erected and entire new mine plant installed, in addition to which the 400-ft. vertical shaft was completed by raising from the No. 2 shaft level to the No. 3 tunnel level, at which point the new electrically-driven hoist was installed.

COPPER CHIEF MINING CO.

Office: Wallace. **Officers:** D. E. Wickward, Pres.; James H. Taylor, Sec.-Mgr., both of Wallace. **Inc.:** Sept. 25, 1907. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Copper Chief group; 7 patented, 4 unpatented claims, St. Joe dist.; Adair. **Ore:** Copper-gold.

COPPER KING MINING & SMELTING CO.

Office: Mullan. **Officers:** F. H. Davison, Pres., Spokane, Wash.; H. W. Ingalls, Sec.-Mgr., Mullan. **Inc.:** Aug. 13, 1901. **Capital:** 1,500,000 shares; par value $1; 1,478,000 shares issued. **Property:** Copper King group; 18 unpatented claims, Lelande and Hunter dists.; Mullan. **Development:** Principally by 3 tunnels: No. 1, 200 ft. long; No. 2, 2000 ft. long; No. 3, 5000 ft. long. Total development, approximately 10,000 ft. **Plant:** Electrically-driven compressor and complete mining equipment and camp. **Ore:** Lead-silver. **Remarks:** Annual labor only.

C. & R. MINING CO.

Office: 312 Old Nat'l Bank Bldg., Spokane, Wash. **Officers:** E. R. Week, Pres.; Ben L. Collins, Sec.; Russell F. Collins, Mgr., all of Spokane, Wash. **Inc.:** June 16, 1904. **Capital:** 1,250,000 shares; par value $1; all shares issued. **Property:** C. & R. group; 10 patented claims, on Sunset Peak, Lelande dist.; Burke. **Development:** By 3 tunnels: No. 1, 400 ft.; No. 2, 1200 ft.; No. 3, 6000 ft. **Plant:** Electrically-driven I-R compressor; complete mining equipment. **Ore:** Lead-silver. **Remarks:** Small amount of development work during the latter part of the year. A stock assessment of 1c was levied on July 21, 1928.

CUBA MINING CO.

Office: Wallace. **Officers:** W. H. Hanson, Pres.; Herman Marquardt, Sec., both of Wallace. **Inc.:** Nov. 18, 1899. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Cuba group; 2 patented claims, Placer Center dist.; Wallace. **Development:** 2 tunnels: No. 1, 500 ft. long; No. 2, 1100 ft. long. **Plant:** Electrically-driven I-R compressor; complete mining equipment. **Ore:** Lead-silver. **Remarks:** This company is controlled by the Plymouth Lead Mines Co.

DAYROCK MINES CO.

Office: Wallace. **Officers:** F. M. Rothrock, Pres., Spokane; John E. Ryan, Sec., Wallace. **Inc.:** Nov. 30, 1923, as Strattons Mines Co.; name changed Nov. 19, 1928. **Capital:** 2,000,000 shares; par value 10c; 1,710,300 shares issued. **Property:** McPhillips, Panhandle, and Monarch-Bonanza groups; 17 patented, 28 unpatented claims, Placer Center dist.; Wallace. **Development:** McPhillips group: Principally by 1 tunnel 1450 ft. long, in which is an inclined shaft 460 ft. long, with 4 intermediate levels, which opens the vein to a vertical depth of 400 ft. Panhandle group: Principally by 1 tunnel 1562 ft. long, and an inclined shaft 360 ft. long, with 3 intermediate levels, which opens the vein to a vertical depth of 253 ft. Total development in both groups, over 13,000 ft. **Plant:** McPhillips group: Electrically-driven hoist and complete mining equipment, compressed air being transmitted from Panhandle compressor. Panhandle group: Electrically-driven hoist and compressor; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 50. **Remarks:** An extensive development campaign was conducted on the McPhillips group throughout the year, consisting principally of extending the shaft from the 300 to the 400-ft. level, a large amount of drifting on the 300-ft. level, and a large amount of crosscutting and drifting on the 100-ft. level. This work greatly increased the known ore reserves. In addition to the foregoing, production was maintained throughout the year and the enterprise was placed on a profitably operating basis. This mine is fast developing into one of the important producers of the Coeur d'Alene district.

DECKER DEVELOPMENT CO.

Office: Kellogg. **Officers:** George Decker, Pres.-Mgr.; Mrs. M. E. Morgan, Sec., both of Kellogg. **Inc.:** Oct. 1, 1927. **Capital:** 500,000 shares; par value 10c; 235,320 shares issued. **Property:** Stewart group; 6 patented, 7 unpatented claims, held under lease; Yreka dist.; Kellogg. **Development:** By Fir tunnel, 2400 ft. long. **Plant:** 4-drill electrically-driven compressor; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 4. **Remarks:** During the year the Fir tunnel was reopened to a total length of 2400 ft., compressor and equipment were installed, and a small tonnage of ore was produced.

DEEP WONDER MINE

Office: 408 Ziegler Bldg., Spokane, Wash. **Officers:** Charles J. Kapps. Trustee, Spokane, Wash. **Property:** Deep Wonder group; 12 patented claims, Hunter dist.; Mullan. **Ore:** Lead-silver. **Remarks:** Property under lease and option to Mutual Mines Development Co.

DEER CREEK MINING CO.

Office: Wallace. **Officers:** C. E. Biggs, Pres.-Mgr., Spokane, Wash.; N. S. Jacobs, Sec., Lewiston. **Inc.:** May 23, 1925. **Capital:** 2,000,000 shares; par value 1c; 1,200,000 shares issued. **Property:** Deer Creek group; 23 unpatented claims, Beaver dist.; Wallace. **Development:** By 3 tunnels: No. 1, 200 ft. long; No. 2, 800 ft. long; No. 3, 200 ft. long; and an inclined shaft 100 ft. long. **Plant:** Gas-driven Sullivan compressor, complete mining equipment and camp. **Ore:** Lead-silver. **Remarks:** Annual labor only, on account of litigation.

DELAWARE MINES CORPORATION

Office: 323 Lindelle Bldg., Spokane, Wash. **Officers:** Matt Baumgartner, Pres.; A. L. Hooper, Sec., both of Spokane; F. C. Bailey, Mgr., Wallace. **Inc.:** March 10, 1926. **Capital:** 5,000,000 shares; par value 10c; 3,266,857 shares issued. **Property:** Rex and Red Monarch groups; 6 patented, 51 unpatented claims, Placer Center and Beaver dists.; Wallace. **Development:** By 4 tunnels, the principal of which are No. 4 or Rex tunnel, approximately 4000 ft. long, in which is a vertical shaft 700 ft. deep; and Red Monarch tunnel, 4400 ft. long. **Plant:** 2 electrically-driven compressors; complete mining equipment and 2 mine camps. **Ore:** Lead-zinc-silver. **Men employed:** Average, 4. **Remarks:** During the year a new electrically-driven compressor and complete mining equipment were installed at the Red Monarch tunnel and extension of this tunnel commenced under contract. A small tonnage of ore was produced and marketed by lessees.

DICKENS CONSOLIDATED MINES CO.

Office: Mohawk Bldg., Spokane, Wash. **Officers:** Samuel B. Holbert, Pres.; C. F. Kratzer, Sec., both of Spokane. **Inc.:** Mar. 18, 1925. **Capital:** 2,500,000 shares; par value 10c; all shares issued. **Property:** Dickens group; 22 unpatented claims, Moon Creek, Evolution and Yreka dists.; Kellogg. **Development:** Principally by a vertical shaft 700 ft. deep. Total development, approximately 7000 ft. **Plant:** MINE: 900-cu.-ft. Sullivan compressor and hoist, both electrically driven; complete mining equipment and camp. MILL: 150-ton flotation concentrator. **Ore:** Lead-zinc-silver. **Men employed:** Average, 30. **Remarks:** During the year this company constructed its mill, maintained an active development campaign which consisted principally of sinking the shaft from the No. 5 to the No. 7 level, and performed a large amount of lateral development work on both these levels. A small tonnage of concentrates was produced and marketed. The year also witnessed a complete change in officers and directors. Stock assessments were levied during 1928 as follows: March 27, 10 mills; May 26, 10 mills; July 25, 10 mills; Sept. 26, 10 mills.

DICKENS-EAST MINING CO.

Office: 519 Waverly Place, Spokane, Wash. **Officers:** W. Y. Clark, Pres.-Mgr.; C. Fred Kratzer, Sec., both of Spokane, Wash. **Inc.:** Aug. 18, 1926. **Capital:** 2,500,000 shares; par value 10c; 1,500,000 shares issued. **Property:** 10 unpatented claims, Moon Creek, Yreka dist.; Kellogg. **Development:** By 2 tunnels: No. 1, 120 ft.; No. 2, 80 ft. **Ore:** Lead-zinc-silver.

DOBSON PASS MINING CO.

Office: Wallace. **Officers:** J. P. Rogers, Pres.-Mgr.; S. M. Rogers, Sec., both of Wallace. **Inc.:** July 14, 1900. Charter forfeited Nov. 30, 1927. **Capital:** 1,000,000 shares; par value 10c; all shares issued. **Property:** Dobson Pass group; 5 unpatented claims, Placer Center dist.; Wallace. **Remarks:** Annual labor only.

DOUGLAS MINING CO., LTD.

Office: Wallace. **Officers:** Frank F. Johnson, Pres., Boise; H. C. Adami, Sec.; H. J. Rossi, Mgr., both of Wallace. **Inc.:** Oct. 24, 1903. **Capital:** 1,200,000 shares; par value $1; all shares issued. **Property:** Douglas group; 10 patented, 4 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 4 tunnels: No. 1, 930 ft.; No. 2, 1350 ft.; No. 3, 1900 ft.; No. 4, 650 ft.; and an inclined shaft 170 ft. long. **Plant:** Electrically-driven compressor and hoist; complete mining equipment and camp. **Ore:** Zinc-lead-silver. **Men employed:** Average, 14. **Remarks:** Active development campaign maintained until February, at which time the entire surface plant was destroyed by fire. As rapidly thereafter as possible, complete new buildings were constructed, new equipment was installed (including electrically-driven hoist), and operations were resumed. The development work consisted principally of extending the No. 2 and No. 3 tunnels; in December work was started extending the shaft from the 170 to the 300-ft. level. This work resulted in greatly increasing the known ore reserves.

DU BOIS MINING CO.

Office: Kellogg. **Officers:** H. E. Ginter, Pres., Du Bois, Pa.; J. B. Eberhart, Sec.-Treas., Punxsutawney, Pa. **Inc.:** Aug. 9, 1914. **Capital:** 1,000,000 shares; par value $1; 300,000 shares issued. **Property:** 7 patented, 1 unpatented claim, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel 1250 ft. long. **Ore:** Lead-silver. **Remarks:** Idle for many years.

DULUTH MINING CO.

Office: Wallace. **Officers:** W. B. Heitfeld, Pres.; John E. Ryan, Sec., both of Wallace. **Inc.:** June 10, 1909. **Capital:** 1,500,000 shares; par value 25c; 522,710 shares issued. **Property:** Duluth group; 8 unpatented claims, Lelande dist.; Burke. **Development:** By 5 tunnels, with a total development of approximately 1000 ft. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of 7 mills was levied on Apr. 4, 1928.

EAST ALAMEDA MINING CO., LTD.

Office: 689 Catalina St., Los Angeles, Calif. **Officers:** Frank P. Markwell, Pres.; Everett H. Pattison, Sec., both of Los Angeles, Calif. **Inc.:** July 25, 1907. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** East Alameda group; 1 patented, 1 unpatented claim, Lelande dist.; Black Bear. **Ore:** Lead-silver.

EAST CALEDONIA MINES CO.

Office: Wallace. **Officers:** H. J. Rossi, Pres.; Franklin Pfirman, Sec., both of Wallace. **Inc.:** Mar. 6, 1915. **Capital:** 1,000,000 shares; par value 25c; 156,730 shares issued. **Property:** East Caledonia group; 2 patented, 5 unpatented claims, Yreka dist.; Kellogg. **Plant:** Electrically-driven I-R compressor, electrically-driven hoist, complete mining equipment. **Ore:** Lead-silver. **Remarks:** Annual labor only.

EAST HECLA MINING CO., LTD.

Office: Wallace. **Officers:** John P. Gray, Pres., Coeur d'Alene; A. H. Featherstone, Sec., Wallace. **Inc.:** Nov. 24, 1906. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** East Hecla group; 4 patented claims, Hunter dist.; Mullan. **Remarks:** Idle for a number of years.

EASTERN STAR MINING CO., LTD.

Office: Wallace. **Officers:** Jack Johnston, Pres.-Mgr., Burke; John C. Glahe, Sec., Wallace. **Inc.:** Aug. 29, 1906. **Capital:** 1,000,000 shares; par value $1; 600,000 shares issued. **Property:** Eastern Star group; 18 unpatented claims, Lelande dist.; Burke. **Development:** 2 tunnels: No. 1, 150 ft. long; No. 2, 900 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

ELDORADO MINING & SMELTING CO., LTD.

Office: Wallace. **Officers:** J. C. Waddell, Pres., Rose Lake; G. W. Dougherty, Sec., Wallace. **Inc.:** July 5, 1907. **Capital:** 1,250,000 shares; par value 10c; 1,204,820 shares issued. **Property:** 1 patented, 3 unpatented claims, Yreka dist.; Kellogg. **Development:** By 1 tunnel, approximately 750 ft. long. **Plant:** Gas-driven compressor. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of 1½ mills was levied on October 27, 1928.

ELGIN & OGDEN MINING CO.

Office: Kellogg. **Officers:** Wesley J. Herring, Pres.-Mgr.; H. L. Goodwin, Sec., both of Kellogg. **Inc.:** July 11, 1921. **Capital:** 1,000,000 shares; par value 5c; 615,879 shares issued. **Property:** 5 unpatented claims, Big Creek, Yreka dist.; Kellogg. **Development:** By 2 tunnels: No. 1, 500 ft.; No. 2, 450 ft. **Ore:** Lead-silver. **Remarks:** Annual labor only.

ENTERPRISE MINING CO.

Office: Kellogg. **Officers:** Fred F. Donaldson, Pres.-Mgr.; W. A. Tuson, Sec., both of Kellogg. **Inc.:** June 4, 1910. **Capital:** 1,000,000 shares; par value $1; 664,500 shares issued. **Property:** Enterprise group; 8 unpatented claims; Kellogg. **Development:** By 3 tunnels: No. 1, 150 ft. long; No. 2, 180 ft. long; No. 3, 1400 ft. long. **Ore:** Lead-silver. **Remarks:** Lower tunnel advanced 100 ft. during the year. Stock assessments were levied during 1928 as follows: Mar. 28, 3 mills; July 28, 3 mills.

EQUITABLE MINING & MILLING CO.

Office: 317 Sherman Ave., Coeur d'Alene. **Officers:** C. L. Dittimore, Pres.; H. W. Fintzel, Sec., both of Coeur d'Alene. **Inc.:** April 3, 1916. **Capital:** 1,250,000 shares; par value 1c; 599,926 shares issued. **Property:** 7 unpatented claims; Pine Creek, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel 1100 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** Tunnel advanced 250 ft. during the year. A stock assessment of 1½ mills was levied on May 2, 1928.

EVOLUTION MINING CO.

Office: Wallace. **Officers:** Montgomery Waddell, Pres., New York City; Julius P. Hall, Mgr., Wallace. **Inc.:** July 25, 1927. **Capital:** 1,000,000 shares; par value $1; 600,000 shares issued. **Property:** Evolution group; 9 unpatented claims, Evolution dist.; Osburn; held under lease and option from the Coeur d'Alene Crescent Mining Co. **Development:** By 1 tunnel 600 ft. long; a vertical shaft 300 ft. deep; and an inclined shaft 350 ft. long. **Plant:** Electrically-driven compressor and hoist; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 8. **Remarks:** Inclined shaft was extended 150 ft. and a large amount of drifting on bottom level performed during the year.

FANNIE GREMM MINING CO.

Office: Wallace. **Officers:** P. P. Weber, Pres., Kellogg; Alfred J. Dunn, Sec., Wallace. **Inc.:** Dec. 6, 1900. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** 2 patented claims adjoining the Morning mine on the east, Hunter dist.; Mullan. **Development:** Approximately 16,000 ft. of underground workings. **Ore:** Lead-silver. **Remarks:** Idle.

FEDERAL MINING & SMELTING CO.

Office: 120 Broadway, New York City. **Officers:** F. H. Brownell, Pres.; J. L. Martin, Sec., both of New York City; Frederick Burbidge, Mgr., Wallace. **Inc.:** Sept. 24, 1903. **Capital:** 200,000 shares preferred, 100,000 shares common; par value of each, $100; 120,000 shares preferred, 60,000 shares common issued.

MORNING GROUP

Property: 40 patented, 1 unpatented claim, Hunter dist.; Mullan. **Development:** The two principal tunnels are No. 5, 1600 ft. long, and No. 6, the main transportation tunnel, 9500 ft. long. The principal shaft, which is located in No. 6 tunnel, is a vertical, 4-compartment shaft, 2650 ft. deep, with 13 intermediate levels below No. 6 tunnel, which opens the vein to a depth of approximately 5000 ft. Total development, approximately **37 miles. Plant:** MINE: Fraser-Chalmers double-drum duplex Corliss hoist, size 20x60-inch stroke, air-driven; one 600-h. p. electrically-driven double-drum Nordberg hoist; one Nordberg single-drum geared hoist, driven by 300-h. p. electric motor; one water-driven 5200-cu.-ft. Ricks compressor; one Laidlaw-Dunn-Gordon 3200-cu.-ft. compressor, two Ingersoll-Rand 2500-cu.-ft. compressors, and one Prescott pump, 400 gal. capacity, on 2450 level, all electrically driven; complete mining equipment, machine shops, sawmill, company buildings and hotel. HAULAGE: 500-volt electric in main, or No. 6, tunnel; 250-volt electric and 9 storage-battery locomotives in intermediate levels. MILL: 1200-ton concentrator, including flotation. Two ore-sorting plants and complete modern change house. **Ore:** Lead-silver-zinc. **Men employed:** Average, 625, exclusive of lessees. **Remarks:** Capacity production maintained throughout the year. The number of years that this record will continue is unknown, as development work on the 3250 and 3450-ft. levels has proved the ore bodies to be larger and more extensive than on any of the upper levels. During the year the 3050-ft. level was opened to the full length of the ore, and the shaft completed from the 3050 to the 3450-ft. level. The mine and mill plants were greatly enlarged and improved. The principal improvement was the installation of a modern electrically-operated hoist, which required the cutting of a new station for its accommodation. The change in the milling methods from jigs and tables to fine grinding and flotation resulted in a reduction of milling costs and an increase in recoveries. In addition to the ore mined under company operations, a large tonnage was extracted from the upper levels by a number of lessees; the most important of these is the Sheridan Lease, which employs over 100 men.

PAGE GROUP

Property: 86 patented claims, Yreka dist.; Kellogg. **Development:** By 9 tunnels, the principal one of which is the Curlew, 650 ft. long; and an inclined shaft 900 ft. long, giving a vertical depth of 700 ft. Total development, approximately 17,000 ft. **Plant:** MINE: A 100-h. p. hoist and a 75-h. p. double-drum hoist, both electrically driven; a 400-cu.-ft. and an 800-cu.-ft. electrically-driven compressor; 1 trolley locomotive and 2 storage-battery locomotives; complete and modern mine camp, equipment and buildings. MILL: 300-ton flotation concentrator. **Ore:** Lead-zinc-silver. **Men employed:** Average, 160. **Remarks:** During the year a new hoist was added to the mine plant; the mill was enlarged and improved; and the ore bodies were fully opened on the 900-ft. level, at which point they proved to be of greater extent and higher grade than on any of the upper levels. The success of this operation can be accredited entirely to flotation, because with the old milling methods it was impossible to mine and mill such low-grade ore at a profit. One of the valuable improvements added to this mine during the year by the company was the construction of a club house and recreation hall for the benefit of the employees.



PAGE MINE: FEDERAL M. & S. CO.

MACE GROUP

Property: 35 patented claims, Lelande dist.; Mace. **Development:** Principal development consists of No. 6 tunnel, 3600 ft. long; No. 2, Campbell, 3000 ft. long; and a 3-compartment vertical shaft 2400 ft. deep, with 22 intermediate levels. Total development: Approximately 4 miles. **Plant:** MILL: Two 500-ton concentrators, including flotation. **Ore:** Lead-silver. **Remarks:** Except for the operation of a few lessees, who produced a small tonnage of ore, this property was idle. No. 6 tunnel is now known as No. 7 of the Tamarack & Custer Consolidated Mining Co.

BURKE GROUP

Property: One millsite, Lelande dist.; Burke. **Plant:** A small hydroelectric power plant.

FRISCO GROUP

Property: 15 patented claims, Lelande dist.; Gem. **Development:** Principally by 4 tunnels: No. 1, 1000 ft. long; No. 2, 1500 ft. long; No. 3, 550 ft. long; No. 4, 1000 ft. long; and a vertical 4-compartment shaft 1650 ft. deep. Total development, approximately 6 miles. **Ore:** Lead-zinc-silver. **Remarks:** A substantial tonnage of ore was produced by lessees during the year.

BIG CREEK GROUP

Property: 3 patented claims, Evolution dist.; Kellogg. **Development:** By 1 tunnel, 75 ft. long. **Ore:** Lead-zinc-silver.

GOVERNMENT GULCH GROUP

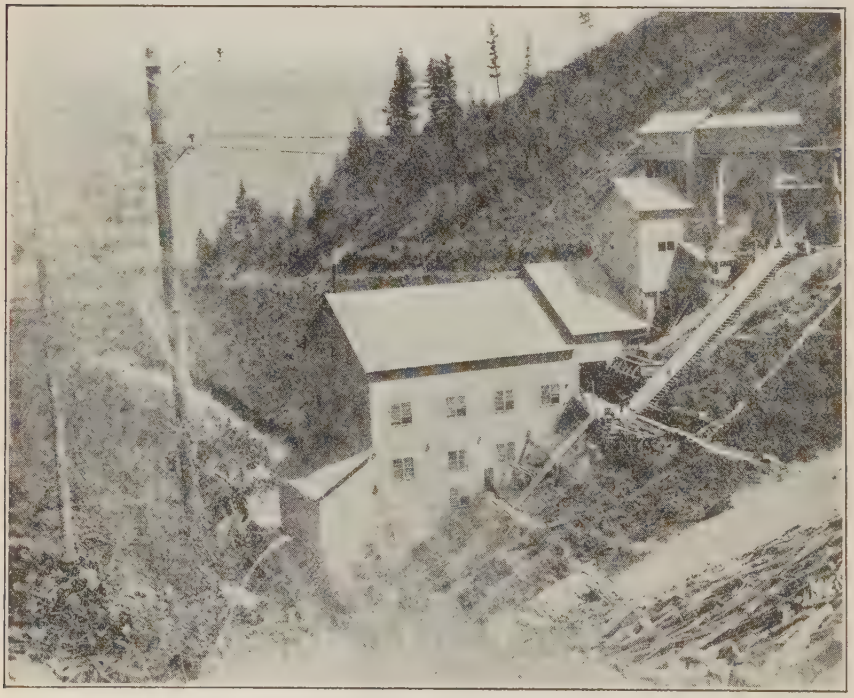
Property: Five-sixteenths interest in 1 patented claim, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel, which is 500 ft. long. Total development, approximately 1700 ft. **Ore:** Lead-silver.

CON. BIEDERMAN GROUP

Property: One-half interest in 2 patented claims and one-third interest in 2 patented claims, Yreka dist.; Kellogg. **Development:** By 2 tunnels: No. 1, 320 ft. long; No. 2, 125 ft. long. **Ore:** Lead-zinc-silver.

REMARKS

This company is one of the largest operators in Shoshone County both in property owned and in production.



PAGE MILL: FEDERAL M. & S. CO.

FIDELITY COMPANY, LTD.

Office: Wallace. **Officers:** Oscar B. Bergstrom, Pres., 149 Broadway, New York City; Allan G. Kennedy, Sec.-Mgr., Wallace. **Inc.:** Nov. 5, 1915. **Capital:** 2,500,000 shares; par value 20c; 1,675,309 shares issued. **Property:** Monarch group; 7 patented, 29 unpatented claims, Summit dist.; Murray. **Development:** By 3 tunnels, the principal of which is No. 3, or main crosscut tunnel, which is 3120 ft. long; and an inclined shaft 300 ft. deep; total development, approximately 13,500 ft. **Plant:** MINE: Ottumwa air-driven hoist, 10-drill water-driven compressor, complete mining equipment and camp. MILL: 150-ton concentrator, jigs and tables. **Ore:** Lead-zinc-silver. **Men employed:** 1 watchman. **Remarks:** Annual labor only.

FIRST NATIONAL SILVER MINES, LTD.

Office: 323 Lindelle Blk., Spokane, Wash. **Officers:** Dan Krehbiel, Pres., Lind, Wash.; Matt Baumgartner, Sec.-Mgr., Spokane, Wash. **Inc.:** April 7, 1920. **Capital:** 3,000,000 shares; par value 5c; 2,088,374 shares issued. **Property:** Liston group; 7 patented, 26 unpatented claims, Big Creek, Evolution dist.; Kellogg. **Development:** By 3 tunnels: No. 1, 1000 ft. long; No. 2, 2500 ft. long; No. 3, 3600 ft. long. **Plant:** Steam-driven compressor, and complete mining equipment. **Ore:** Lead-silver. **Remarks:** Annual labor only.

FLAGSTAFF MINING CO.

Office: Wallace. **Officers:** Emery Guay, Pres.; Evelyn Vowels, Sec., both of Spokane, Wash.; E. L. Vowels, Mgr., Prichard. **Inc.:** Oct. 29, 1927. **Capital:** 1,000,000 shares; par value 10c; 6,250 shares issued. **Property:** Jippo group; 5 unpatented claims, Eagle dist.; Prichard. **Remarks:** Annual labor only.

FLORENCE MINING & MILLING CO., LTD.

Office: Kellogg. **Officers:** Frank Yuse, Pres.; E. C. Franks, Sec.; L. E. Franks, Mgr., all of Spokane, Wash.. **Inc.:** Aug. 15, 1908. **Capital:** 1,000,000 shares; par value $1; 367,230 shares issued. **Property:** Dallaire group; 10 unpatented claims, Big Creek, Yreka dist.; Kellogg. **Development:** 5 tunnels: No. 1, 100 ft. long; No. 2, 150 ft. long; No. 3, 80 ft. long; No. 4, 180 ft. long; No. 5, 310 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Active throughout the year.

FLYNN GROUP MINING CO.

Office: Wallace. **Officers:** J. J. Cronin, Pres.; J. F. Whelan, Sec., both of Wallace. **Inc.:** Aug. 21, 1905. **Capital:** 2,500,000 shares; par value 25c; 1,605,000 shares issued. **Property:** Flynn group; 21 patented claims, Lelande dist.; Black Bear. **Development:** Total development, 6600 ft. **Remarks:** Under option to Coeur d'Alene Syndicate Mining Co.

FORMOSA LEAD MINING CO., LTD.

Office: 504 Empire State Bldg., Spokane, Wash. **Officers:** Charles Hussey, Sec., Spokane, Wash. **Inc.:** Jan. 19, 1907. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** 3 patented claims, Lelande dist.; Wallace. **Remarks:** Under development by Mutual Mines Development Co., which see.

FORT WAYNE MINING CO.

Office: 213 Shannon, Spokane, Wash. **Officers:** E. W. Conrad, Pres.-Mgr.; J. M. Henneck, Sec., both of Spokane. **Inc.:** Sept. 22, 1924. **Capital:** 1,500,000 shares; par value 33 1-3c; 1,089,153 shares issued. **Property:** Eclipse group; 19 unpatented claims, Evolution dist.; Osburn. **Development:** Principally by 1 tunnel, which is 1900 ft. long. **Plant:** Gas-driven compressor. **Ore:** Lead-silver. **Remarks:** Annual labor only.

GEM STATE MINING CO.

Office: 720 Peyton Bldg., Spokane, Wash. **Officers:** J. M. Porter, Pres.-Mgr.; W. E. Horstkotte, Sec., both of Spokane, Wash. **Inc.:** Aug. 25, 1924. **Capital:** 2,200,000 shares; no par value; 1,100,000 shares issued. **Property:** 8 patented, 12 unpatented claims, Hunter dist.; Wallace. **Development:** By 6 tunnels, the longest of which is No. 4, 1878 ft. in length. **Ore:** Lead-silver-zinc. **Remarks:** Annual labor only. A stock assessment of 1 mill was levied on Aug. 20, 1928.

GENERAL MINES CORPORATION

Office: 402 Empire State Bldg., Spokane, Wash. **Officers:** C. Roholt, Pres., Worley; H. G. Loop, Sec., Spokane, Wash. **Inc.:** Nov. 23, 1925. **Capital:** 2,000,000 shares; par value 5c; 762,000 shares issued. **Property:** Big Eight group; 10 unpatented claims, Yreka dist.; Kellogg. **Development:** Principally by one tunnel 2300 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** Press reports were to the effect that principal tunnel was cleaned out and repaired, new buildings constructed, equipment installed, and development work started during the year.

GIANT MINING & DEVELOPMENT CO.

Office: Wallace. **Officers:** Paul Liver, Pres.-Mgr.; E. R. Turk, Sec., both of Wallace. **Inc.:** Sept. 22, 1899. **Capital:** 1,000,000 shares; par value 10c; 650,500 shares issued. **Property:** 8 unpatented claims, Beaver dist.; Wallace. **Development:** Principally by 1 tunnel, which is 4500 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** The company was active throughout the year. A stock assessment of 2 mills was levied on Feb. 2, 1928.

GOLCONDA LEAD MINES

Office: Wallace. **Officers:** A. H. Featherstone, Pres.; J. F. Ferguson, Sec.; Wm. A. Beaudry, Mgr., all of Wallace. **Inc.:** Jan. 18, 1927. **Capital:** 2,000,000 shares; par value $1; all shares issued. **Property:** Hector group; 14 patented, 6 unpatented claims, Hunter dist.; Wallace; Mayflower group; 14 unpatented claims, Lelande and Hunter dists.; Wallace. **Development:** Mine opened by the Mayflower tunnel, 5000 ft. in length, an inclined raise 800 ft. long, and a vertical shaft 400 ft. deep, both from Mayflower tunnel. **Plant:** MINE: Electrically-driven 750-cu.-ft. Sullivan compressor; 2 air-driven hoists; storage-battery locomotive haulage; complete mining equipment. MILL: 200-ton concentrator, fine grinding and flotation. **Ore:** Lead-zinc-silver. **Men employed:** Average, 45. **Remarks:** The mill building was erected, machinery and equipment installed, and operations started on August 1, after which capacity production was maintained on a 24-hour operating basis for the remainder of the year. During construction of the mill, the mine was actively developed and placed in position for production. This work consisted principally of completing the 800-ft. raise from the Mayflower tunnel to the surface and extending the vertical shaft from the 1200 to the 1400-ft. level. In November this company purchased the property owned by the Mayflower Mining & Development Co., thus acquiring title to its principal operating tunnel and adding greatly to the extent of its holdings.

GOLD HUNTER MINES, INC.

Office: 516 E. 28th St., Chicago, Ill. **Officers:** Edwin C. Hennessy, Pres.; Thomas F. Keeley, Sec., both of Chicago, Ill.; C. K. Cartwright, Mgr., Mullan. **Inc.:** April 24, 1925; formerly Gold Hunter Mining & Smelting Co. **Capital:** 20,000 shares; par value $10; all shares issued. **Property:** Gold Hunter; 12 patented claims, Hunter dist.; Mullan. **Development:** Principal main haulage tunnel 7600 ft. long, from which level is a shaft 1500 ft. deep to the 1200-ft. level, in which there is another shaft 600 ft. deep. **Plant:** MINE: Complete and modern; electric hoist; two 3000-cu-ft. electrically-driven compressors; pumps; machine and blacksmith shop; electric haulage. MILL: 500-ton concentrator, including flotation. **Ore:** Lead-silver. **Men employed:** Average, 140. **Remarks:** This company is one of the old and substantial producers of the Coeur d'Alene district. Capacity production was maintained; a large amount of development work was done in the mine; the new shaft, on the vein in the 1200-ft. level, was extended from the 1600 to the 1700-ft. level; and the mill was remodeled and repaired. The development work encountered one of th principal showings of new ore disclosed in the Coeur d'Alene district during the year. Capacity production was maintained without interruption. By proving the continuation of its ore at a greater depth, this company greatly increased its resources and future life.

GOODENOUGH MINING CO.

Office: Sanger, Calif. **Officers:** F. P. Markwell, Pres., Los Angeles, Calif.; J. Fred Markwell, Sec., Sanger, Calif. **Inc.:** Apr. 6, 1922. **Capital:** 2,500,000 shares; par value 1c; all shares issued. **Property:** Goodenough group; 13 patented, 5 unpatented claims, Lelande and Hunter dists.; Gem. **Remarks:** Property under option to United Metals Co.

GOVERNMENT GULCH MINING CO.

Office: Wallace. **Officers:** Frederick Burbidge, Pres.-Mgr.; A. W. Hoover, Sec., both of Wallace. **Inc.:** July 15, 1918. **Capital:** 1,500,000 shares; par value 10c; 1,350,567 shares issued. **Property:** Government Gulch group; 6 patented claims, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel 500 ft. long and a vertical shaft 100 ft. deep. Total development, approximately 1800 ft. **Ore:** Lead-zinc-silver. **Remarks:** Idle.

GREAT DUNKER MINING & MILLING CO.

Office: 316 Lindelle Bldg., Spokane, Wash. **Officers:** J. G. Johnson, Pres., Spokane, Wash.; Carl A. Pearson, Sec.-Mgr., Star Route, Kellogg. **Inc.:** Jan. 11, 1924. **Capital:** 1,000,000 shares; par value 10c; 315,980 shares issued. **Property:** Great Dunker group; 3 patented, 2 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 7 short tunnels. **Ore:** Lead-zinc-silver, antimony. **Men employed:** Average, 2. **Remarks:** A small amount of work during the year.

GREAT EASTERN MINING CO., LTD.

Office: Wallace. **Officers:** John Carlson, Pres., Gem; John C. Furst, Sec., Wallace. **Inc.:** Oct. 22, 1900. **Capital:** 1,000,000 shares; par value $1; 750,000 shares issued. **Property:** Great Eastern group; 13 patented claims, Lelande dist.; Gem. **Development:** Total development, approximately 4000 ft.; the principal tunnel is 600 ft. long. **Ore:** Lead-silver-zinc.

GREEN HILL CLEVELAND MINING CO.

Office: Wallace. **Officers:** F. H. Brownell, Pres., 120 Broadway, New York City; John H. Wourms, Sec.; Frederick Burbidge, Mgr., both of Wallace. **Inc.:** Oct. 7, 1912. **Capital:** 320,000 shares; par value $1; all shares issued. **Property:** Green Hill group; 3 patented claims, Lelande dist.; Mace. **Ore:** Silver-lead-zinc. **Remarks:** Idle since 1917.

GUELPH MINING & MILLING CO., LTD.

Office: Kellogg. **Officers:** Alfred Coneybeare, Pres.; F. Wm. Voigtlander, Sec., both of Kellogg. **Inc.:** Mar. 27, 1906. **Capital:** 1,500,000 shares; par value $1; 1,380,967 shares issued. **Property:** Guelph group; 5 patented claims, Beaver dist.; Wallace. **Development:** Principally by 3 tunnels: No. 1, 150 ft. long; No. 2, 850 ft. long; No. 3, 1600 ft. long; and a vertical shaft 250 ft. deep. **Plant:** 5-drill, 2-stage Sullivan compressor driven by a 75-h. p. electric motor; air-driven hoist; complete mining equipment and camp. **Ore:** Lead-silver. **Remarks:** Press reports during the latter part of the year were to the effect that this company was merged with the Ambergris Consolidated Mining Co.

HAPPY DAY MINING CO., LTD.

Office: Day Bldg., Wallace. **Officers:** Daniel Morgan, Pres., Spokane, Wash.; John E. Ryan, Sec., Wallace. **Inc.:** Sept. 30, 1899. **Capital:** 1,000,000 shares; par value 10c; 791,737 shares issued. **Property:** Happy Day group; 6 patented claims, Lelande dist.; Burke. **Development:** Principally by 1 tunnel 1500 ft. long. **Ore:** Lead-silver.

HAPPY JACK MINING CO.

Office: Wallace. **Officers:** Jesse Freeman, Pres.; R. V. McLeod, Sec., both of Wallace. **Inc.:** June 9, 1924. **Capital:** 1,500,000 shares; par value 10c; 600,000 shares issued. **Property:** 4 unpatented claims, held under lease and option from the Climax Silver-Lead Mining Co., Placer Center dist.; Wallace. **Development:** By 1 tunnel 1200 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of 1 mill was levied on May 31, 1928.

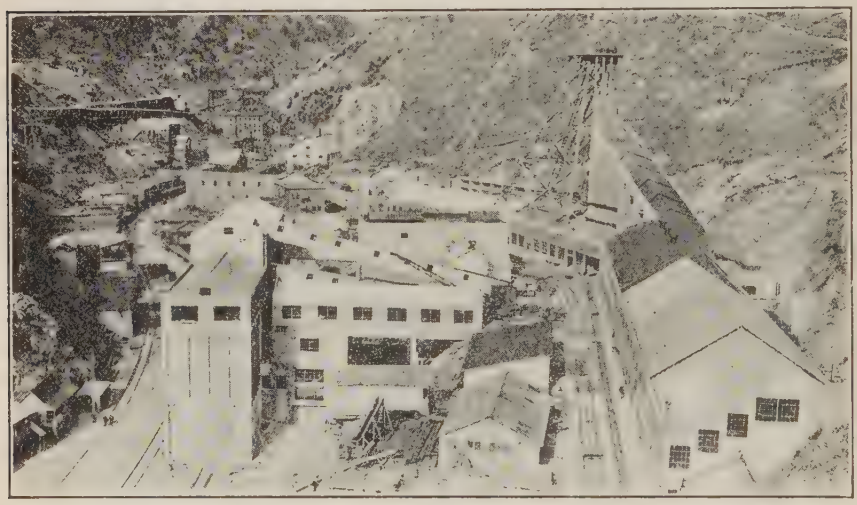
HAYES CO.

Office: Kellogg. **Officers:** Arthur Hays, Pres.; R. S. Handy, Sec.; Stanly A. Easton, Mgr., all of Kellogg. **Inc.:** May 11, 1916. **Capital:** 25,-

000 shares; par value $1; 12,500 shares issued. **Property:** 1200 acres river bottom land held under lease; Yreka dist.; Kellogg. **Plant:** MILL: 100-ton flotation concentrator; Orange-peel dredge and sand pumps. **Ore:** Lead-silver from river tailings. **Men employed:** Average, 12. **Remarks:** Profitably operated throughout the year.

HECLA EXTENSION MINING CO.

Office: Wallace. **Officers:** Chas. Oster, Pres., 1 Wall St., New York; George C. Hollister, Sec., 60 Broadway, New York. **Inc.:** Oct. 21, 1926. **Capital:** 1,500,000 shares; par value 25c; all shares issued. **Property:** Anchor group; 8 patented claims, held under lease and option from the Anchor Mining Co., and 7 unpatented claims; Lelande dist.; Burke. **Development:** By 2 tunnels: No. 1, 700 ft. long; No. 2, 2800 ft. long; and a 600-ft. vertical shaft. **Plant:** Electrically-driven I-R compressor; electrically-driven hoist; and complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 16. **Remarks:** Buildings erected, mine plant installed, 600-ft. shaft unwatered, and a large amount of development work on the lower level performed during the year.



HECLA MINING CO.'S MINE BUILDINGS AND TOWN OF BURKE

HECLA MINING CO.

Office: Wallace. **Officers:** James F. McCarthy, Pres.-Mgr.; L. E. Hanley, Sec., both of Wallace. **Inc.:** Sept. 26, 1898. **Capital:** 1,000,000 shares; par value 25c; all shares issued. **Property:** 47 patented, 1 unpatented claim, Lelande dist.; Burke. **Development:** Principally by a 4-compartment vertical shaft, which is 2800 ft. deep, and a 3-compartment vertical shaft from the 2000-ft. level, which is 800 ft. deep. Total development, approximately 9 miles. **Plant:** MINE: One of the most complete and modern in the State. MILL: 700-ton concentrator, including flotation. **Ore:** Lead-silver. **Men employed:** Average, 485.

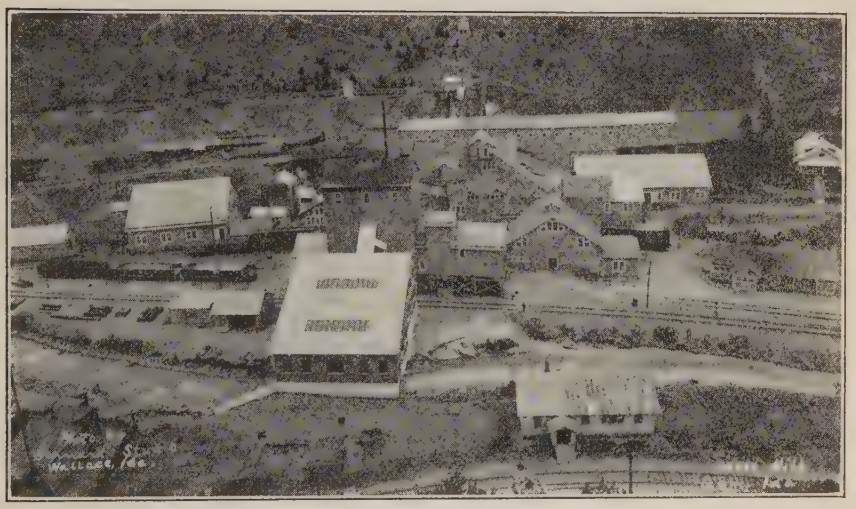
REMARKS

This company, which is recognized as one of the principal lead-silver producing companies of the United States, greatly increased its ore reserves and resources in the Hecla mine. The vein was further explored on the 2800-ft. level and work was completed in sinking the main shaft to this level. The mine and mill plants were enlarged and improved, and the mine was maintained in first-class condition. In addition to this, the contract was let for and construction was started on the installation of a

powerful new electrically-driven hoist; when installed, this hoist will be the largest and most complete in the Coeur d'Alene district.

At the old Tiger-Poorman mine, which was purchased in 1920, machinery and equipment were installed in 1927 and work was started on unwatering it to the 600-ft. level. During 1928 this work was completed, and a large amount of exploration work was done on the 300-ft. and 600-ft. levels.

The Hecla management are progressive and intelligent; they have engendered an excellent spirit of cooperation among the employees and are giving the utmost consideration to safety and welfare provisions. Under such conditions, and with the life of the mine assured for many years, the outlook for the company is exceedingly favorable.



HECLA MINING CO.'S MILL

HERCULES MINING CO.

Office: Wallace. **Officers:** Harry L. Day, Pres.-Mgr.; A. P. Ramstedt, Sec., both of Wallace. **Inc.:** Dec. 31, 1923. **Capital:** 500,000 shares; par value $10; 430,180 shares issued.

HERCULES GROUP

Property: Hercules group, 38 patented claims; Columbia lode, 1 patented claim; Lelande and Placer Center dists.; Burke. **Development:** Principally by 5 tunnels: No. 1, 280 ft.; No. 2, 3350 ft.; No. 3, 3900 ft.; No. 4, 5900 ft.; No. 5, 8550 ft.; and a 4-compartment vertical shaft 1300 ft. deep, with 8 intermediate levels. Total development, approximately 18 miles. **Plant:** MINE: Special first motion, double-reel, Nordberg electric hoist, direct connected to 700-h. p. motor. One 22x16 I-R and 1 29x21 I-R compressor, both electrically driven. Electric trolley locomotive in main transportation tunnel and storage-battery locomotives in intermediate levels. Complete and modern mine equipment and shops. MILL: 600-ton concentrator, including flotation. **Ore:** Lead-silver. **Men employed:** Average, 90.

MAHER-HEARN GROUP

Property: 38 patented claims; Lelande dist.; Burke. **Development:** Through 4500-ft. tunnel of Gertie Mining Co., at the end of which is over 4000 ft. of tunnel and a 400-ft. vertical shaft. **Plant:** Electrically-driven 1000-cu.-ft. I-R compressor; air-driven hoist; trolley electric locomotive haulage; complete and modern equipment. **Ore:** Lead-silver.

REMARKS

During the year the Hercules mine surface plant and tunnel No. 5 were used in the operation of the Sherman Lead Co. and the Humming Bird Mining Co., both of which performed a large amount of development work and produced a substantial tonnage of ore; this ore was transported to Wallace and treated in the Hercules Mining Co.'s mill, which also treated the ores from the Tamarack & Custer Consolidated Mining Co. and the Dayrock Mines Co. During the year this mill was rebuilt, a zinc flotation unit being added, and was converted into a custom mill which now offers milling facilities for practically all the mines operating in the vicinity of Wallace.

The principal mines and companies which this company owns or controls are: Hercules and Maher-Hearn mines; Dayrock Mines Co.; Ambergris Mines Co.; Sherman Lead Co.; Honolulu Mining Co.; Humming Bird Mining Co.; Roanoke Mining Co.; Stanley Mining Co.; Happy Day Mining Co.; Western Union Mining Co.; Success Mining Co., Ltd. The following of these produced a substantial tonnage during the year: Humming Bird Mining Co.; Dayrock Mines Co.; Sherman Iead Co. Lessees at the Success and Western Union mines produced a small amount of ore.

HIDDEN TREASURE MINING CO.

Office: Wallace. **Officers:** Frederick Burbidge, Pres.-Mgr.; A. W. Hoover, Sec., both of Wallace. **Inc.:** May 18, 1908. **Capital:** 500,000 shares; par value $10; all shares issued. **Property:** Hidden Treasure group; 4 patented claims, Lelande dist.; Burke. **Development:** Principally by 1 tunnel 2540 ft. long. **Ore:** Silver-lead-zinc.

HIGH CROPPING SILVER-LEAD MINING CO.

Office: Burke. **Officers:** Hugh Gibson, Pres.-Mgr.; J. F. Hurtubise, Sec., both of Burke. **Inc.:** Sept. 18, 1924. **Capital:** 1,500,000 shares; par value 25c; 255,500 shares issued. **Property:** High Cropping group; 6 unpatented claims, Lelande dist.; Burke. **Development:** 1 tunnel, 310 ft. long.

HIGHLAND-SURPRISE CONSOLIDATED MINING CO.

Office: Kellogg. **Officers:** Dr. Charles R. Mowery, Pres., Wallace; George D. Lamielle, Sec., Kellogg. **Inc.:** Aug. 27, 1912. **Capital:** 1,200,000 shares; par value $1; 1,191,993 shares issued. **Property:** 3 patented, 36 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** Approximately 2 miles of underground workings. **Plant:** MINE: A 7-drill I-R compressor, electrically driven; complete mining equipment and camp. MILL: 150-ton concentrator. **Ore:** Lead-zinc-silver. **Men employed:** Average, 10. **Remarks:** During the year the inclined shaft was extended to the 200-ft. level, where a small amount of drifting was done. Press reports were to the effect that this work increased the known ore reserves. A stock assessment of 10 mills was levied on May 28, 1928.

HILARITY LEAD-SILVER MINING CO.

Office: Mullan. **Officers:** J. A. Glowe, Pres.; H. W. Ingalls, Sec.-Mgr., both of Mullan. **Inc.:** Apr. 24, 1916, as Pine Creek Mining & Milling Co.; name changed May 7, 1923. **Capital:** 2,000,000 shares; par value 10c; 1,500,000 shares issued. **Property:** 12 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel 500 ft. long, and a 200-ft. vertical shaft. **Plant:** Electrically-driven compressor; complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only. Stock assessments were levied during the year as follows: March 24, 5 mills; Nov. 17, 5 mills.

HILL MINING & MILLING CO.

Office: First State Bank Bldg., Kellogg. **Officers:** Elmer Brown, Pres.-Mgr.; F. Wm. Voightlander, Sec., both of Kellogg. **Inc.:** May 10, 1916. **Capital:** 1,000,000 shares; par value 2c; 431,193 shares issued. **Property:** Hill group; 4 unpatented claims, Yreka dist.; Kellogg. **Development:** By 1 tunnel 800 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of 1 mill was levied on May 10, 1928.

HONOLULU MINING CO., LTD.
Office: Wallace. **Officers:** J. W. Tabor, Pres., Wallace; John P. Mahoney, Sec., Spokane; Geo. W. Tabor, Asst. Sec., Wallace. **Inc.:** Apr. 4, 1906. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** 4 unpatented claims adjoining Hercules mine, Lelande dist.; Burke. **Development:** Principally by a 2400-ft. crosscut from the No. 4 Hercules tunnel. **Ore:** Lead-silver. **Remarks:** Press reports during the latter part of the year were to the effect that this company was merged with the Ambergris Consolidated Mining Co.

HORNSILVER MINING & MILLING CO.
Office: Wallace. **Officers:** Ben L. Collins, Pres., 312 Old National Bank Bldg., Spokane, Wash.; Russell F. Collins, Sec.-Mgr., Wallace. **Inc.:** May 31, 1901. **Capital:** 1,000,000 shares; par value 10c; 694,505 shares issued. **Property:** 5 unpatented claims, Placer Center dist.; Wallace. **Development:** 1 tunnel, 1000 ft. long. **Ore:** Lead-silver-gold. **Remarks:** Annual labor only.

HORSESHOE MINING CO.
Office: Mullan. **Officers:** Jas. B. Scoles, Pres.-Mgr., Mullan. **Inc.:** July 16, 1908. **Capital:** 1,500,000 shares; par value $1; 900,000 shares issued. **Property:** Horseshoe group; 9 unpatented claims, Hunter dist.; Mullan. **Development:** 2 tunnels: No. 1, 400 ft. long; No. 2, 3000 ft. long. **Ore:** Lead-silver. **Remarks:** Tunnel controlled by Atlas Mining Co.

HUMBOLT MINING CO.
Office: Wallace. **Officers:** James Dunne, Mgr., Burke. **Inc.:** An association. **Capital:** Sale of units. **Property:** 8 unpatented claims, Lelande dist.; Burke. **Development:** By 2 tunnels: No. 1, 80 ft. long; No. 2, 50 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 1. **Remarks:** A small amount of work during the year.

HUMMING BIRD MINING CO.
Office: Burke. **Officers:** Harry L. Day, Pres.-Mgr., Wallace; W. H. Hoover, Sec., Burke. **Inc.:** June 27, 1898. **Capital:** 1,500,000 shares; par value $1; 1,411,075 shares issued. **Property:** Humming Bird group; 18 patented claims, Lelande dist.; Burke. **Development:** Total development, approximately 12,400 ft. of tunnels, the principal of which are No. 4, 1253 ft. long, and No. 5, Hercules, 12,086 ft. long. **Plant:** All equipment used in operation furnished by Hercules Mining Co. **Ore:** Lead-silver. **Men employed:** Average, 21. **Remarks:** In addition to performing a large amount of development work, the company produced a substantial tonnage of ore, which was milled at the Hercules mill.

HYPOTHEEK MINING & MILLING CO.
Office: Wallace. **Officers:** E. G. Gnaedinger, Pres.; Otto A. Olsson, Sec.-Mgr., both of Wallace. **Inc.:** Feb. 13, 1901. Capital: 2,000,000 shares; par value 10c; all shares issued. **Property:** 760 acres of patented land, Yreka dist.; Kellogg. **Development:** By 2 tunnels: No. 1, 700 ft. long; No. 2, 1500 ft. long; and a vertical shaft 1100 ft. deep. Total development, approximately 25,000 ft. **Plant:** MINE: Double-drum electric hoist; No. 10 I-R compressor, electrically driven; machine shop; sawmill; and complete mining equipment; 12 buildings. MILL: 200-ton concentrator. **Ore:** Lead-silver. **Men employed:** Average, 15. **Remarks:** A large amount of exploration work was performed on the 900-ft. level during the year. Stock assessments were levied during 1928 as follows: April 21, 10 mills; Aug. 21, 10 mills; Dec. 18, 10 mills.

IDAHO AMERICAN MINING & MILLING CO.
Office: Kellogg. **Officers:** Lloyd McDougall, Pres.; C. R. Bergen, Sec., both of Kellogg. **Inc.:** Feb. 7, 1923. **Capital:** 100,000 shares; increased Mar. 30, 1926, to 2,000,000 shares; par value 25c; 808,957 shares issued. **Property:** O. K. group; 12 patented, 1 unpatented claim, Yreka dist.; Kellogg. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

IDAHO COPPER MINING CO., LTD.
Office: Wallace. **Officers:** W. H. Herrick, Pres.; A. H. Featherstone, Sec., both of Wallace. **Inc.:** Aug. 24, 1906. **Capital:** 1,250,000 shares; par value $1; all shares issued. **Property:** 3 patented claims, Hunter dist.; Mullan. **Ore:** Copper. **Remarks:** Idle for a number of years.

IDAHO & EASTERN MINING & MILLING CO.
Office: Wallace. **Officers:** John H. Wourms, Pres.; W. A. Devan, Sec., both of Wallace. **Inc.:** Aug. 20, 1903. **Capital:** 1,000,000 shares; par value $1; 910,215 shares issued. **Property:** Idaho & Eastern group; 3 patented, 2 unpatented claims, Lelande dist.; Burke. **Development:** By 1 tunnel 86 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

IDAHO GALENA MINING CO.
Office: Wallace. **Officers:** A. H. Featherstone, Pres.; Herman Marquardt, Sec.; C. A. Fay, Mgr., all of Wallace. **Inc.:** July 28, 1927. **Capital:** 5,000,000 shares; par value 25c; 2,500,000 shares issued. **Property:** 9 unpatented claims, Placer Center dist.; Wallace. **Development:** By 1 tunnel 200 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 4. **Remarks:** Annual labor only.

IDAHO-LEADVILLE MINES CO.
Office: 823 First Ave., Spokane, Wash. **Officers:** Thomas Fahey, Pres.; E. P. Ryan, Sec., both of Spokane, Wash. **Inc.:** Apr. 1, 1914. **Capital:** 1,000,000 shares; par value 10c; 548,020 shares issued. **Property:** 12 unpatented claims, Evolution dist.; Osburn. **Development:** By 2 tunnels: No. 1, 900 ft. long; No. 2, 145 ft. long. **Ore:** Lead-silver. **Remarks:** Idle.

IDAHO & LOS ANGELES MINING & MILLING CO.
Office: Wallace. **Officers:** Thomas McCabe, Pres.; Alfred J. Dunn, Sec.-Mgr., both of Wallace. **Inc.:** June 6, 1904; charter forfeited Dec. 2, 1916. **Capital:** 1,000,000 shares; par value $1; 820,000 shares issued. **Property:** 16 patented claims, Beaver dist.; Wallace. **Development:** By 3 tunnels: No. 1, 150 ft. long; No. 2, 1700 ft. long; No. 3, 800 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** Idle.

IDAHO-MONTANA AND ORLANDO CONSOLIDATED MINING CO.
Office: Wallace. **Officers:** John A. Swan, Pres.-Mgr., Burke; Hazel Swan, Sec., Detroit, Mich. **Inc.:** July 14, 1925. **Capital:** 1,500,000 shares; par value 10c; all shares issued. **Property:** 7 unpatented claims, Lelande dist.; Burke. **Development:** By 3 tunnels: No. 1, 80 ft. long; No. 2, 500 ft. long; No. 3, 600 ft. long. **Ore:** Lead-silver. **Remarks:** Idle.

IDAHO STAR MINING CO.
Office: 212 Eagle Bldg., Spokane, Wash. **Officers:** Hans Peterson, Pres.; R. T. Lawrence, Sec.-Mgr., both of Spokane, Wash. **Inc.:** Oct. 8, 1924. **Capital:** 1,500,000 shares; par value 10c; all shares issued. **Property:** 24 unpatented claims, St. Joe dist.; Adair. **Development:** By 1 tunnel 570 ft. long. **Plant:** Water-driven compressor. **Ore:** Lead-silver. **Remarks:** Principal tunnel extended 70 ft. during the year.

IDORA MINING CO., LTD.
Office: Jamieson Blk., Spokane, Wash. **Officers:** James C. Broad, Pres.; C. E. Mallette, Sec.-Mgr., both of Spokane, Wash. **Inc.:** Apr. 23, 1915. **Capital:** 1,500,000 shares; par value 10c; 600,000 shares issued. **Property:** Idora group; 1 patented, 8 unpatented claims, Beaver dist.; Carbonite. **Plant:** MINE: 1 electrically-driven compressor. MILL: 100-ton concentrator. **Ore:** Lead-zinc-silver. **Remarks:** Property under lease and option to Yolanda Mining Co.

IMPERIAL MINING CO.
Office: Wallace. **Officers:** William Becker, Pres.; Homer G. Brown, Sec.-Mgr., both of Wallace. **Inc.:** Nov. 21, 1906. **Capital:** 1,500,000 shares; par value $1; 1,174,931 shares issued. **Property:** Imperial group; 8 patented claims, Lelande dist.; Burke. **Development:** Principally by 2 tunnels: No. 2, 1000 ft. long; No. 3, 4000 ft. long. Total development, approximately 10,000 ft. **Plant:** Electrically-driven 4-drill I-R compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Remarks:** Idle throughout the year.

INDEPENDENCE LEAD MINES, LTD.
Office: Wallace. **Officers:** H. B. Kingsbury, Pres.-Mgr., Mullan; Herman Marquardt, Sec., Wallace. **Inc.:** Nov. 30, 1914, as New Independent Mining Co.; name changed Aug. 23, 1915. **Capital:** 1,500,000 shares; par value $1. Increased on Mar. 5, 1926, to 2,000,000 shares; par value $1; 1,400,000 shares issued. **Property:** Independence group; 9 patented claims, Hunter dist.; Mullan. **Development:** Principally by 5 tunnels: No. 1, 100 ft. long; No. 2, 300 ft. long; No. 3, 1200 ft. long; No. 4, 5800 ft. long; Independence, 300 ft. long; and a vertical raise 313 ft. long connecting No. 3 and No. 4 tunnels. **Plant:** Complete mining equipment. Power furnished by American Commander M. & M. Co. **Ore:** Lead-silver. **Men employed:** Average, 6. **Remarks:** Development work progressed without interruption throughout the year. This work consisted principally of extending No. 4 tunnel, which is the lowest level in the mine. Stock assessments were levied during 1928 as follows: Feb. 2, 2c; May 28, 2c.

INDEPENDENCE MINING CO., LTD.
Office: Kellogg. **Officers:** W. A. Taylor, Pres.-Mgr.; Jessie E. Adam, Sec., both of Kellogg. **Inc.:** June 5, 1928. **Capital:** 1,500,000 shares; par value 10c; 750,000 shares issued. **Property:** 17 unpatented claims, Eagle dist.; Murray. **Ore:** Lead-silver.

INDEPENDENCE COPPER M. & M. CO., LTD.
Office: Eagle Blk., Wallace. **Officers:** J. H. Nordquist, Pres.-Mgr.; A. G. Kennedy, Sec., both of Wallace. **Inc.:** Mar. 4, 1905. **Capital:** 1,250,000 shares; par value $1; 986,526 shares issued. **Property:** Independent group; 4 patented claims, Hunter dist.; Mullan.

INLAND EMPIRE MINING & MILLING CO.
Office: 310 Ziegler Bldg., Spokane, Wash. **Officers:** A. C. Schirmer, Pres.-Mgr., Hibbing, Minn.; John H. Roche, Sec., Spokane, Wash. **Inc.:** June 18, 1910. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Never Sweat; 1 patented claim, Lelande dist.; Burke. **Development:** By 2 tunnels: No. 1, 350 ft. long; No. 2, 400 ft. long; and an inclined shaft 300 ft. deep. **Plant:** Electrically-driven compressor and complete mining equipment. **Ore:** Lead-silver.

INTERNATIONAL MINES, LTD.
Office: Wallace. **Officers:** James White, Pres.; A. H. Featherstone, Sec., both of Wallace. **Inc.:** July 2, 1903. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** 13 patented claims, Lelande dist.; Burke. **Ore:** Lead-silver. **Remarks:** Idle for many years.

IONE MINING CO.
Office: Wallace. **Officers:** O. M. Nordquist, Pres.-Mgr.; L. L. Brainard, Sec., both of Wallace. **Inc.:** Dec. 19, 1922. **Capital:** 1,500,000 shares; par value 10c; 300,000 shares issued. **Property:** Ione group; 3 unpatented claims, Summit dist.; Murray. **Ore:** Lead-silver. **Remarks:** Annual labor only.

IRON KING MINING CO., LTD.
Office: Wallace. **Officers:** Herman J. Rossi, Pres.; Otto A. Olsson, Sec., both of Wallace. **Inc.:** Jan. 8, 1904. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Iron King group; 4 unpatented claims, Evolution dist.; Wallace. **Development:** Principally by 2 tunnels: No. 1, 2000 ft. long; No. 2, 150 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

IVANHOE MINING CO., LTD.
Office: Mullan. **Officers:** J. A. Bean, Pres., Sumdor, Ariz.; C. D. Miller, Sec., Mullan. **Inc.:** Oct. 18, 1906. **Capital:** 1,500,000 shares; par value $1; 1,494,950 shares issued. **Property:** 2 patented claims, Hunter dist.; Mullan. **Ore:** Lead-silver. **Remarks:** Idle for many years.

JACK WAITE CONSOLIDATED MINING CO.
Office: Wallace. **Officers:** Herman J. Rossi, Pres.; R. C. Russell, Sec., both of Wallace; M. L. Savage, Mgr., Kellogg. **Inc.:** Jan. 30, 1928. **Capital:** 5,000,000 shares; par value $1; 4,965,000 shares issued. **Property:** Jack Waite group; 4 patented, 17 unpatented claims in Idaho; Silver

King group: 30 unpatented claims in Montana; Eagle dist.; Prichard. **Development:** Jack Waite group: Principally by 2 tunnels: No. 1, 2500 ft. long; No. 2, 1400 ft. long, in which is an inclined shaft 200 ft. deep. **Plant:** MINE: One air-driven and one electrically-driven hoist; 3 I-R electrically-driven compressors; trolley locomotive haulage; complete mining equipment and camp. MILL: 400-ton flotation concentrator. **Ore:** Lead-zinc-silver. **Men employed:** Average, 48. **Remarks:** This company is a consolidation of the Jack Waite Mining Co., Ltd., and the Silver King Mining Co., the two properties being adjoining groups situated on the Idaho-Montana state line. During the year the mine was entirely rehabilitated, electric-trolley haulage installed, the mill modernized and its capacity increased to 400 tons per day, a large amount of lateral development work performed, a winze sunk on the ore body to a depth of 200 ft., and work started in extending No. 2 tunnel toward the Silver King group. The new improvements and the additional ore exposed added greatly to the importance of this enterprise.

JIM BLAINE SILVER SYNDICATE, LTD.

Office: 323 Lindelle Blk., Spokane, Wash. **Officers:** Dan Krehbiel, Pres., Lind, Wash.; Matt Baumgartner, Sec.-Mgr., Spokane, Wash. **Inc.:** Apr. 12, 1920. **Capital:** 2,000,000 shares; par value 5c; 1,600,500 shares issued. **Property:** Jim Blaine group; 25 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 3 tunnels: No. 1, 500 ft. long; No. 2, 1000 ft. long; No. 3, 1290 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

KELLOGG GALENA MINING CO.

Office: 832 Old National Bank Bldg., Spokane, Wash. **Officers:** Samuel A. McCoy, Pres.-Mgr.; Geo. W. Sommer, Sec., both of Spokane, Wash. **Inc.:** Sept. 30, 1915. **Capital:** 1,500,000 shares; par value 10c; all shares issued. **Property:** 7 unpatented claims, Yreka dist.; Kellogg. **Development:** About 1400 ft. of workings. **Ore:** Lead-silver. **Remarks:** Annual labor only.

KELLOGG SILVER-LEAD MINING CORPORATION

Office: 832 Old Nat'l Bank Bldg., Spokane, Wash. **Officers:** Sam A. McCoy, Pres.-Mgr.; Edward J. Johnson, Sec., both of Spokane, Wash. **Inc.:** Nov. 25, 1927. **Capital:** 400,000 shares; par value $1.

KENNAN MINING CO.

Office: N. 1111 Hamilton St., Spokane, Wash. **Officers:** E. J. Roberts, Jr., Pres., Spokane, Wash. **Inc.:** Sept. 4, 1917. **Capital:** 250,000 shares; par value $1; 200,000 shares issued. **Property:** 20 unpatented claims, Beaver dist.; Murray. **Development:** By 3 tunnels: No. 1, 267 ft.; No. 2, 200 ft.; No. 3, 112 ft. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Small amount of work throughout the year.

KING OF PINE CREEK MINING CO.

Office: Wallace. **Officers:** Andrew Anderson, Pres., Burke; C. A. Magnuson, Sec., Wallace. **Inc.:** Aug. 10, 1904. **Capital:** 1,500,000 shares; par value $1; 935,572 shares issued. **Property:** King of Pine Creek group; 5 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 2 tunnels: No. 1, 400 ft.; No. 2, 400 ft. **Ore:** Lead-zinc-silver. **Remarks:** Under lease and option to New Jersey Consolidated Mines Co.

LACLEDE MINING CO., LTD.

Office: Wallace. **Officers:** O. W. Lewis, Pres.; W. B. Heitfeld, Sec., both of Wallace. **Inc.:** Dec. 10, 1903. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Laclede group; 9 patented claims, Lelande dist.; Burke. **Development:** Principally by 1 tunnel, 2600 ft. long, and an inclined shaft 340 ft. long. **Ore:** Lead-silver. **Remarks:** Idle.

LANSING SILVER-LEAD MINING CO.

Office: Wallace. **Officers:** W. V. Stansfield, Pres.; C. I. Grimsmoe, Sec.-Mgr., both of Wallace. **Inc.:** June 14, 1916. Charter forfeited Nov. 30, 1927. **Capital:** 1,000,000 shares; par value 25c; shares issued, none. **Property:** 10 patented, 3 unpatented claims, Placer Center dist.; Wallace.

Development: By 3 tunnels: No. 1, 300 ft. long; No. 2, 450 ft. long; No. 3, 600 ft. long. **Plant:** 10x12 Sullivan gas-driven compressor; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** Equipment installed and active development campaign maintained during the year.

LEAD BLOSSOM MINING & MILLING CO.

Office: Wallace. **Officers:** Walter H. Hanson, Pres.; Herman Marquardt, Sec., both of Wallace. **Inc.:** June 5, 1922, as Iron Blossom Mining & Milling Co.; name changed Nov. 2, 1922. **Capital:** 1,500,000 shares; par value 25c; 925,200 shares issued. **Property:** Iron Blossom group; 13 unpatented claims, Yreka dist.; Wardner. **Development:** By 2 tunnels: No. 1, 300 ft. long; No. 2, 600 ft. long; and an inclined shaft 360 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of 5 mills was levied on May 18, 1928.

LEAD CRYSTALS MINING CO., LTD.

Office: Wallace. **Officers:** Walter Keister, Pres., Murray; G. W. Dougherty, Sec., Wallace. **Inc.:** Dec. 11, 1911. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** 10 unpatented claims, Eagle dist.; Prichard. **Development:** By 3 tunnels: No. 1, 250 ft. long; No. 2, 1100 ft. long; No. 3, 750 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

LEAD MOUNTAIN MINES CORPORATION

Office: Wallace. **Officers:** Elmer Ballinger, Pres.-Mgr.; G. A. Halvorson, Sec., both of Wallace. **Inc.:** July 18, 1927. **Capital:** 2,000,000 shares; par value 5c; 40,000 shares issued. **Property:** Dudley group; 11 unpatented claims, Beaver dist.; Wallace. **Development:** Principally by 2 tunnels: No. 1, 125 ft.; No. 2, 350 ft. **Ore:** Lead-silver. **Men employed:** Average, 1. **Remarks:** Annual labor only. A stock assessment of 5 mills was levied on Jan. 9, 1928.

LEROY GOLD & COPPER CO., LTD.

Office: Wallace. **Officers:** G. F. Damm, Pres.; C. E. Clarke, Sec., both of Wallace. **Inc.:** Aug. 2, 1897. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Leroy group; 5 patented claims, unorganized dist.; Adair.

LEWIS & CLARK MINING CO.

Office: Wallace. **Officers:** William Grismer, Pres., Coeur d'Alene; J. R. Bean, Sec., Wallace. **Inc.:** Apr. 18, 1907. **Capital:** 1,250,000 shares; par value $1; 428,000 shares issued. **Property:** 2 patented, 4 unpatented claims, Hunter dist.; Mullan. **Remarks:** Annual labor only, on unpatented claims.

LINCOLN MINING CO.

Office: Wallace. **Officers:** Herman J. Rossi, Pres.; Franklin Pfirman, Sec., both of Wallace. **Inc.:** July 9, 1923. **Capital:** 1,500,000 shares; par value 10c. Increased May 7, 1928, to 2,000,000 shares common, par value 10c; 30,000 shares preferred, par value $10; 1,500,000 shares common issued. **Property:** Silverado group; 44 unpatented claims, Evolution dist.; Osburn. **Development:** Principally by 1 tunnel 5800 ft. long, and an inclined shaft 570 ft. long, giving a vertical depth of 550 ft. with 4 intermediate levels. **Plant:** MINE: 500-cu.-ft. electrically-driven compressor; complete mining equipment. MILL: 50-ton concentrator, including flotation. **Ore:** Lead-silver. **Men employed:** Average, 8. **Remarks:** Principal work during the year consisted of maintenance and retimbering of main tunnel, in which approximately 700 ft. of new development work was done. In addition to this, 2 lessees were active throughout the year. A stock assessment of 1c was levied on Dec. 8, 1928.

LINFOR COPPER CO.

Office: 745 Peyton Bldg., Spokane, Wash. **Officers:** W. A. Beaudry, Pres.; R. P. Woodworth, Sec., both of Spokane. **Inc.:** July 28, 1919. **Capital:** 1,500,000 shares; par value 10c; all shares issued. **Property:** 2 patented, 3 unpatented claims, unorganized dist.; Enaville. **Ore:** Copper-silver.

LITTLE BUTTE MINING CO.
Office: Wallace. **Officers:** Mark Cyr, Pres., Burke; Herman J. Rossi, Sec., Wallace. **Inc.:** Sept. 14, 1906. **Capital:** 1,500,000 shares; par value $1; 736,000 shares issued. **Property:** Little Butte group; 28 unpatented claims,, Lelande dist.; Burke. **Ore:** Lead-silver. **Remarks:** Annual labor only.

LITTLE SUNSHINE MINING CO.
Office: 902 Second Ave., Seattle, Wash. **Officers:** John R. Moore, Pres., Seattle, Wash.; Joseph A. Carson, Sec., Mullan; H. M. Lancaster, Mgr., Wallace. **Inc.:** Nov. 3, 1906, as Elk Mining Co. Name changed Oct. 5, 1927, and capitalization increased from $1,000,000 to $1,750,000. **Capital:** 1,750,000 shares; par value $1; 1,102,594 shares issued. **Property:** Owns Elk group; 3 patented claims, Hunter dist.; Mullan. Lease and option on Palmer group; 7 unpatented claims, Big Creek, Yreka dist.; Kellogg. **Development:** On Palmer group: 2700-ft. crosscut. **Plant:** On Palmer group: Electrically-driven compressor and complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 12. **Remarks:** Crosscut on Palmer group completed to 2700 ft. during the year.

LOG CABIN MINING AND MILLING CO., LTD.
Office: Wallace. **Officers:** O. H. Linn, Pres.; Otto A. Olsson, Sec., both of Wallace. **Inc.:** Nov. 21, 1906. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Log Cabin group; 9 unpatented claims, Placer Center dist.; Wallace. **Development:** By 2 tunnels: No. 1, 200 ft. long; No. 2, 80 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

LOMBARDY MINING & MILLING CO.
Office: Kellogg. **Officers:** Peter Albinola, Pres., Kellogg; Herman J. Rossi, Sec., Wallace. **Inc.:** Mar. 17, 1899. **Capital:** 1,500,000 shares; par value 10c; 1,400,000 shares issued. **Property:** Lombardy group; 15 patented claims, Yreka dist.; Kellogg. **Development:** By 3 tunnels and 1 shaft. **Plant:** Hoist, compressor, and mining equipment. **Ore:** Lead-silver.

LONG WAIT MINING CO.
Office: Wallace. **Officers:** Elizabeth Burke, Vice-Pres., Spokane, Wash.; Joseph F. Morton, Sec., Wallace. **Inc.:** May 15, 1924. **Capital:** 1,000,000 shares; par value $1; 654,000 shares issued. **Property:** Sunset group; 4 patented, 3 unpatented claims, held under lease and option from Clark-Montana Realty Co.; Beaver dist.; Wallace. **Development:** 1 tunnel 3000 ft. long and 1 vertical shaft 800 ft. deep. **Ore:** Lead-zinc-silver.

LOOKOUT MOUNTAIN MINING & MILLING CO.
Office: Kellogg. **Officers:** R. L. Brainard, Pres.; W. L. Penney, Sec.; Henry M. Lancaster, Mgr., all of Kellogg. **Inc.:** June 2, 1916. **Capital:** 2,000,000 shares; par value 25c. Increased Sept. 25, 1928, to 3,000,000 shares; par value 25c; 2,000,000 shares issued. **Property:** Lookout Mountain group; 40 unpatented claims, Yreka dist.; Kellogg; part of which are held under lease and option. **Development:** Principally by 3 tunnels: No. 1, 100 ft. long; No. 2, 2500 ft. long; No. 3, 3000 ft. long; a vertical shaft in No. 3 tunnel 200 ft. deep; and a 500-ft. raise connecting No. 2 and No. 3 tunnels. **Plant:** Electrically-driven Gardner compressor and complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 30. **Remarks:** This company conducted one of the largest development campaigns on Pine Creek during the year, in addition to constructing entirely new camp buildings and installing mining equipment. In March its No. 3 tunnel encountered an excellent showing of ore, after which ore-bins were constructed, an aerial tramway 1600 ft. in length was installed, and the Amy Matchless mill acquired under lease and rehabilitated. After this work was completed, the ore was transported from the terminal of the tramway to the mill by truck and a small tonnage of concentrate was produced. The vein was opened to a depth of 150 ft. below No. 3 tunnel by a vertical shaft, and a raise connecting No, 3 and No, 2 tunnels was completed.

LUCKY BOY MINING & CONCENTRATING CO., LTD.
Office: Mullan. **Officers:** M. D. Needham, Pres.-Mgr.; Agnes Needham, Sec., both of Mullan. **Inc.:** Jan. 12, 1907. **Capital:** 1,000,000 shares; par value $1; 652,405 shares issued. **Property:** Lucky Boy group; 31 unpatented claims, Hunter dist.; Mullan. **Development:** By 8 tunnels, the principal of which is 2400 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of 5 mills was levied on Aug. 11, 1928.

McGREGOR MINING CO.
Office: First State Bank Bldg., Kellogg. **Officers::** I. W. Feighuer, Pres., Spokane; L. L. Ruthruff, Sec., Kellogg; R. M. Wark, Mgr., Harrison. **Inc.:** Aug. 31, 1925. Capital: 700,000 shares; par value 50c; 210,000 shares issued. **Property:** McGregor group; 6 unpatented claims, Yreka dist.; Kingston. **Remarks:** Annual labor only.

MAC D'PALM MINING CO.
Office: Kellogg. **Officers:** W. G. Palmer, Pres.; E. B. Palmer, Sec., both of Kellogg. **Inc.:** June 3, 1922. **Capital:** 1,000,000 shares; par value 10c; no shares issued. **Property:** Silver State group; 5 unpatented claims, Evolution dist.; Kellogg. **Development:** 1 tunnel 350 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

MACEDONIA MINING CO.
Office: Wallace. **Officers:** A. M. Mundell, Pres.-Mgr., Wallace; W. S. Leland, Sec., Burke. **Inc.:** Oct. 8, 1921. **Capital:** 1,500,000 shares; par value 10c; 11,000 shares issued. **Property:** Macedonia group; 23 unpatented claims, at the head of West Fork of Slate Creek; St. Joe dist.; Wallace. **Remarks:** Active development work throughout the summer months by the president.

MAINE-STANDARD MINING CO., LTD.
Office: Wallace. **Officers:** Carlton Fox, Pres.; Otto A. Olsson, Sec.-Mgr., both of Wallace. **Inc.:** March 4, 1907. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Maine-Standard group; 5 unpatented claims, Moon Creek, Yreka dist.; Kellogg. **Development:** By 1 tunnel, 1200 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

MAJESTIC MINING CO., LTD.
Office: Wallace. **Officers:** James Dunne, Pres.-Mgr., Burke; Therrett Towles, Sec., Wallace. **Inc.:** Aug. 23, 1904. **Capital:** 1,500,000 shares; par value 25c; 981,930 shares issued. **Property:** Majestic group; 13 patented claims, Lelande and Summit dists.; Burke. **Development:** Principally by 1 tunnel 2000 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Lower tunnel extended about 200 ft. during the year.

MARSH MINES CONSOLIDATED
Office: Spokane, Wash., Box 1620. **Officers:** Edward Pohlman, Pres.; Jos. McCarthy, Sec.; F. Cushing Moore, Mgr., all of Spokane, Wash. **Inc.:** Aug. 17, 1916. **Capital:** 2,000,000 shares; par value 25c; all shares issued. **Property:** Marsh group; 12 patented, 1 unpatented claim, Lelande dist.; Burke. **Development:** By 2 tunnels: No. 1, 300 ft. long; No. 2, 2000 ft. long; a vertical shaft 900 ft. deep with 5 intermediate levels; and an inclined shaft 400 ft. long. Total development, approximately 9900 ft. **Plant:** MINE: One I-R 1150-cu.-ft. compressor and one 690-cu.-ft. Franklin compressor, both electrically driven; complete mining equipment. MILL: 200-ton concentrator, including flotation. **Ore:** Lead-silver. **Remarks:** Idle.

MAYBIRD MINING CO.
Office: Kellogg. **Officers:** J. L. Hunt, Pres., Kellogg; L. O. Thomas, Sec., Wallace. **Inc.:** Jan. 24, 1928. **Capital:** 1,000,000 shares; par value 25c; 6000 shares issued. **Property:** Maybird group; 11 unpatented claims held under lease and option, Yreka dist.; Kellogg. **Development:** By 2 tunnels: No. 1, 750 ft. long; No. 2, 550 ft. long; and an inclined shaft 100 ft long. **Ore:** Lead-silver. **Men employed:** Average, 4. **Remarks:** Active development work during the latter part of the year.

MAYFLOWER M. & D. CO.
Office: Mullan. **Officers:** J. H. Foss, Pres.-Mgr.; J. B. Wilcox, Sec., both of Mullan. **Inc.:** Sept. 27, 1915. **Capital:** 1,250,000 shares; par value $1; all shares issued. **Remarks:** Property sold to Golconda Lead Mines.

MILITARY MINING & MILLING CO., LTD.
Office: R. F. D. 4, Spokane, Wash. **Officers:** August Renkert, Pres.; George K. Renkert, Sec.-Mgr., both of Spokane, Wash. **Inc.:** April 30, 1907. **Capital:** 1,000,000 shares; par value $1; 569,000 shares issued. **Property:** 2 patented claims, Lelande dist.; Burke. **Development:** 2 tunnels: No. 1, 150 ft. long; No. 2, 100 ft. long. **Ore:** Copper.

MINERAL FARM MINING CO., LTD.
Office: Mullan. **Officers:** C. J. Carlson, Pres.-Mgr., 1215 Gem Ave., Spokane, Wash.; C. D. Miller, Sec., Mullan. **Inc.:** Aug. 28, 1903. **Capital:** 1,500,000 shares; par value $1; 798,676 shares issued. **Property:** Mineral Farm group; 8 patented claims, Hunter dist.; Mullan. **Development:** Principally by 1 tunnel 1200 ft. long. **Ore:** Lead-silver.

MINERAL POINT MINING CO.
Office: Wallace. **Officers:** H. E. Worstell, Pres.; Paul Leuschel, Sec., both of Wallace. **Inc.:** July 7, 1904. **Capital:** 1,200,000 shares; par value $1; 544,390 shares issued. **Property:** 1 patented, 7 unpatented claims, Evolution dist.; Osburn. **Ore:** Lead-silver. **Remarks:** Property under lease and option to Coeur d'Alene Mines Corporation.

MOE MINING CO., LTD.
Office: Wallace. **Officers:** W. K. Moe, Pres.-Mgr.; G. W. Dougherty, Sec., both of Wallace. **Inc.:** Apr. 8, 1922. **Capital:** 1,000,000 shares; par value 10c; all shares issued. **Property:** Gold Creek group; 12 unpatented claims, Hunter dist.; Mullan. **Development:** 3 tunnels: No. 1, 760 ft. long; No. 2, 1100 ft. long; No. 3, 1250 ft. long. **Ore:** Lead-silver-copper. **Men employed:** Average, 2. **Remarks:** This company is controlled by the president, who was actively engaged in advancing No. 4 tunnel as a drift on the vein. A stock assessment of 5 mills was levied on Nov. 8, 1928.

MOHAWK MINING CO.
Office: Kellogg. **Officers:** Karl F. Nelson, Pres.-Mgr.; M. A. Miller, Sec., both of Kellogg. **Inc.:** Sept. 8, 1927. **Capital:** 1,000,000 shares; par value 5c; 570,083 shares issued. **Property:** 5 unpatented claims, Yreka dist.; Kellogg. **Development:** By 3 tunnels: No. 1, 70 ft.; No. 2, 200 ft.; No. 3, 50 ft. **Plant:** Small water-driven compressor; complete mining equipment. **Ore:** Lead-silver.

MOONLIGHT MINING CO.
Office: Wallace. **Officers:** John F. Murphy, Pres.; John E. Ryan, Sec., both of Wallace. **Inc.:** Apr. 27, 1903. **Capital:** 1,500,000 shares; par value $1; 1,185,297 shares issued. **Property:** Moonlight group; 9 patented claims, Lelande dist.; Burke. **Development:** By 3 tunnels: No. 1, 640 ft.; No. 2, 2270 ft.; No. 3, or Trade Dollar, 3900 ft. **Ore:** Lead-silver. **Remarks:** Idle.

MULLAN MINING CO.
Office: Wallace. **Officers:** Charles M. Baillie, Pres.-Mgr.; L. L. Leighty, Sec., both of Wallace. **Inc.:** Nov. 10, 1899. **Capital:** 1,000,000 shares; par value 5c; 385,871 shares issued. **Property:** Mullan group; 2 patented, 1 unpatented claim, Hunter dist.; Mullan. **Development:** Approximately 2000 ft. of underground workings. **Ore:** Lead-silver. **Remarks:** A small amount of work during the year.

MURRAY HILL MINING CO.
Office: Jamieson Blk., Spokane, Wash. **Officers:** C. E. Mallette, Pres.; A. Brownlow, Sec., both of Spokane, Wash. **Inc.:** Nov. 20, 1914. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Black Horse group; 9 unpatented claims, Summit dist.; Murray. **Remarks:** Property under option to Paragon Mining Co.

MUTUAL MINES DEVELOPMENT CO.

Office: 312 Old Nat'l Bank Bldg., Spokane, Wash. **Officers:** Harley Little, Pres.-Mgr., Dishman, Wash.; Ben L. Collins, Sec., Spokane, Wash. **Inc.:** May 20, 1925. **Capital:** 2,000,000 shares; par value 10c; 1,145,494 shares issued. **Property:** 16 patented, 29 unpatented claims, of which 20 are owned; the remainder are held under lease and option from the Formosa Lead Mining Co., Ltd., the Deep Wonder Mining Co., and Messrs. Gus Kallman and Ed. Johnson; Hunter and Lelande dists.; Wallace. **Development:** Principally by 1 tunnel 2100 ft. long. Total development, over 10,000 ft. **Plant:** Electrically-driven compressor and complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 8. **Remarks:** New building erected and new electrically-driven compressor installed to replace the former equipment which was destroyed by fire in February. Excepting the time lost on account of the fire, this company maintained an active development campaign throughout the year.

NABOB SILVER LEAD CO.

Office: Wallace. **Officers:** C. G. Redfern, Pres., Spokane, Wash.; Herman J. Rossi, Mgr., Wallace. **Inc.:** June 29, 1923. **Capital:** 3,500,000 shares; par value 25c; 2,348,552 shares issued. **Property:** Nabob group; 3 patented, 22 unpatented claims, Yreka dist.; Kellogg. **Development:** By 4 tunnels: No. 1, 400 ft. long; No. 2, 700 ft. long; No. 3, 1500 ft. long; No. 4, 4700 ft. long; and a vertical shaft 300 ft. deep. **Plant:** 2 electrically-driven compressors; electrically-driven hoist; complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Remarks:** During the year the shaft was unwatered and 1200 ft. of development work performed by contract. The legal difficulties in which this company was involved in 1927 were settled. A stock assessment of 1c was levied on May 7, 1928.

NATIONAL LEAD MINING CO.

Office: Wallace. **Officers:** Stanly A. Easton, Pres., Kellogg; Leo J. Hoban, Sec., Wallace. **Inc.:** Sept. 21, 1910. **Capital:** 1,000,000 shares; par value $1; 520,000 shares issued. **Property:** 7 patented claims, Hunter dist.; Mullan.

NEVADA STEWART MINING CO.

Office: Kellogg. **Officers:** Alfred Page, Pres., Spokane, Wash.; M. J. Sinclair, Sec.-Mgr., Kellogg. **Inc.:** Nov. 22, 1915. **Capital:** 1,500,000 shares; par value 10c; 1,254,438 shares issued. **Property:** Nevada Stewart group; 9 unpatented claims, Pine Creek, Yreka dist.; Masonia. **Development:** Principally by 1 tunnel 1100 ft. long. **Plant:** Electrically-driven 2-drill Sullivan compressor; complete mining equipment. **Ore:** Zinc-lead-silver. **Remarks:** A small amount of work during the year. A stock assessment of 1 mill was levied on Apr. 14, 1928.

NEW HOPE MINING CO., LTD.

Office: Wallace. **Officers:** Eugene Thomas, Pres.-Mgr.; Otto A. Olsson, Sec., both of Wallace. **Inc.:** July 6, 1900. **Capital:** 1,000,000 shares; par value 5c; all shares issued. **Property:** New Hope group; 12 unpatented claims, Evolution dist.; Osburn. **Development:** By 3 tunnels: No. 1, 500 ft. long; No. 2, 1100 ft. long; No. 3, 300 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 1. **Remarks:** Annual labor only. A stock assessment of 2 mills was levied on Mar. 22, 1928.

NEW JERSEY CONSOLIDATED MINES CO.

Office: Wallace. **Officers:** William J. Stratton, Pres.; L. K. Stratton, Sec., both of Wallace. **Inc.:** June 20, 1928. **Capital:** 5,000,000 shares; par value 10c; 1,500,000 shares issued.

KING OF PINE CREEK GROUP

Property: King of Pine Creek group; 4 unpatented claims held under lease and option from King of Pine Creek Mining Co., Yreka dist.; Kellogg. **Development:** By 2 tunnels: No. 1, 380 ft. long; No. 2, 350 ft. long. **Ore:** Lead-zinc-silver. **Men employed:** Average, 8. **Remarks:** New blacksmith shop, compressor building, and hoist house constructed,

electrically-driven compressor and air-driven hoist installed, head-frame erected, and work commenced on sinking a 200-ft. vertical shaft. This is one of the principal new enterprises to be started in the Pine Creek district during the year.

NEW JERSEY GROUP

Property: New Jersey group; 6 patented claims held under lease and option, Big Creek, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel 1500 ft. long. **Remarks:** Small amount of development work throughout the year.

GLENWOOD GROUP

Property: 12 unpatented claims held under lease and option, Dago Peak, Evolution dist.; Osburn.

SUNNY DAY GROUP

Property: 4 unpatented claims held under lease and option; mineral lease from the State of Idaho on 160 acres; Yreka dist.; Kellogg.

NEW ROAD MINING CO.

Office: Mullan. **Officers:** Gust Lindroos, Pres.-Mgr.; D. R. Scott, Sec., both of Mullan. **Inc.:** May 1, 1922; charter forfeited Dec. 1, 1922. **Capital:** 1,000,000 shares; par value 10c; 10,000 shares issued. **Property:** New Road group; 2 unpatented claims, Hunter dist.; Mullan. **Ore:** Lead-silver. **Remarks:** Annual labor only.

NINE MILE MINING CO.

Office: Wallace. **Officers:** S. H. Linn, Pres., Kingston; Otto A. Olsson, Sec., Wallace. **Inc.:** Oct. 6, 1899. **Capital:** 2,000,000 shares; par value 10c; all shares issued. **Property:** Nine Mile group; 6 patented, 16 unpatented claims, Placer Center dist.; Wallace. **Development:** Approximately 5500 ft. of underground workings, the principal of which is No. 3 tunnel, 2000 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** Active throughout the year.

NONPAREIL COPPER MINING CO.

Office: Wallace. **Officers:** Harry C. McAllister, Pres.-Mgr.; Herman J. Rossi, Sec., both of Wallace. **Inc.:** Nov. 1, 1906. **Capital:** 1,500,000 shares; par value $1; 1,200,000 shares issued. **Property:** Nonpareil; 3 patented claims, Hunter dist.; Mullan. **Development:** 2 tunnels: No. 1, 380 ft. long; No. 2, 100 ft. long. **Ore:** Lead-silver. **Remarks:** Idle since 1916.

NORTH AMERICAN MINING & MILLING CO., LTD.

Office: Wallace. **Officers:** Winnifred Presley, Pres.; J. Clarence Presley, Sec.-Mgr., both of Wallace. **Inc.:** June 8, 1903. **Capital:** 1,500,000 shares; par value $1; 1,000,901 shares issued. **Property:** North American group; 23 patented, 3 unpatented claims, Big Creek, Yreka dist.; Kellogg. **Development:** 1 tunnel 2100 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor.

NORTH AMERICAN MINING & SMELTING CORPORATION

Office: Peyton Bldg., Spokane, Wash. **Officers:** Andrew Stevenson, Pres., Chicago, Ill.; Geo. S. Frost, Sec., Los Angeles, Calif.; N. E. McCall, Mgr., Spokane, Wash. **Inc.:** Never filed in Idaho. **Capital:** 7,500,000 shares; no par value; 10 shares issued. **Property:** West Mammoth group; 12 patented, 27 unpatented claims, held under lease and option from the West Mammoth Mining Co., Silver Moon Mining Co., Ltd., and Big Divide Mining Co., Ltd.; Lelande dist.; Mace. **Development:** Principally by 2 tunnels: No. 1, 1800 ft. long; No. 3, 2900 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 4. **Remarks:** A new organization which started development work in September.

NORTH BUNKER HILL MINING CO., LTD.

Office: Kellogg, Box 317. **Officers:** Elmer Brown, Pres.; N. T. Hardy, Sec.-Mgr., both of Kellogg. **Inc.:** Feb. 16, 1907. **Capital:** 1,250,000 shares; par value $1; all shares issued. **Property:** 4 patented claims, Yreka dist.; Wardner. **Development:** Over 10,000 ft. of underground workings. **Plant:** Electrically-driven I-R compressor; air-driven hoist and complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Active development work throughout the year.

NORTH FORK DEVELOPMENT CO.
Office: Wallace. **Officers:** Thure Olson, Pres.-Mgr.; John F. Ferguson, Sec., both of Wallace. **Inc.:** May 8, 1922. **Capital:** 1,000,000 shares; par value 10c; all shares issued. **Property:** 13 unpatented claims, Yreka dist.; Enaville. **Development:** Principally by 1 tunnel 3000 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of 5 mills was levied on May 19, 1928.

NORTH IDAHO MINING CO.
Office: Wallace. **Officers:** George Champagne, Mgr., Saltese, Mont.; G. W. Dougherty, Sec., Wallace. **Inc.:** March 14, 1900. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** 3 patented claims, Beaver dist.; Wallace. **Development:** By 2 tunnels: No. 1, 700 ft. long; No. 2, 50 ft. long. **Ore:** Lead-silver.

NORTHSIDE MINING CO.
Office: Wallace. **Officers:** A. M. White, Pres.; Ruth M. White, Sec., both of Wallace; Sarah M. Weigle, Mgr., Osburn. **Inc.:** Nov. 21, 1928. **Capital:** 1,750,000 shares; par value 1c; 1,540,000 shares issued. **Property:** 8 unpatented claims, Yreka dist.; Kellogg. **Development:** By 4 short tunnels. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** Small amount of development work during the year.

NORTH STAR MINING CO.
Office: 2117 E. Glass Ave., Spokane, Wash. **Officers:** John H. Hansen, Pres., Wallace; Chester A. Hansen, Sec., Spokane, Wash. **Inc.:** Mar. 16, 1899. **Capital:** 1,000,000 shares; par value $1; 322,825 shares issued. **Property:** North Star; 1 patented, 2 unpatented claims; St. Joe dist.; Falcon. **Development:** 2 tunnels: No. 1, 1500 ft. long; No. 2, 200 ft. long. **Ore:** Copper-gold-silver. **Remarks:** Annual labor only. A stock assessment of 1 mill was levied on Mar. 3, 1928.

NORTH STAR MINING & DEVELOPMENT CO.
Office: Wallace. **Officers:** D. E. Wherry, Pres., Yakima, Wash.; G. W. Dougherty, Sec.-Mgr., Wallace. **Inc.:** April 20, 1920. **Capital:** 1,250,000 shares; par value $1; 1,222,065 shares issued. **Property:** 5 unpatented claims, Placer Center dist.; Wallace. **Development:** Principally by 1 tunnel, 1300 ft. long. **Ore:** Lead-silver. **Remarks:** Tunnel extended 250 ft. during the year. Stock assessments were levied during 1928 as follows: Feb. 20, 1 mill; June 21, 2 mills; Sept. 8, 2 mills; Dec. 3, 2 mills.

NORTHERN LIGHT MINING & MILLING CO.
Office: 401 Court House, St. Paul, Minn. **Officers:** B. E. Harmon, Sec., St. Paul, Minn. **Inc.:** Feb. 26, 1915. **Capital:** 1,500,000 shares; par value 5c; 1,321,393 shares issued. **Property:** Northern Light; 1 patented claim, Pine Creek, Yreka dist.; Kellogg. **Remarks:** Idle since 1917.

NORTHWEST MINING & MILLING CO.
Office: Wallace. **Officers:** Patrick F. McGovern, Pres.; H. J. Rossi, Sec., both of Wallace. **Inc.:** April 6, 1917. **Capital:** 1,000,000 shares; par value 5c; 791,000 shares issued. **Property:** 3 patented claims, Placer Center dist.; Wallace. **Development:** Principally by 1 tunnel 500 ft. long, and an inclined shaft 150 ft. deep. **Ore:** Lead-silver.

OASIS MINING CO.
Office: Kellogg. **Officers:** A. C. Beal, Pres.-Mgr., Spokane, Wash.; L. L. Ruthruff, Sec., Orofino. **Inc.:** Aug. 15, 1925. **Capital:** 100,000 shares; par value $1; all shares issued. **Property:** Oasis group; 2 unpatented claims, Yreka dist.; Kellogg.

OLD VETERAN MINING CO.
Office: Wallace. **Officers:** M. J. Farrell, Pres., Burke; L. L. Brainard, Sec., Wallace. **Inc.:** March 11, 1915. **Capital:** 1,500,000 shares; par value 10c; 268,500 shares issued. **Property:** Old Veteran group; 8 unpatented claims, Lelande dist.; Burke. **Development:** Principally by 1 tunnel 2000 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.



MORNING MILL AND SURFACE PLANT, FEDERAL M. & S. CO.

OLYMPIC MINES

Office: Kellogg. **Officers:** F. O. Hatter, Pres., Spokane, Wash.; W. H. Lang, Sec., Kellogg. **Inc.:** Jan. 21, 1924, as Gold Eagle Mining Co., name changed Mar. 15, 1926. Charter forfeited Nov. 30, 1928. **Capital:** 2,000,000 shares; par value 10c; 900,000 shares issued. **Property:** Olympic group; 13 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 1 tunnel 265 ft. long. **Plant:** Electrically-driven compressor. **Ore:** Lead-zinc-silver. **Men employed:** Average, 6. **Remarks:** Active throughout the year. A stock assessment of 5 mills was levied on July 12, 1928.

OOM PAUL CONSOLIDATED MINING CO.

Office: Wallace. **Officers:** James F. McCarthy, Pres.-Mgr.; L. E. Hanley, Sec., both of Wallace. **Inc.:** April 29, 1907. **Capital:** 1,600,000 shares; par value $1; all shares issued. **Property:** Oom Paul group; 10 patented claims, Lelande dist.; Burke. **Development:** Over 5000 ft. of workings. **Plant:** Compressor and complete mining equipment. **Ore:** Lead-silver. **Remarks:** Idle throughout the year.

OREANO MINING CO., LTD.

Office: Wallace. **Officers:** Jerome J. Day, Pres.; P. J. Maggy, Sec., both of Wallace. **Inc.:** Nov. 10, 1902. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Oreano group; 5 patented claims, Lelande dist.; Burke. **Ore:** Lead-silver. **Remarks:** Absorbed by Sherman Lead Co.

PACIFIC MINING AND MILLING CO.

Office: Wallace. **Officers:** A. H. Featherstone, Sec., Wallace. **Inc.:** April 13, 1898. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** 3 patented claims, Lelande dist.; Gem. **Ore:** Lead-silver.

PARADISE MINES ASSOCIATION

Office: Wallace. **Officers:** Thomas Sheppard, Pres., Wallace; John A. Walker, Sec., Spokane, Wash. **Inc.:** A common-law trust. **Capital:** 10,000 shares; par value $10; 8500 shares issued. **Property:** Paradise group; 5 unpatented claims, Placer Center dist.; Wallace. **Development:** By 2 tunnels: No. 1, 941 ft. long; No. 2, 800 ft. long. **Plant:** Gas-driven compressor and complete mining equipment. **Ore:** Lead-silver. **Remarks:** Under lease and option to Paradise Mining Co., Inc.

PARADISE MINING CO., INC.

Office: 225 Peyton Blk., Spokane, Wash. **Officers:** Len Lussier, Pres.; S. W. Lazier, Sec.; John A. Walker, Mgr., all of Spokane. **Inc.:** Jan. 29, 1926. **Capital:** 1,000,000 shares; par value 10c; 500,000 shares issued. **Property:** Paradise group; 5 unpatented claims, Placer Center dist.; Wallace. Held under lease and option from the Paradise Mines Association. **Development:** By 2 tunnels: No. 1, 941 ft. long; No. 2, 800 ft. long. **Plant:** Laidlaw-Dunn-Gordon gas-driven compressor. **Men employed:** Average, 2. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of 3 mills was levied on Jan. 18, 1928.

PARAGON MINING CO.

Office: Commerce Bldg., St. Paul, Minn. **Officers:** George S. Monson, Pres.; F. O. Hammer, Sec., both of St. Paul, Minn.; Mrs. Theo. Furst, Mgr., Murray. **Inc.:** Sept. 20, 1901. **Capital:** 150,000 shares; par value $10; 130,125 shares issued. **Property:** Paragon group; 19 patented, 34 unpatented claims, Summit dist.; Murray. **Development:** Total development, approximately 19,000 ft. **Plant:** MINE: Electrically-driven compressor; air-driven hoist; complete mining equipment and camp. MILL: 100-ton concentrator. **Ore:** Lead-zinc-silver. **Remarks:** Idle throughout the year.

PARK COPPER & GOLD MINING CO., LTD.

Office: Wallace. **Officers:** O. W. Lewis, Pres.-Mgr.; N. J. Stockbridge, Sec., both of Wallace. **Inc.:** Aug. 25, 1899. **Capital:** 1,500,000 shares; par value 10c; 1,373,316 shares issued. **Property:** 6 patented claims; Stevens Peak, Hunter dist.; Mullan. **Ore:** Copper.

PEARSON MINING CO.
Office: Wallace. **Officers:** John F. Ferguson, Sec.; Harry P. Pearson, Mgr., both of Wallace. **Inc.:** April 26, 1920. **Capital:** 500,000 shares; par value $1; 320,561 shares issued. **Property:** 4 patented, 70 unpatented claims, St. Joe dist.; Falcon. **Development:** Principally by 1 tunnel 3800 ft. long. **Plant:** Water-driven Sullivan compressor; complete mining equipment and camp. **Ore:** Copper-gold. **Men employed:** Average, 2. **Remarks:** Mining operations were conducted without interruption throughout the year. Stock assessments were levied during 1928 as follows: Feb. 13, 10c; Aug. 13, 10c.

PIONEER MINING CO., LTD.
Office: Wallace. **Officers:** Herman Marquardt, Sec., Wallace; S. H. Linn, Mgr., Kingston. **Inc.:** Nov. 22, 1916. **Capital:** 1,500,000 shares; par value 25c; all shares issued. **Property:** Pioneer group; 12 unpatented claims, Beaver dist.; Wallace. **Ore:** Lead-silver. **Remarks:** Annual labor only.

PLAINVIEW MINING CO., INC.
Office: Wardner. **Officers:** Wm. Swinerton, Pres., Wardner; S. S. Gundlach, Sec., Wallace; L. E. Shaver, Mgr., Spokane, Wash. **Inc.:** Jan. 29, 1927. **Capital:** 1,500,000 shares; par value 10c; 929,500 shares issued. **Property:** Plainview group; 6 unpatented claims held under lease and option, Evolution dist.; Osburn. **Development:** By 1 tunnel 800 ft. long.

PLYMOUTH LEAD MINES CO.
Office: Wallace. **Officers:** Walter H. Hanson, Pres.; Herman Marquardt, Sec., both of Wallace. **Inc.:** May 16, 1923, as Caledonia Lead Mines Co.; name changed Oct. 13, 1923. **Capital:** 1,500,000 shares; par value $1; 1,212,000 shares issued. **Property:** 10 patented, 21 unpatented claims, consisting of 5 groups located in different sections of the Coeur d'Alene dist.; part of which are held under lease and option. **Plant:** Electrically-driven compressor and complete mining equipment on Cuba group. **Ore:** Lead-silver. **Remarks:** A small amount of work was performed on two of the properties controlled by this company during the year.

POLARIS DEVELOPMENT & MINING CO.
Officers: John F. Gearon, Sec.; Chester J. Howarth, Mgr., both of Wallace. **Inc.:** Dec. 10, 1915. **Capital:** 1,500,000 shares; par value $1; 1,000,000 shares issued. **Property:** 3 patented claims, Yreka dist.; Wallace. **Development:** Principally by 1 tunnel 2500 ft. long. **Plant:** Electrically-driven compressor and complete mining equipment. **Ore:** Lead-silver.

PONTIAC LAND & MINERAL CO.
Office: 318 Nat'l Bank Bldg., Pontiac, Mich. **Officers:** Arthur J. Schanck, Pres., Metamora, Mich.; M. E. Siple, Sec., Pontiac, Mich.; H. C. Stapleton, Mgr., Murray. **Inc.:** Feb. 7, 1928. **Capital:** 25,000 shares preferred, par value $10; 25,000 shares common, par value $10; 25,000 shares of no par value; 35,000 shares issued, kind unknown. **Property:** Lease on property of Chester Consolidated Mining Co. **Men employed:** Average, 5. **Remarks:** Small amount of development work during the latter part of the year.

PROGRESS GOLD MINING CO.
Office: Prichard. **Officers:** Harry Clark, Pres.; Harry Miller, Sec., both of Sprague, Wash.; D. M. Stairs, Mgr., Prichard. **Inc.:** Aug. 17, 1920. **Capital:** 1,000,000 shares; par value 10c; 414,692 shares issued. **Property:** Progress group; 17 unpatented claims, Summit dist.; Prichard. **Development:** By 6 short tunnels. **Ore:** Lead-silver. **Remarks:** Small amount of labor by lessees during the year.

PURITAN MINING CO., LTD.
Office: Wallace. **Officers:** Theodore Anderson, Pres., Lindsay, Calif.; C. A. Salberg, Sec.-Treas., Wallace. **Inc.:** Sept. 30, 1905. **Capital:** 1,500,000 shares; par value $1; 1,335,000 shares issued. **Property:** Puritan group; 5 patented claims, Placer Center dist.; Wallace. **Development:** Approximately 5000 ft. of crosscuts and drifts. **Remarks:** Idle throughout the year.

RAINBOW MINING & MILLING CO., LTD.
Office: 303 Mohawk Bldg., Spokane, Wash. **Officers:** Geo. Austin, Pres.-Mgr., Spokane; John F. Gearon, Sec., Wallace. **Inc.:** June 20, 1907. **Capital:** 2,000,000 shares; par value 25c; 1,418,426 shares issued. **Property:** 4 patented, 17 unpatented claims, Little North Fork dist., Kootenai County; and Evolution dist.; Osburn. **Development:** 1350-ft. crosscut on property in Shoshone County. **Plant:** Gas-driven I-R compressor, and complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** Annual labor only on Kootenai County property. A small amount of development work on Shoshone County property. Stock assessments were levied during 1928 as follows: Mar. 14, 4 mills; Aug. 23, 4 mills; Nov. 11, 4 mills.

RAMONA MINING CO.
Office: Kellogg. **Officers:** R. A. Brockman, Pres.-Mgr.; R. J. Coats, Sec., both of Kellogg. **Inc.:** Nov. 24, 1924. **Capital:** 1,000,000 shares; par value 25c; 783,216 shares issued. **Property:** Ramona group; 12 unpatented claims, Evolution dist.; Osburn. **Ore:** Lead-silver. **Remarks:** Idle.

RAVEN MINING CO., LTD.
Office: Wallace. **Officers:** W. T. McLachlin, Pres., Wardner; Franklin Pfirman, Sec., Wallace. **Inc.:** Nov. 13, 1907. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** 5 unpatented claims, Summit dist.; Murray. **Development:** Principally by 1 tunnel 1230 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Small amount of work during the year.

RAY JEFFERSON MINING CO.
Office: Wallace. **Officers:** D. C. Smith, Pres., Missoula, Mont.; P. J. Maggy, Sec., Wallace. **Inc.:** Mar. 31, 1910. **Capital:** 2,000,000 shares; par value 25c; all shares issued. **Property:** Ray Jefferson group; 32 patented, 9 unpatented claims, Beaver dist.; Wallace. **Developments:** Total development, 13,000 ft., consisting principally of a 3100-ft. crosscut. **Ore:** Lead-zinc-silver. **Men employed:** 1 watchman. **Remarks:** Annual labor only on unpatented claims. A stock assessment of 3½ mills was levied on May 21, 1928.

RED CLOUD MINING CO.
Office: Wallace. **Officers:** A. L. Honeker, Pres.; H. J. Rossi, Sec., both of Wallace. **Inc.:** Sept. 1, 1896. **Capital:** 500,000 shares; par value $1; 263,396 shares issued. **Property:** 1 patented claim, Yreka dist.; Kellogg.

REINDEER-QUEEN MINING CO.
Office: Wallace. **Officers:** J. F. Gearon, Pres.-Mgr.; G. A. Halvorson, Sec., both of Wallace. **Inc.:** Sept. 27, 1913. **Capital:** 2,000,000 shares; par value 10c; 466,401 shares issued. **Property:** Reindeer-Queen group; 3 patented, 12 unpatented claims, Hunter dist.; Mullan. **Development:** Principally by 5 tunnels: No. 1, 3100 ft. long; No. 5, 7700 ft. long. **Plant:** Water-driven compressor and complete mining equipment. **Ore:** Copper-lead-silver. **Remarks:** Annual labor only. A stock assessment of 10 mills was levied on Apr. 10, 1928.

RHODE ISLAND MINING CO., LTD.
Office: Wallace. **Officers:** A. G. Webb, Pres.; C. E. Clarke, Sec., both of Wallace. **Inc.:** July 13, 1900. **Capital:** 1,000,000 shares; par value 5c; all shares issued. **Property:** Rhode Island group; 4 unpatented claims, Evolution dist.; Wallace. **Development:** Approximately 900 ft. of workings. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only. A stock assessment of 1 mill was levied on May 18, 1928.

RICHMOND CONSOLIDATED MINING CO.
Office: 824 Old National Bank Bldg., Spokane. **Officers:** John B. White, Pres.; Fred J. Cunningham, Sec., both of Spokane. **Inc.:** June 29, 1923. **Capital:** 2,500,000 shares; par value 10c; all shares issued. **Property:** Richmond group; 7 patented claims, St. Joe dist.; Adair. **Development:** Approximately 8000 ft. of underground workings. **Ore:** Copper-gold. **Remarks:** During 1926, mine plant was dismantled and all operations were suspended.

ROANOKE MINING CO., LTD.

Office: Wallace. **Officers:** Henry L. Day, Pres.; John E. Ryan, Sec., both of Wallace. **Inc.:** Jan. 2, 1907. **Capital:** 1,500,000 shares; par value $1; 1,125,750 shares issued. **Property:** Roanoke group; 7 patented claims, Big Creek, Yreka dist.; Kellogg. **Development:** By 3 tunnels: No. 3, 650 ft. long; and an inclined shaft 340 ft. long, in which are 3 intermediate levels. **Plant:** Electrically-driven hoist. **Ore:** Lead-silver. **Men employed:** Average, 6. **Remarks:** Small amount of work performed during the year by a lessee. Stock assessments were levied during 1928 as follows: Jan. 31, 2½ mills; Oct. 17, 1 mill.

ROBERTS COEUR D'ALENE M. & M. CO.

Office: Mullan. **Officers:** T. W. Roberts, Pres.-Mgr., Mullan; Dorothy Roberts, Sec., Spokane, Wash. **Inc.:** Nov. 16, 1927. Charter forfeited Nov. 30, 1928. **Capital:** 100,000 shares; par value $1; 54,589 shares issued. **Property:** Sublease on property of Snow Storm Silver-Lead Co.

ROB ROY MINING CO.

Office: Wallace. **Officers:** John A. McLeod, Pres., Mullan; G. W. Dougherty, Sec., Wallace. **Inc.:** Feb. 16, 1907. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** 11 unpatented claims, Beaver dist.; Sunset. **Development:** By 1 tunnel 900 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only. Stock assessments were levied during 1928 as follows: May 28, 1 mill; Sept. 10, 1 mill; Nov. 13, 1 mill.

RUTH CONSOLIDATED MINING & MILLING CO.

Office: 727 Old National Bank Bldg., Spokane, Wash. **Officers:** C. M. Crego, Pres.; G. D. Crego, Sec., both of Spokane, Wash. **Inc.:** Sept. 15, 1906. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Ruth group; 7 patented claims, Placer Center dist.; Wallace. **Development:** By 2 tunnels: No. 1, 800 ft. long; No. 2, 3030 ft. long. **Plant:** Electrically-driven Laidlaw-Dunn-Gordon compressor; complete mining equipment. **Ore:** Lead-silver. **Remarks:** A small amount of development work during a period of 30 days.

SAINT LOUIS & IDAHO MINING & MILLING CO.

Office: Wallace. **Officers:** Russell F. Collins, Pres.-Mgr.; S. B. Collins, Sec., both of Wallace. **Inc.:** June 24, 1903. **Capital:** 1,000,000 shares; par value $1; 840,251 shares issued. **Property:** Saint Louis & Idaho group; 3 unpatented claims, Lelande dist.; Burke. **Development:** By 2 tunnels: No. 1, 1000 ft. long; No. 2, 2000 ft. long. **Ore:** Lead-silver.

SAMSON MINING & DEVELOPMENT CO., LTD.

Office: Wardner. **Officers:** D. W. Raines, Pres., Spokane; R. L. Brainard, Sec., Wardner. **Inc.:** Aug. 15, 1904. **Capital:** 1,000,000 shares; par value $1; 900,000 shares issued. **Property:** Samson group; 8 unpatented claims, Eagle dist.; Prichard. **Development:** Principally by 1 tunnel 1000 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Small amount of work during the year. A stock assessment of 2 mills was levied on July 10, 1928.

SENATOR MINING CO.

Office: Wallace. **Officers:** Rush J. White, Pres.-Mgr.; John J. Ferguson, Sec., both of Wallace. **Inc.:** May 3, 1920. **Capital:** 2,500,000 shares; par value 25c; 1,915,024 shares issued. **Property:** Senator group; 18 patented claims, Lelande dist.; Gem. **Remarks:** Under lease and bond to Coeur d'Alene Syndicate Mining Co., which see.

SHERMAN LEAD CO.

Office: Wallace. **Officers:** Jerome J. Day, Pres.; P. J. Maggy, Sec., both of Wallace. **Inc.:** Nov. 4, 1918. **Capital:** 3,500,000 shares; par value 25c. Increased Aug. 27, 1928, to 3,675,000 shares; par value 25c; all shares issued. **Property:** Sherman and Oreano groups; 9 patented claims, Lelande dist.; Burke. **Development:** Total development, over 20,000 ft., consisting principally of Sherman No. 5 tunnel, 5660 ft. long; Sherman No. 6 tunnel, 2000 ft. long; Oreano No. 2 tunnel, 5000 ft. long; and a 1000-ft. inclined raise connecting Sherman No. 6 tunnel and Oreano No. 2 tunnels. **Plant:** 2 electrically-driven hoists; trolley locomotive haul-

age and all mining equipment, furnished by Hercules Mining Co. **Ore:** Lead-silver. **Men employed:** Average, 55. **Remarks:** This company is one of the principal new mines to start production during the year. Its mine is connected with the No. 5 tunnel of the Hercules mine through the Humming Bird workings, and the ore was taken to the Hercules Mining Co.'s mill at Wallace for reduction. In addition to maintaining continuous output throughout the greater part of the year, a large amount of development work was performed.

SHRINE MINING CO.

Office: Kellogg. **Officers:** A. C. Beal, Pres.; Lester S. Harrison, Sec., both of Kellogg. **Inc.:** May 29, 1926. **Capital:** 2,000,000 shares; par value 5c; 1,000,000 shares issued. **Property:** 7 unpatented claims on Pine Creek, Yreka dist.; Masonia. **Development:** Principally by 1 tunnel 1400 ft. long. **Ore:** Lead-silver, antimony. **Men employed:** Average, 3. **Remarks:** Active throughout the year.

SIDNEY LEASING CO.

Office: Kellogg. **Officers:** J. B. Cox, Pres.; W. T. Simons, Sec., both of Kellogg. **Inc.:** Feb. 27, 1925. **Capital:** 25,000 shares; par value $1; 10,000 shares issued. **Property:** Lease on property of the Sidney Mining Co. **Plant:** 4½-mile aerial tramway; 538-cu.-ft. I-R electrically-driven compressor; electrically driven hoist; Waugh drill sharpener; complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Men employed:** Average, 56. **Remarks:** The company suffered a severe handicap through the destruction by fire of the upper terminal of its tramway. This retarded production, as well as decreasing the dividend payments from those made during previous years. The terminal was reconstructed, the shaft sunk an additional 200 ft. in depth, and a large amount of lateral development work performed, which greatly increased the ore reserves. The fact that this mine, located on Pine Creek, is being operated at a substantial profit, is significant in proving that the Pine Creek section of the Coeur d'Alene district is not without merit.

SIDNEY MINING CO.

Office: Kellogg. **Officers:** H. M. Ross, Pres., Seattle, Wash.; W. T. Simons, Sec., Kellogg. **Inc.:** June 20, 1910. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Sidney group; 8 patented, 10 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 6 tunnels: No. 1, 400 ft.; No. 3, 700 ft.; No. 5, 825 ft.; No. 6, 850 ft.; and an inclined shaft 350 ft. deep. **Ore:** Lead-zinc-silver. **Remarks:** Under lease to Sidney Leasing Co., which see.

SIERRA NEVADA CONSOLIDATED MINING CO.

Office: Kellogg. **Officers:** Stanly A. Easton, Pres.-Mgr.; C. W. Simmons, Sec., both of Kellogg. **Inc.:** May 21, 1887. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Sierra Nevada group; 5 patented claims, Yreka dist.; Kellogg. **Development:** Principally by 4 tunnels: No. 1, 4550 ft. long; No. 2, 275 ft. long; No. 3, 700 ft. long; No. 4, 625 ft. long. Total development, approximately 10,000 ft. **Ore:** Lead-silver. **Remarks:** Property under operation throughout the year by lessees, who produced and marketed a small tonnage of ore.

SILVER CLIFF GOLD & COPPER MINING CO., LTD.

Office: Wallace. **Officers:** Sidney L. Shonts, Pres.; Ed. C. Young, Sec.-Mgr., both of Wallace. **Inc.:** Oct. 6, 1900. **Capital:** 1,500,000 shares; par value $1; 1,416,000 shares issued. **Property:** Silver Cliff group; 19 unpatented claims, Hunter dist.; Mullan. **Development:** Over 2 miles of underground workings. **Plant:** An old water-driven compressor. **Ore:** Copper-silver. **Men employed:** Average, 2. **Remarks:** Annual labor only.

SILVER CRESCENT MINING CO.

Office: Wallace. **Officers:** James Mohr, Pres.-Mgr.; D. M. Faires, Sec., both of Wallace. **Inc.:** Oct. 19, 1911, as Placer Creek Silver-Lead Mining & Milling Co.; name changed Aug. 31, 1922. **Capital:** 1,000,000 shares; par value $1; 500,000 shares issued. **Property:** Silver Crescent group; 9 unpatented claims, on Moon Creek, Yreka dist.; Kellogg.

SILVER EAGLE MINING CO., LTD.

Office: Wallace. **Officers:** John J. Hogus, Pres.; C. W. Betts, Sec., both of Wallace. **Inc.:** Nov. 12, 1906. **Capital:** 1,000,000 shares; par value $1; 656,110 shares issued. **Property:** Silver Eagle group; 11 patented claims, Placer Center dist.; Wallace. **Development:** 4 tunnels: No. 1, 900 ft. long; No. 2, 400 ft. long; No. 3, 400 ft. long; No. 4, 300 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Principal tunnel extended 100 ft. during the year.

SILVER MOON MINING CO., LTD.

Office: Palmerston Hotel, Spokane, Wash. **Officers:** H. C. Lambach, Pres.; Gus Ehrenberg, Sec., both of Spokane, Wash. **Inc.:** Aug. 31, 1906. **Capital:** 1,500,000 shares; par value $1; 708,394 shares issued. **Property:** Silver Moon group; 9 unpatented claims, Leland dist.; Gem. **Development:** Principally by 1 tunnel 2850 ft. long. **Plant:** Electrically-driven 200-cu.-ft. compressor; complete mining equipment. **Ore:** Lead-silver. **Remarks:** Annual labor only. Under lease and option to North American Mining & Smelting Corporation.

SILVER STANDARD MINING CO.

Office: E. 604 Heroy Ave., Spokane, Wash. **Officers:** S. L. Shaw, Pres.; Mrs. C. M. Shaw, Sec., both of Spokane. **Inc.:** Unknown; never filed in Idaho. **Capital:** 2,000,000 shares; par value 25c; 262,240 shares issued. **Property:** 11 unpatented claims, Evolution dist.; Osburn. **Development:** By 2 tunnels: No. 1, 411 ft. long; No. 2, 560 ft. long. **Plant:** Water-driven Sullivan compressor. **Ore:** Lead-silver. **Remarks:** Annual labor only.

SILVER SUMMIT MINING CO.

Office: Wallace. **Officers:** Harry P. Pearson, Pres.-Mgr., Wallace. **Inc.:** Mar. 7, 1927. **Capital:** 1,500,000 shares; par value $1; shares issued, unknown. **Property:** Coeur d'Alene-Jumbo group; 21 unpatented claims, Evolution dist.; Osburn. **Development:** Over 1500 ft. of underground workings. **Ore:** Lead-silver. **Men employed:** Average, 8. **Remarks:** During the year work was started on a 4000-ft. crosscut which will intersect the vein 1600 ft. below the upper workings; it was advanced 400 ft. Property under option to and being financed by Stratton & Stratton through the sale of options.

SISTER MINING & MILLING CO., LTD.

Office: 1160 Winston Ave., San Marino, Calif. **Officers:** Frank P. Markwell, Pres., Los Angeles, Calif.; Everett H. Pattison, Sec., San Marino, Calif. **Inc.:** Dec. 12, 1899. **Capital:** 1,500,000 shares; par value 10c; all shares issued. **Property:** Sister group; 7 patented claims, Placer Center dist.; Wallace. **Development:** By 4 tunnels: No. 1, 108 ft.; No. 2, 1069 ft.; No. 3, 2500 ft.; No. 4, 209 ft.; a 210-ft. raise, and a 264-ft. vertical shaft. **Ore:** Lead-zinc-silver. **Remarks:** Idle.

SLAVONIAN MINING CO.

Office: Wallace. **Officers:** Risto V. Kojovich, Pres.-Mgr., Wardner; G. W. Dougherty, Sec., Wallace. **Inc.:** Nov. 26, 1910. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** 4 unpatented claims, Yreka dist.; Wardner. **Development:** Principally by 1 tunnel 1200 ft. long. **Ore:** Lead-silver. **Remarks:** A small amount of development work during the year with a power connection from the Last Chance compressor of the Bunker Hill & Sullivan M. & C. Co. A stock assessment of ½ mill was levied on June 15, 1928.

SMUGGLER CONSOLIDATED MINING CO.

Office: 8 Germond Bldg., Spokane, Wash. **Officers:** D. Holman, Pres.; J. A. Reubens, Sec., both of Spokane. **Inc.:** June 29, 1927. **Capital:** 1,000,000 shares; par value 10c; 338,500 shares issued. **Property:** Smuggler group; 4 patented claims, Lelande dist.; Burke. **Ore:** Lead-silver. **Remarks:** Idle.

SNOWSHOE MINING CO.
Office: Wallace. **Officers:** Walter H. Hanson, Pres.; Herman Marquardt, Sec., both of Wallace. **Inc.:** Sept. 30, 1903. **Capital:** 2,000,000 shares; par value $1; 260,000 shares issued. **Property:** Snowshoe; 8 patented claims, Hunter dist.; Mullan. **Development:** Approximately 4000 ft. of workings, the principal of which are No. 2 tunnel, 3000 ft. long, and No. 1 tunnel, 900 ft. long. **Plant:** Electrically-driven 3-drill compressor. **Ore:** Copper-silver. **Remarks:** Idle.

SNOW STORM LEASING CO.
Office: Wallace. **Officers:** Wm. Ziegler, Pres., Mullan; W. J. Stratton, Sec., Wallace. **Inc.:** Feb. 19, 1925; charter forfeited Dec. 1, 1925. **Capital:** 50,000 shares; par value $1; all shares issued. **Property:** Lease on property of Snow Storm Silver Lead Co. **Remarks:** Sub-leased to Roberts Coeur d'Alene Mining & Milling Co.

SONORA MINING & MILLING CO.
Office: Wallace. **Officers:** Otto Dubach, Pres., Gem; G. L. Richardson, Sec.-Mgr., Wallace. **Inc.:** Nov. 5, 1897. **Capital:** 1,000,000 shares; par value $1; 743,339 shares issued. **Property:** Sonora group; 11 patented, 4 unpatented claims, Lelande dist.; Burke. **Development:** Principally by 1 tunnel 5000 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Small amount of work during the year. Stock assessments were levied during 1928 as follows: June 6, 2 mills; Aug. 24, 2 mills.

SPOKANE TUNNEL MINING CO.
Office: Wallace. **Officers:** John I. Johnson, Pres.-Mgr.; Otto A. Olsson, Sec., both of Wallace. **Inc.:** Oct. 29, 1906. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** 3 unpatented claims, Placer Center dist.; Wallace. **Development:** Approximately 1200 ft. of workings. **Ore:** Lead-silver. **Remarks:** Annual labor only.

SQUARE DEAL MINING & MILLING CO., LTD.
Office: Wallace. **Officers:** A. J. Dunn, Pres.-Mgr.; M. K. Howes, Sec., both of Wallace. **Inc.:** Oct. 29, 1906. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Square Deal group; 10 unpatented claims, Hunter dist.; Wallace. **Development:** By 3 tunnels: No. 1, 150 ft.; No. 2, 600 ft.; No. 3, 800 ft. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** A small amount of work during the year. A stock assessment of ¾ mill was levied on May 26, 1928.

STANLEY MINING CO.
Office: Wallace. **Officers:** John H. Wourms, Pres., Wallace. **Inc.:** Apr. 16, 1926. **Capital:** 1,500,000 shares; par value 10c; all shares issued. **Property:** Stanley group; 13 patented, 2 unpatented claims, Lelande dist.; Burke. **Development:** By 3 tunnels: No. 1, 290 ft. long; No. 2, 950 ft. long; No. 3, 1630 ft. long. **Ore:** Antimony-gold. **Remarks:** A reorganization of the Stanley Consolidated Mining & Milling Co. Annual labor on unpatented claims.

STAR MINING CO.
Office: 504 Empire State Bldg., Spokane, Wash. **Officers:** W. J. C. Wakefield, Pres.; Charles Hussey, Sec., both of Spokane, Wash.; James F. McCarthy, Mgr., Wallace. **Inc.:** Sept. 17, 1900. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Star; 15 patented claims, Hunter dist.; Mullan. **Ore:** Silver-lead-zinc. **Remarks:** Property sold to Sullivan Mining Co. This company is being held together for the purpose of distributing the funds received from the sale.

STERLING MINING CO., LTD.
Office: Wallace. **Officers:** Mrs. Winnefred Presley, Pres.; J. Clarence Presley, Sec.-Mgr., both of Wallace. **Inc.:** Feb. 21, 1903. **Capital:** 1,500,000 shares; par value $1; 970,000 shares issued. **Property:** 13 unpatented claims, Evolution dist.; Wallace. **Development:** 1 tunnel, 600 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

STERLING SILVER MOUNTAIN MINING CO., LTD.

Office: 323 Lindelle Blk., Spokane, Wash. **Officers:** R. L. Brainard, Pres., Wardner; Matt Baumgartner, Sec.-Mgr., Spokane, Wash. **Inc.:** Oct. 22, 1919. **Capital:** 2,000,000 shares; par value 5c; 1,537,500 shares issued. **Property:** 17 unpatented claims, Big Creek, Evolution dist.; Kellogg. **Development:** Principally by 1 tunnel, 1500 ft. long. **Plant:** 5x5 I-R gas-driven compressor. **Ore:** Lead-silver. **Remarks:** Annual labor only.

SUCCESS MINING CO., LTD.

Office: Wallace. **Officers:** Dan P. Mahoney, Pres., Perma, Mont.; H. H. Miller, Sec., Wallace. **Inc.:** April 7, 1905. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Success group; 8 patented claims, Placer Center dist.; Wallace. **Development:** Principally by 3 tunnels: No. 1, 1320 ft. long; No. 2, 4585 ft. long; No. 3, 3360 ft. long; and a vertical shaft 1070 ft. deep, with 8 intermediate levels; total development, approximately 25,700 ft. **Plant:** MINE: Electrically-driven double-drum hoist; 2 electrically-driven compressors; complete mining equipment. MILL: 300-ton concentrator, including flotation and magnetic separation. **Ore:** Lead-zinc-silver. **Remarks:** In July, 1926, all operations were suspended, underground equipment was removed, and part of the mining and milling equipment was disposed of.

SULLIVAN MINING CO.

Office: Kellogg. **Officers:** Stanly A. Easton, Pres.; C. W. Simmons, Sec., both of Kellogg. **Inc.:** May 22, 1917. **Capital:** 500,000 shares; par value $3; 37,448 shares issued. **Property:** Star group; 23 patented claims, Hunter and Lelande dists.; Burke. **Development:** By a crosscut tunnel known as "Star crosscut," over 4000 ft. of drifting on vein, and a 1500-ft. vertical raise. The Star crosscut is on the 2000-ft. level of the Hecla mine and it is 8900 ft. long. **Plant:** MINE: All mine equipment furnished by Hecla Mining Co. MILL: All ore is milled by Bunker Hill & Sullivan M. & C. Co. in its South mill at Kellogg. ELECTROLYTIC ZINC PLANT: See Twenty-ninth Ann. Rept. of Mining Industry of Idaho and Dec. 1, 1928, issue of Engineering & Mining Journal for complete illustrated description. **Ore:** Lead-zinc-silver. **Men employed:** Average, 30 at mine and 250 at zinc plant.

REMARKS

In 1916 the Bunker Hill & Sullivan M. & C. Co. secured an option on the Star mine from the Star Mining Co.; as the most feasible method of opening this mine was through the Hecla mine, the Hecla Mining Co. was offered and accepted a 50 per cent interest in the option.

The Sullivan Mining Co. was then formed to take over the Star option and to operate the mine. After litigation to perfect title to the Star vein system was settled in favor of the Star Mining Co., the Star crosscut was started and continued without interruption, excepting the time lost from July 13, 1923, to March 1, 1924, as a result of the Burke fire.

On November 13, 1925, the Star ore body was encountered at a point 1650 ft. west of the east end-line, and at a depth of 4000 ft. below the apex of the vein. After encountering the ore body development work continued, and during 1925 it was opened the entire distance of 1650 ft. and a connection was made with the 2250 level of the Morning mine of the Federal Mining & Smelting Co. On account of the great depth of the Star crosscut, the development work necessary to open the mine for the extraction of ore involved a large amount of drifting and raising. This work progressed throughout 1928 and the principal raise was extended to the Star tunnel. The Star crosscut is 4000 ft. below the apex and about 70 ft. below the 2250-ft. level of the Morning mine; the Morning vein has been proved to the 3450-ft. level, and as the Morning and Star veins are conceded to be the same, it is evident that the Star mine contains an ore body of tremendous size. An authorized statement made during 1926 was to the effect that: "At the present capacity (475 tons per day) there is sufficient proven ore in the Star mine to assure it a life of 50 years."

No ore was produced during 1928. The zinc plant was completed and formally placed in operation on June 24, and the first metallic zinc was produced on August 3. The metal produced by this plant is of exceptionally high grade and is finding a ready market at an increase in price over that of any other zinc metal. This part of the Sullivan Mining Co. now constitutes one of the largest and most important enterprises in the Pacific Northwest, and one which assures the perpetuation of the mining industry in Shoshone County.

SUNRISE MINES CO.

Office: 215 Waverly Place, Spokane, Wash. **Officers:** Josephine Kratzer, Pres.; C. Fred Kratzer, Sec.-Mgr., both of Spokane, Wash. **Inc.:** Sept. 17, 1928. **Capital:** 1,500,000 shares; par value 10c; all shares issued. **Property:** 2 patented, 11 unpatented claims, Beaver dist.; Wallace. **Development:** By 6 tunnels, the principal one of which is 1500 ft. long. **Ore:** Lead-zinc-silver.

SUNSET MINING CO.

Office: 781 Corbett St., Portland, Ore. **Officers:** A. H. Ruedy, Pres., Oakland, Calif.; E. G. Ruedy, Sec., Portland, Ore. **Inc.:** Mar. 3, 1926. **Capital:** 500,000 shares; par value $1; 352,403 shares issued. **Property:** 9 patented, 2 unpatented claims, Placer Center and Beaver dists.; Wallace. **Development:** By 2 tunnels: No. 1, 810 ft. long; No. 2, 220 ft. long. **Plant:** 10x10 electrically-driven compressor. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

SUNSHINE MINING CO.

Office: Yakima, Wash. **Officers:** John Sawbridge, Pres.; F. H. Church, Sec., both of Yakima, Wash.; C. C. Samuels, Mgr., Kellogg. **Inc.:** Jan. 3, 1921. **Capital:** 1,500,000 shares; par value 10c; 1,488,792 shares issued. **Property:** Yankee group; 5 patented, 15 unpatented claims, Yreka dist.; Kellogg. **Development:** Principal development by 5 tunnels: No. 1, 100 ft. long; No. 2, 170 ft. long; No. 3, 800 ft. long; No. 4, 1000 ft. long; No. 5, 3000 ft. long; 1 vertical shaft 500 ft. deep, located in No. 5 tunnel; and 1 inclined shaft 450 ft. long, in No. 5 shaft-level. **Plant:** MINE: 2 I-R compressors, 1 Burry compressor, 2 hoists, all electrically driven; complete mining equipment, buildings, and camp. MILL: 100-ton concentrator, including fine grinding and flotation. **Ore:** Lead-silver. **Men employed:** Average, 113.

REMARKS

This company improved its mine and mill plants, installed a new electrically-driven hoist at the winze on the 500-ft. level, and constructed a new boarding house. The extension of the winze from the 700 to the 900-ft. level was completed and the ore opened on both of these levels, at which points it proved to be of greater extent and value than at any of the upper levels. In addition to the foregoing, a large amount of lateral development on the various levels was performed. This work greatly increased the ore reserves. The payment of dividends, which was startd in 1927, was continued throughout the year.

The developing of the Sunshine into a dividend-paying mine is of vast importance to the "south side" section of the Coeur d'Alene district in which it is located. This section has always been frowned upon and considered as unlikely for ore bodies of commercial importance, but this mine has upset all of the theories, and as a result much new development work in this section was started and carried on with much vigor throughout the year.

SUNSHINE MINING CO., LTD.

Office: Wallace. **Officers:** D. C. Smith, Pres., Missoula, Mont.; H. J. Hull, Sec., Wallace. **Inc.:** Jan. 5, 1907. **Capital:** 2,700,000 shares; par value $1; 1,395,129 shares issued. **Property:** Sunshine group; 4 patented, 14 unpatented claims, Beaver dist.; Wallace. **Development:** Over 6000 ft. of underground workings. **Plant:** Electrically-driven I-R 5-drill compressor; complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

SYNDICATE MINING & EXPLORATION CO., LTD.

Office: Kellogg. **Officers:** Ed. Lagerstrom, Pres.; J. L. Moore, Sec., both of Kellogg. **Inc.:** June 24, 1907. **Capital:** 1,500,000 shares; par value 25c; 742,526 shares issued. **Property:** 7 unpatented claims, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel, 1460 ft. long. **Ore:** Lead-silver. **Remarks:** Principal tunnel was extended a short distance during the year. Stock assessments were levied during 1928 as follows: Jan. 3, 1 mill; Mar. 1, 1 mill; May 28, 1 mill; Aug. 27, 1 mill.

TAMARACK & CUSTER CONSOLIDATED MINING CO.

Office: Wallace. **Officers:** Jerome J. Day, Pres.-Mgr.; Harry L. Day, Sec., both of Wallace. **Inc.:** Aug. 6, 1912. **Capital:** 5,000,000 shares; par value $1; all shares issued. **Property:** Tamarack & Custer; 56 patented, 2 unpatented claims, Lelande and Placer Center dists.; Gem. **Development:** The three principal tunnels are: No. 5, 12,300 ft. long; No. 6 (400-ft. level), 7900 ft. long; and No. 7 (1200-ft. level), 10,000 ft. long. The principal shaft is a 3-compartment, vertical shaft, 600 ft. deep; and a 3-compartment raise 800 ft. long connecting No. 6 and No. 7 tunnels. Total development, approximately 14 miles. **Plant:** MINE: 100-h. p. electrically-driven hoist; 3 1300-cu.-ft. electrically-driven compressors; storage battery haulage on intermediate levels and trolley locomotive haulage on main levels. Complete mining equipment. Modern and complete machine shop. Modern hotel, change houses, and camp. MILL: 500-ton concentrator, including flotation. During the year milling was discontinued and the mill partly dismantled. **Ore:** Lead-silver-zinc. **Men employed:** Average, 225. **Remarks:** This company is one of the substantial producing mines of the Coeur d'Alene district; it maintained a steady output and an extensive mine development campaign throughout the year. During the year a sorting plant was installed at the portal of No. 7 tunnel; the mill and tramway were abandoned, and No. 7 tunnel was converted into the outlet for the ore, whence it was transported to railroad cars and then to the Hercules Mining Co.'s mill at Wallace, which began to treat the entire output from this mine.

TEDDY MINING & MILLING CO., LTD.

Office: Kellogg. **Officers:** T. R. Mason, Pres.; S. M. Marchesi, Sec., both of Kellogg. **Inc.:** Dec. 1, 1904. **Capital:** 1,000,000 shares; par value $1; 770,000 shares issued. **Property:** Teddy group; 9 unpatented claims, Yreka dist.; Kellogg. **Development:** Over 1800 ft. of tunnels, the principal one of which is approximately 800 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** Small amount of work throughout the year. A stock assessment of 3 mills was levied on July 16, 1928.

TIBERIUS MINING CO.

Office: Moscow. **Officers:** S. H. Knepper, Pres.; Samuel Owings, Treas., both of Moscow. **Inc.:** Mar. 9, 1916. **Capital:** 1,000,000 shares; par value 10c; 611,450 shares issued. **Property:** 40 acres of patented land on Pine Creek, Yreka dist.; Kellogg. **Ore:** Lead-zinc-silver.

TRADE DOLLAR MINING CO., LTD.

Office: 1160 Winston Ave., San Marino, Calif. **Officers:** Morton Webster, Pres., Wallace; Everett H. Pattison, Sec., San Marino, Calif. **Inc.:** Oct. 18, 1901. **Capital:** 1,000,000 shares; par value 10c; all shares issued. **Property:** Trade Dollar group; 6 patented claims, Lelande dist.; Burke.

TRAPPER MINING & SMELTING CO., LTD.

Office: Insurance Bldg., Wallace. **Officers:** Herman J. Rossi, Pres.-Mgr.; R. C. Russell, Sec., both of Wallace. **Inc.:** Dec. 14, 1906. **Capital:** 1,500,000 shares; par value $1; 861,047 shares issued. **Property:** 8 patented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 1 tunnel 700 ft. long. **Ore:** Lead-zinc-silver.

TREASURE VAULT MINING CO., LTD.

Office: Wallace. **Officers:** P. J. Maggy, Pres.; W. A. Devan, Sec., both of Wallace. **Inc.:** Oct. 29, 1906. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Treasure Vault group; 4 patented claims, Placer Center dist.; Sunset. **Ore:** Lead-silver. **Remarks:** Idle.

TUCKER MINING & MILLING CO.

Office: Wallace. **Officers:** Peter Bahn, Pres.-Mgr.; W. R. Turner, Sec., both of Wallace. **Inc.:** Mar. 30, 1907. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Tucker group; 6 unpatented claims, Hunter dist.; Mullan. **Development:** Principally by 1 tunnel which is 1300 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

UNITED METALS CO.

Office: Wallace. **Officers:** M. W. Neary, Pres.-Mgr., San Francisco, Calif.; A. G. Kennedy, Sec., Wallace. **Inc.:** Sept. 2, 1924. **Capital:** 2,000,000 shares; par value 50c; 746,950 shares issued. **Property:** 61% of stock of Black Bear Mines Co.; property of Western Pacific Mining Co., Goodenough Mining Co., and Bell Mining Co. held under 50-yr. lease. 36 patented, 14 unpatented claims, Lelande and Hunter dists.; Wallace. **Development:** Principally by 2 tunnels: No. 1, 800 ft. long; No. 2, or Black Bear, 4000 ft. long. **Plant:** Electrically-driven 3-drill compressor; complete mining equipment. **Ore:** Lead-zinc-silver. **Men employed:** Average, 6. **Remarks:** Active for 4 months.

VENDETTA CHIEF MINING CO.

Office: Wallace. **Officers:** John Lillie, Pres., Murray; Helen C. McPhee, Sec., Wallace. **Inc.:** Mar. 13, 1924. **Capital:** 1,000,000 shares; par value 10c; 300,000 shares issued. **Property:** 3 unpatented claims, Summit dist.; Murray. **Development:** 2 tunnels: No. 1, 300 ft. long; No. 2, 275 ft. long. **Ore:** Lead-silver-gold. **Remarks:** Annual labor only.

VIENNA-INTERNATIONAL MINING & MILLING CO., LTD.

Office: Wallace. **Officers:** A. H. Featherstone, Pres.; R. A. Marshall, Sec., both of Wallace. **Inc.:** Sept. 10, 1906. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Vienna International; 4 patented claims, Placer Center dist.; Wallace. **Development:** Approximately 1300 ft. of tunnels. **Ore:** Lead-silver. **Remarks:** Idle for several years.

VINDICATOR MINING CO.

Office: 2122 Dwight Way, Berkeley, Calif. **Officers:** Kathryn Powers, Pres.; Grace Powers, Sec., both of Berkeley, Calif. **Inc.:** June 9, 1902. **Capital:** 1,000,000 shares; par value 10c; 323,462 shares issued. **Property:** 5 unpatented claims, Hunter dist.; Mullan. **Development:** By 1 tunnel 1100 ft. long. **Remarks:** A small amount of development by 2 lessees.

WALL STREET MINING CO.

Office: Wallace. **Officers:** C. A. Pooley, Pres.-Mgr.; C. Fred Kratzer, Sec., both of Spokane, Wash. **Inc.:** Apr. 20, 1907. **Capital:** 1,250,000 shares; par value $1; all shares issued. **Property:** 17 unpatented claims, Hunter dist.; Mullan. **Development:** Principally by 3 tunnels, the longest of which is 1400 ft. **Plant:** Electrically-driven compressor; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Small amount of work during the year. A stock assessment of 7 mills was levied on May 7, 1928.

WASHINGTON-IDAHO MINING CO.

Office: 29 E. 17th Ave., Spokane, Wash. **Officers:** Dr. James Murray, Pres., Hayden Lake; A. B. Thomson, Sec.; Thos. Murray, Mgr., both of Spokane, Wash. **Inc.:** Oct. 21, 1927. **Capital:** 2,500,000 shares; par value 10c; 1,004,248 shares issued. **Property:** Crescent group; 21 unpatented claims, held under lease and option from the Crescent Mining & Milling Co.; Moon Creek, Yreka dist.; Kellogg. **Ore:** Lead-zinc-silver.

WEST BELL MINING CO., LTD.

Office: Wallace. **Officers:** Oscar J. Nordquist, Pres.; Otto A. Olsson, Sec., both of Wallace. **Inc.:** May 8, 1899. **Capital:** 1,000,000 shares; par value 5c; all shares issued. **Property:** West Bell group; 5 patented claims, Lelande dist.; Black Bear. **Development:** 1 tunnel, 2300 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 1. **Remarks:** Small amount of development work during the year. A stock assessment of 2½ mills was levied on Jan. 11, 1928.

WEST FEDERAL MINING CO.
Officers: Ray Morrison, Sec., Kellogg. **Inc.:** Mar. 9, 1928. **Capital:** 1,000,000 shares; par value 50c; 750,000 shares issued. **Property:** 12 unpatented claims, Hunter dist.; Wallace.

WEST GEM MINING CO.
Office: 1160 Winston Ave., San Marino, Calif. **Officers:** J. Fred Markwell, Pres., Sanger, Calif.; E. H. Pattison, Sec., San Marino, Calif. **Inc.:** Feb. 1, 1912. Charter forfeited Nov. 30, 1927. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** 1 patented claim, Lelande dist.; Wallace.

WEST HECLA MINING CO.
Office: Spokane, Wash., Box 1620. **Officers:** Dr. T. A. Russell, Pres.; J. V. Pohlman, Sec., both of Spokane, Wash. **Inc.:** Feb. 18, 1907. **Capital:** 1,500,000 shares; par value $1; 1,450,000 shares issued. **Property:** 3 patented claims, Lelande dist.; Burke. **Development:** Principally by 1 tunnel 1650 ft. long. **Ore:** Lead-silver.

WEST HUNTER MINING CO., LTD.
Office: Wallace. **Officers:** T. B. Cosgrove, Pres.-Mgr., Mullan; Carlyle Babbitt, Sec., Wallace. **Inc.:** July 29, 1915. **Capital:** 1,500,000 shares; par value 10c; all shares issued. **Property:** 1 patented, 9 unpatented claims, Hunter dist.; Mullan. **Development:** About 2700 ft. of tunnels. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Annual labor only. Involved in litigation. A stock assessment of 5 mills was levied on Mar. 24, 1928.

WEST MAMMOTH MINING CO.
Office: 2404 W. 2d Ave., Spokane, Wash. **Officers:** H. C. Lambach, Pres., Seattle, Wash.; A. A. Booth, Sec., Spokane. **Inc.:** July 30, 1926. **Capital:** 1,500,000 shares; par value 25c; 1,132,000 shares issued. **Property:** Lease and option on property owned by Headlight Mining Co., Ltd., and Big Divide Mining Co., Ltd. **Development:** By 2 tunnels: Headlight, 1300 ft long; Silvermoon, 2190 ft. long. **Plant:** Electrically-driven compressor; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 6. **Remarks:** Property under lease and option to North American Mining & Smelting Corporation.

WESTERN MINES, LTD.
Office: 602 Sherwood Bldg., Spokane, Wash. **Officers:** J. B. Ellis, Pres.-Mgr., Spokane, Wash.; C. E. Collier, Sec., Wallace. **Inc.:** Mar. 16, 1928. **Capital:** 5,000,000 shares; par value $1; 2,000,000 shares issued. **Property:** Lease and option on property of Bell of the West Mining Co. **Remarks:** During the year 2 large boarding and bunk houses, office buildings, blacksmith shop, and compressor building were constructed, electrically-driven hoist and compressor installed, and complete mining equipment installed preparatory to starting an active development compaign.

WESTERN PACIFIC MINING CO.
Office: Wallace. **Officers:** J. Fred Markwell, Sec., Sanger, Calif. **Inc.:** Apr. 6, 1922. **Capital:** 2,500,000 shares; par value 10c; all shares issued. **Property:** 10 patented, 2 unpatented claims, Lelande dist.; Burke. Under option to United Metals Co.

WESTERN UNION MINING CO.
Office: Wallace. **Officers:** Harry L. Day, Pres.-Mgr.; W. B. Heitfield, Sec., both of Wallace. **Inc.:** Jan. 27, 1916. **Capital:** 2,000,000 shares; par value 10c; 1,997,656 shares issued. **Property:** Western Union group; 11 patented, 19 unpatented claims, Evolution dist.; Wallace. **Development:** Principally by 4 tunnels: No. 3, 3000 ft. long, and No. 4, 7000 ft. long; and a vertical shaft 477 ft. deep, with 4 intermediate levels. Total development, approximately 18,000 ft. **Plant:** I-R and Gardner-Ricks electrically-driven compressors; air-driven hoist; complete mining equipment and camp. **Ore:** Lead-silver. **Remarks:** Mine operated throughout the year by lessees, who produced a small tonnage of ore. Press reports indicated that an important disclosure of new ore was made during the year.

WHITE & WHITE OPTION MINING CO.

Office: Osburn. **Officers:** A. H. Sweeny, Pres.-Sec., Osburn; G. S. Weigle, Mgr., Pasco, Wash. **Inc.:** Sept. 4, 1928. **Capital:** 1,750,000 shares; par value 1c; 1,540,000 shares issued. **Property:** 8 unpatented claims, Yreka dist.; Kellogg; **Development:** By 4 short tunnels. **Ore:** Lead-zinc-copper.

WILBUR MINING CO., LTD.

Office: Wallace. **Officers:** A. T. Jenkins, Pres.; H. H. Miller, Sec., both of Wallace. **Inc.:** Nov. 24, 1906. **Capital:** 2,000,000 shares; par value 25c; 1,300,000 shares issued. **Property:** Wilbur group; 19 unpatented claims, Evolution dist.; Wallace. **Development:** Developed through No. 4 Western Union tunnel. **Ore:** Lead-silver. **Remarks:** Control of this company is held by the Western Union Mining Co. Annual labor only.

WILLOW CREEK MINING CO.

Office: 303 Hyde Blk., Spokane, Wash. **Officers:** Andrew Hedin, Pres.-Mgr.; John E. Hoppe, Sec., both of Spokane, Wash. **Inc.:** Jan. 25, 1924. **Capital:** 1,500,000 shares; par value 5c; 962,500 shares issued. **Property:** 23 unpatented claims, Hunter dist.; Mullan. **Development:** Principal tunnel 1800 ft. long. **Plant:** A gas-driven compressor and complete mining equipment. **Ore:** Silver-lead. **Men employed:** Average, 2. **Remarks:** A small amount of work during the year, the money for which was derived from stock assessments.

WISCONSIN MINING CO.

Office: Kellogg. **Officers:** Louis Bolduc, Pres.-Mgr.; S. A. Germo, Sec., both of Kellogg. **Inc.:** Mar. 13, 1913. **Capital:** 1,500,000 shares; par value $1; 450,000 shares issued. **Property:** Wisconsin group; 5 unpatented claims Yreka dist.; Kellogg. **Development:** 1 tunnel 700 ft. long and a vertical shaft 100 ft. deep. **Plant:** Water-driven compressor; hoist; and complete mining equipment. **Ore:** Lead-silver. **Remarks:** Small amount of work by 2 lessees. A stock assessment of 3 mills was levied on May 26, 1928.

WOLVERINE MINING CO., LTD.

Office: McConnell Hotel, Kellogg. **Officers:** P. C. Harrington, Pres.-Mgr.; Harold S. Wren, Sec., both of 304 Lindelle Bldg., Spokane, Wash. **Inc.:** Aug. 4, 1909. **Capital:** 1,250,000 shares; par value $1; 1,110,000 shares issued. **Property:** Wolverine group; 6 unpatented claims, Big Creek, Yreka dist.; Kellogg. **Development:** By 3 tunnels: No. 1, 450 ft. long; No. 2, 315 ft. long; No. 3, 87 ft. long; and a vertical shaft 250 ft. deep. **Plant:** Electrically-driven Sullivan compressor; hoist, and complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 8. **Remarks:** Under option to Wilbur Greenough and Charles Heidenreich of Spokane, who extended the shaft 100 ft. and performed a large amount of development work during the year.

WONDERFUL MINING CO., LTD.

Office: Wallace. **Officers:** H. E. Howes, Vice-Pres.; A. H. Featherstone, Sec., both of Wallace. **Inc.:** Oct. 15, 1906. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Wonderful group; 4 patented claims, St. Joe dist.; Mullan. **Remarks:** Idle for a number of years.

WYOMING MINING & MILLING CO., LTD.

Office: Wallace. **Officers:** Alfred Page, Pres., Spokane, Wash.; A. W. Hoover, Sec.; Frederick Burbidge, Mgr., both of Wallace. **Inc.:** May 3, 1901. **Capital:** 1,000,000 shares; par value 10c; 935,554 shares issued. **Property:** Wyoming group; 11 patented claims, Yreka dist.; Kellogg. **Development:** Principally by 2 tunnels: Ranger, 2150 ft. long; Wyoming, 500 ft. long. Total development, approximately 5400 ft. **Ore:** Lead-zinc-silver. **Remarks:** A small tonnage of ore was produced during the year by lessees.

YOLANDA MINING CO.

Office: 301 Eilers Bldg., Spokane, Wash. **Officers:** J. E. Riley, Pres.-Mgr., Tekoa, Wash.; E. D. Wilcox, Sec., Spokane, Wash. **Inc.:** Unknown; never filed in Idaho. **Capital:** 15,000 shares preferred, par value $1; 2,420,000 shares common, par value 20c; 1750 shares preferred, 44,000 shares common issued. **Property:** Lease and option on property of Idora Mining Co., Ltd. **Men employed:** Average, 3. **Remarks:** Small amount of repair and road work during the year.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
American Placer	Summit	Joseph Laveigne	Murray
Anchor et al.	Summit	Mike Melley	Murray
Ancient Gravel	Yreka	George H. Heller	Kellogg
Birthday Group	St. Joe	Wes. J. Horsky	Falcon
Bismark Lode	Eagle	Robt. T. Horn Est.	Murray
Blackhawk Group	Hunter	Chas. M. Baillie	Mullan
Black Hill	Beaver	John Thiard	Delta
Blue Eagle Gr.	Yreka	Walter Owens	Kellogg
Blue Grouse	Evolution	C. M. Patterson	Wallace
Bonanza	Eagle	Jas. Boland	Murray
Boulder Placer	Eagle	Clay Giles	Murray
Bull Pine	Evolution	O. J. Holtz	Kellogg
Carney Copper	Hunter	James Carney	Mullan
Carruthers Placer	Eagle	E. N. Harwood	Billings, Mont.
Castle Rock et al.	Placer Center	A. C. Livingston	Wallace
Comstock Group	Lelande	J. H. Smith	Wallace
Corby Group	Yreka	C. W. Simmons	Kellogg
Cornucopia	Eagle	Francis Frohling	Murray
Creighton Gr.	Hunter	Mrs. S. P. Domer	Spokane, Wash.
Daddy Mining Co.		Robert T. Horn	Murray
Eagle Placer	Eagle	Archie Smith	Murray
Eldorado Gr.	Eagle	James Leary et al.	Wallace
Eldorado	Summit	R. B. Lundy	Wallace
Eleventh Hour	Evolution	Victor Langley	Wallace
Empress	Beaver	Hugh Mabin	Wallace
Enterprise Group	Yreka	Fred G. Donaldson	Kellogg
Fahey Gr.	Evolution	John Fahey	Spokane, Wash.
Fay et al.	Yreka	Fred G. Donaldson	Kellogg
Ferguson Gr.	Summit	C. B. Ferguson	Murray
Florence Group	Eagle	Frank Rose	Murray
Frances Jeanne	Eagle	W. A. Taylor	Murray
Freeman Gr.	Evolution	Jesse Freeman et al.	Wallace
Friday	Beaver	E. M. Smith	Murray
Galena	Lelande	A. W. McCune	Salt Lake City, U.
Geneva	Hunter	John Guedelhofer	Mullan
Gilbert Placer	Beaver	W. A. Mather	Murray
Gold Back	Eagle	J. D. Stoltman	Murray
Gold Circle	Summit	William Wylie	Murray
Golden Chest	Beaver	Vivian Green	45 W. 34th St., New York City
Golden Gate	St. Joe	E. A. Patrick	Spokane, Wash.
Great Western &	Summit	Dunlap & Smith	Murray
Highland Chief	Yreka	H. T. Gilbert	Kellogg
Homestake Gr.	Lelande	L. J. Oatman et al.	Burke
Horseshoe Pl.	Beaver	Charles H. Wilson	Murray
Indicator	Yreka	Chas. Kaufman	Wallace
Ionia Lode	Summit	Albert Otto	Murray
Iron Clad	Yreka	Henry Lamb	Kellogg
Jewel Gulch	Evolution	Jasper Allamno	Osburn
Joyce Gr.	Beaver	C. B. Ferguson	Murray
Jumbo Gr.	Eagle	Chas. J. Johnson	Murray

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Kellida Gr.	Yreka	W. F. Ide	Kellogg
Leroi Gr.	Placer Center	John Guedelhofer	Mullan
Liberal King Gr.	Yreka	Leslie Lamb	Kellogg
Lion Gr.	Summit	Wm. Wylie	Murray
Little Pittsburgh	Yreka	Gus Smith	Kellogg
Lonesome Pine Gr.	Evolution	H. L. Jaynes	Osburn
Lucky Bill Gr.	Eagle	Chas. T. Johnson	Murray
Lucky Boy	Summit	D. A. Finlayson	Murray
Lucky Strike	Summit	M. E. Lewis	Moscow
McLean Gr.	Placer Center	C. H. McLean	Wallace
Midas Gr.	Placer Center	Henry Lalonde	Wallace
Midnight	Hunter	Forest Clark	Mullan
Midnight Pl.	Beaver	W. A. Mather	Murray
Morning Star	Eagle	Mike Franks	Murray
Mother Lode	Eagle	John F. Murphy	Wallace
Nellie Potter	Eagle	David Goodman	Murray
Ninety Seven	Hunter	H. Thompson	Wallace
Old Timber	Eagle	Louis Feldman	Murray
Olympia	Lelande	A. G. Kerns Est.	Wallace
Olympia Gr.	Yreka	Armond McKinnis	Kellogg
Omaha Group	Lelande	August Paulsen Est.	Spokane, Wash.
Osakis Gr.	Placer Center	A. L. Fisher	Wallace
Ostrog Gr.	Yreka	N. Petrinovich	Wardner
Panama Gr.	Evolution	Mrs. Mary Crowley	Wallace
Paradox	Summit	Charles Nordquist	Murray
Paymaster	Yreka	Jas. E. Hoskins	Kellogg
Peerless Gr.	Placer Center	E. M. Burt et al.	Wallace
Peterson Gr.	Hunter	Chris Peterson	Mullan
Pilot Group	Eagle	J. D. Stoltman	Murray
Prudent	Summit	P. R. Kimball	Murray
Renown Gr.	Placer Center	A. D. Marshall	Wallace
St. Joe	Evolution	C. M. Patterson	Osburn
Sargent	Evolution	C. Sargeant	Osburn
Senator Gr.	Hunter	Jennie Gribble	Mullan
Seward Camp	Eagle	James R. Wood	Murray
Sherlock Group	St. Joe	Frank M. Rose	Wallace
Shipka	Eagle	Godfrey Kohl	Murray
Silver King	Yreka	Hector McRae	Kellogg
Silver Reef	Yreka	Herman J. Rossi	Wallace
Silver Star	Beaver	E. R. Oxley	Murray
Slim Show	St. Joe	Nels Dahlberg	Iron Mt., Mont.
Spokane Central	Yreka	Sam Orlandini	Kellogg
Spokane Gr.	Yreka	Robt. F. Schneider	Kellogg
Steve Corcoran Gr.	Yreka	Chas. Gullickson	Wallace
Tam O'Shanter	Evolution	David C. Coates	Spokane, Wash.
Toledo Group	Lelande	M. J. Farrell	Burke
Tommy Hawk	Yreka	Alex Vouchard	Kellogg
Troy Group	Hunter	L. E. Hanley	Wallace
Uncle Sam Gr.	Hunter	Joe Huber et al.	Mullan
Victor	Lelande	A. D. Marshall	Wallace
Vindicator Group	Yreka	Charles Kaufman	Kellogg
Virgo et al.	Evolution	Sigurd Thorkelson	Wallace
Vulcan Gr.	Yreka	J. C. Bennington	Kellogg
Waddell Group	Summit	Frank Hall	Murray
Wallace Group	Evolution	Jos. Peila	Wallace
Wardner Gr.	Yreka	John Bogovich	Wardner
Whipsaw Placer	St. Joe	Frank A. Heller	Bonners Ferry
Wild & Wooley	Beaver	J. A. Prichard	Prichard
Williams Gr.	Evolution	Jesse Freeman	Wallace
Winnie	Eagle	W. M. Smith	Murray
Yankee Group	Evolution	Dennis Blake	Kellogg

BIBLIOGRAPHY

See pages 13-14 for publisher's address, meaning of reference marks, and abbreviations.

The Coeur d'Alene silver-lead mines, by J. C. Clayton: Eng. and Min. Jour., vol. 45, pp. 108-109, Feb. 11, **1888.**§

Bitterroot Forest Reserve, by R. U. Goode: Nat. Geog. Mag., vol. 9, pp. 387-400, **1898.**§

Coeur d'Alene mining region by W. C. Clarke: Mines and Minerals. vol. 20, pp. 561-562, July, **1900.***

Survey of the boundary line between Idaho and Montana from the international boundary to the crest of the Bitterroot Mountains, by R. U. Goode: U. S. Geol. Survey Bull. 170, **1900.**‡

Coeur d'Alene mining region, by Arthur Lakes: Mines and Minerals, vol. 20, pp. 303-304, February, **1900.***

Ore deposits of Yreka district, Idaho, by E. McCormick: Eng. and Min. Jour., vol. 69, p. 404, Apr. 7, **1900.**§

Geology and water resources of Nez Perce County, Idaho, by I. C. Russell: U. S. Geol. Survey Water-Supply Papers 53 and 54, **1901.**‡*

Mining and milling in the Coeur d'Alene, Idaho, by J. R. Finlay: Eng. and Min. Jour., vol. 75, p. 87, Jan. 10, **1903.**§

Mining industry of the Coeur d'Alene, by J. R. Finlay: Trans. Am. Inst. Min. Eng., vol. 33, pp. 235-271, **1903**§; Mines and Minerals, vol. 24, p. 497, May, **1904.***

A geological reconnaissance across the Bitterroot Range and Clearwater Mountains in Montana and Idaho, by Waldemar Lindgren: U. S. Geol. Survey Prof. Paper 27, pp. 108-111, **1904.***

Economic features of northern Idaho and northwestern Montana, by D. F. MacDonald: U. S. Geol. Survey Bull. 285, pp. 41-52, **1905.***

Coeur d'Alene district, by F. L. Ransome: Min. Mag., vol. 12, pp. 26-32, July, **1905.***

Ore deposits of the Coeur d'Alene district, Idaho, by F. L. Ransome: U. S. Geol. Survey Bull. 260, pp. 274-303, **1905.***

Ore deposits in the St. Joe River Basin, Idaho, by A. J. Collier: U. S. Geol. Survey Bull. 285, pp. 129-139, **1905.***

The Coeur d'Alene in 1905, by S. A. Easton: Eng. and Min. Jour., vol. 81, p. 11, Jan. 6, **1906.**§

The Murray gold belt, Idaho, by T. L. Lammers: Min. and Sci. Press, vol. 94, pp. 636-637, May 18, **1907.***

The north side of the Coeur d'Alene district, by H. S. Auerbach: Eng. and Min. Jour., vol. 86, pp. 65-70, July 11, **1908.**§

Tungsten ore deposits of the Coeur d'Alene, by H. S. Auerbach: Eng. and Min. Jour., vol. 86, pp. 1146-1148, Dec. 12, **1908.**§

The relation between certain ore-bearing veins and gangue fissures, by F. L. Ransome: Econ. Geology, vol. 3, pp. 331-337, June-July, **1908.**§

The geology and ore deposits of the Coeur d'Alene district, Idaho, by F. L. Ransome and F. C. Calkins: U. S. Geol. Survey Prof. Paper 62, **1908.***

Coeur d'Alene mining district, by J. P. Rowe: Min. World, vol. 29, pp. 739-740, Nov. 14, **1908**; vol. 29, pp. 777-778, Nov. 21, **1908**; vol. 29, pp. 843-845, Dec. 5, **1908.***

Mining in the Coeur d'Alene district, by J. P. Rowe: Mines and Minerals, vol. 28, pp. 549-551, July, **1908.***

The geology and ore deposits of the Coeur d'Alene district, by F. L. Ransome and F. C. Calkins, reviewed by E. R. Buckley: Econ. Geology, vol. 4, pp. 178-186, **1909.**§

Geology and ore deposits of the Coeur d'Alene, by F. C. Calkins, discussion of review by E. R. Buckley: Econ. Geology, vol. 4, pp. 258-261, April, **1909.**§

Microstructure of a complex ore from Frisco mine, by William Campbell: Eng. and Min. Jour., vol. 87, pp. 260-261, Jan. 30, **1909.**§

A geological reconnaissance in northern Idaho and northwestern Montana, by F. C. Calkins, with notes on the economic geology by D. F. MacDonald: U. S. Geol. Survey Bull. 384, **1909.***

Notes on geology of Snowstorm mine, Idaho, by George Huston: Eng. and Min. Jour., vol. 90, pp. 1109-1110, Dec. 3, **1910.**§

Geology and mineralization of the upper St. Joe River Basin, Idaho, by J. T. Pardee: U. S. Geol. Survey Bull. 470, pp. 39-61, **1910.***

Geology of the St. Joe-Clearwater region, Idaho, by F. C. Calkins and E. L. Jones, Jr.: U. S. Geol. Survey Bull. 530, pp. 75-86, **1911.***

Economic geology of the region around Mullan, Idaho, and Saltese, Montana, by F. C. Calkins and E. L. Jones, Jr.: U. S. Geol. Survey Bull. 540, pp. 167-211, **1912.***

Genesis of the silver-lead ores in the Wardner district, Idaho, by O. H. Hershey: Min. and Sci. Press, vol. 104, June 1, pp. 750-753; June 8, pp. 786-790; June 15, pp. 825-827, **1912.** (Published later as a pamphlet by Min. and Sci. Press.)**

Reply to Hershey's paper on Wardner district, by F. L. Ransome: Min. and Sci. Press, vol. 105, pp. 143-144, Aug. 3, **1912.***

The Coeur d'Alene mining district, by F. R. Ingalsbe: Eng. and Min. Jour., vol. 96, pp. 156-158, July 26, **1913.**§

Secondary enrichment in the Caledonia mine, Coeur d'Alene district, Idaho, by E. V. Shannon: Econ. Geology, vol. 8, pp. 565-570, Sept. **1913.**§

Origin of lead, zinc, and silver in the Coeur d'Alene, by O. H. Hershey: Min. and Sci. Press, vol. 107, Sept. 27 and Oct. 4, **1913.***

New developments in the Coeur d'Alene, by H. I. Ellis: Eng. and Min. Jour., vol. 100, pp. 337-340, Aug. 28, **1915.**§

The application of the apex law at Wardner, Idaho, by F. T. Greene: Trans. Am. Inst. Min. Eng., vol. 52, pp. 555-562, September, **1915.**§

The copper beds of the Coeur d'Alene, by George Huston: Min. and Sci. Press, vol. 110, pp. 145-147, Jan. 23, **1915.***

Metallurgy in the Coeur d'Alene, by H. A. Megraw: Eng. and Min. Jour., vol. 100, pp. 827-830, Nov. 20, **1915.**§

Origin and distribution of ore in the Coeur d'Alene, by O. H. Hershey, published for the author as a pamphlet by the Min. and Sci. Press, 32 pp., **1916.****

Tungsten, Murray, Idaho, Bull. 128, Amer. Inst. Min. Eng., p. 1173, **1917:** Trans. Amer. Inst. Min. Eng. 58, p. 224, **1917.**§

Genesis of the Success zinc-lead deposit, Coeur d'Alene district, Idaho, by J. B. Umpleby: Econ. Geology, vol. 12, pp. 138-153, Feb.-March, **1917.**§

Flotation in the Coeur d'Alene, by C. T. Rice: Eng. and Min. Jour., vol. 105, pp. 707-716, April 20, **1918.**§

Differential flotation of lead and zinc, by W. L. Ziegler: Eng. and Min. Jour., vol. 105, pp. 741-742, April 20, **1918.**§

Recovering caved stopes in narrow veins, by C. T. Rice: Eng. and Min. Jour., vol. 105, pp. 1069-1075, June 15; vol. 106, pp. 1-7, July 6; vol. 106, pp. 243-248, Aug. 10, **1918.** (Hecla mine.)§

Differential flotation at Wallace, by C. T. Rice: Eng. and Min. Jour., vol. 106, p. 482, Sept. 14, **1918.**§

Driving and timbering transfer chutes, by C. T. Rice: Eng. and Min. Jour., vol. 106, pp. 881-993, Dec. 7, **1918.** (Hecla mine.)§

The mining districts of northern Idaho, by E. K. Soper: Min. and Sci. Press, vol. 116, pp. 122-124, **1918.***

Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****

A reconnaissance of the Pine Creek district, Idaho, by E. L. Jones, Jr.: U. S. Geol. Survey Bull. 710, pp. 1-36, **1919.**‡

Linarite and leadhillite from Idaho, by E. V. Shannon: Am. Mineralogist, vol. 4, No. 8, pp. 93-94, August, **1919.**§

A preliminary report on the clays of Idaho, by F. H. Skeels: Idaho Bureau of Mines and Geology Bull. 2, **1920.****

The Bunker Hill Enterprise, by T. A. Rickard: Min. and Sci. Press, vol. 120, Jan. 3, Jan. 10, Jan. 24, Feb. 7, Feb. 21, March 6, April 3, April 10, May 15, and May 29, **1920;** vol. 121, Aug. 14, Sept. 4, Sept. 18, **1920.** Also issued in pamphlet form.*

Petrography of some lamprophyric dike rocks of the Coeur d'Alene mining district, Idaho, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 57, pp. 475-495, Sept. 2, **1920.**‡

The Bunker Hill Smelter, by T. A. Rickard: Min. and Sci. Press, vol. 122, Jan. 8, **1921.***

Coeur d'Alene Lake, Idaho, and the overflow lands, by R. W. Davenport: U. S. Geol. Survey Water-Supply Paper 500, **1921.***

Mining methods of Hecla Mining Co., by J. F. McCarthy and C. H. Foreman: Mining & Metallurgy, vol. 4, No. 195; March, **1923**; Trans. Am. Inst. Min. Eng., vol. 72, pp. 319-340, **1925.**§

Mining methods at Bunker Hill & Sullivan mines, by H. M. Childs and S. A. Easton: Mining & Metallurgy, vol. 4, No. 195, March, **1923**; Trans. Am. Inst. Min. Eng., vol. 72, pp. 305-318, **1925.**§

Geology and ore deposits of Shoshone County, Idaho, by J. B. Umpleby and E. L. Jones, Jr.: U. S. Geol. Survey Bull. 732, **1923.**‡

Summary of Hecla reconstruction, by E. L. Wood: Mining & Metallurgy, vol. 5, No. 210, June, **1924.**§

Reconstruction methods at the Hecla mine, by A. C. Stevenson: Mining & Metallurgy, vol. 5, No. 210, June, **1924.**§

History of the Hecla mine, Burke, Idaho, by J. F. McCarthy: Mining & Metallurgy, vol. 5, No. 210, June, **1924.**§

Hindered settling classification in relation to table concentration of Idaho lead-zinc ores, by A. W. Fahrenwald: U. S. Bureau of Mines, Reports of Investigation, Serial No. 2618, June, **1924.****

The Osburn fault, Idaho, by J. B. Umpleby: Jour. Geology, vol. 32, No. 7, Oct.-Nov., **1924.**§

The Bunker Hill smelter, by F. M. Smith: Mining Truth, vol. 9, pp. 2-4, Dec. 1, **1924.**§

Notes on western lead smelters, by A. B. Parsons: Eng. and Min. Jour., vol. 119, pp. 876-883, May 30, **1925.** (Bunker Hill smelter.)§

Deformation in ores, Coeur d'Alene district, Idaho, by W. A. Waldschmidt: Econ. Geology, vol. 20, pp. 573-586, Sept.-Oct., **1925.**§

Big silver-lead producer in Idaho (Hecla mine), by W. E. Carr: Compressed Air Mag., vol. 30, pp. 1375-1379, Sept. **1925.**§

Mining methods of the Morning mines, by Frederick Burbidge: Trans. Am. Inst. Min. Eng., vol. 72, pp. 341-344, **1925.**§

Bunker Hill & Sullivan M. & C. Co.'s South mill, by R. S. Handy: Twenty-seventh Ann. Rept. Min. Industry of Idaho, **1925.****

Hecla Mining Company's mill, by W. L. Zeigler: Twenty-seventh Ann. Rept. Min. Industry of Idaho, **1925.****

Tamarack & Custer Cons. Min. Co.'s mill: Twenty-seventh Ann. Rept. Min. Industry of Idaho, **1925.****

Gold Hunter Mines, Inc., mill, by J. E. Quinlan: Twenty-seventh Ann. Rept. Min. Industry of Idaho, **1925.****

Federal Mining & Smelting Co., Morning mill: Twenty-seventh Ann. Rept. Min. Industry of Idaho, **1925.****

Constitution M. & M. Co.'s mill, by W. P. White: Twenty-seventh Ann. Rept. Min. Industry of Idaho, **1925.****

Federal Mining & Smelting Co., Page mill, by H. G. Washburn: Twenty-eighth Ann. Rept. Min. Industry of Idaho, **1926.****

Callahan Zinc-Lead Co., Galena mill: Twenty-eighth Ann. Rept. Min. Industry of Idaho, **1926.****

Concentrating lead-silver ore at Hecla mine, by W. L. Zeigler: Eng. & Min. Journal, vol. 122, pp. 444-450, Sept. 18, **1926.**§

The conduct and value of mine rescue stations, by K. T. Sparks: Min. Con. Journal, vol. 12, No. 6, pp. 452-456, June, **1926.**§

Solving a problem in silver-lead ore concentration (Wardner), by E. W. Ellis: Eng. and Min. Jour., vol. 122, pp. 815-816, Nov. 20, **1926.**§

Some Coeur d'Alene geology, by J. E. Berg: Mining and Metallurgy, vol. 8, July, **1927.**§

Operating methods at the Morning mine, by C. E. Wethered and S. H. Fairweather: Mining and Metallurgy, vol. 8, July, **1927.**§

Milling practice at Morning mill, by M. P. Dalton and G. S. Price: Mining and Metallurgy, vol. 8, July, **1927.**§

The Hecla flotation plant, by W. L. Ziegler: Mining and Metallurgy, vol. 8, Aug., **1927.**§

Concreting the Morning shaft, by J. H. Johnson: Eng. and Min. Jour., vol. 124, pp. 285-288, Aug. 20, **1927.**§

The Federal Mining and Smelting Company Page mill, by H. G. Washburn: Min. Con. Journal, vol. 13, pp. 729-730, Sept., **1927.**§

Galena flotation concentrator, Lake Gulch, Idaho, by W. L. Ziegler: Technical Publication No. 8-B.7, Amer. Inst. Min. Eng., Aug. **1927**; Flotation Practice, A. I. M. E., pp. 182-184, **1928.**§

Flotation practice in the Coeur d'Alene district, Idaho, by A. W. Fahrenwald: Technical Publication No. 1-B.1, Amer. Inst. Min. Eng., July, **1927**; Min. Con. Journal, vol. 13, pp. 699-704, Sept., **1927**; Flotation Practice, A. I. M. E., pp. 107-132, **1928.**§

Concentration of lead-silver ore at Hecla mine, Gem, Idaho, by W. L. Ziegler: Technical Publication No. 7-B.6, Amer. Inst. Min. Eng., Aug., **1927**; Min. Con. Journal, vol. 13, pp. 683-684, Sept., **1927**; Flotation Practice, A. I. M. E., pp. 175-181, **1928.**§

The Sullivan electrolytic zinc plant of Sullivan Mining Co., by U. C. Tainton: Twenty-ninth Ann. Rept. Min. Industry of Idaho, **1927.***

Safety first at the Bunker Hill mine, by H. M. Childs: Min. Con. Journal, vol. 14, pp. 51-56, Jan., **1928.**§

Mining methods of the Hecla mine, by C. H. Foreman: Min. Con. Journal, vol. 14, pp. 381-383, June, **1928.**§

History of the Hecla mine; pt. 1, by J. F. McCarthy, Compressed Air Mag., vol. 33, pp. 2447-2449, June, **1928**; pt. 2, by E. L. Wood, Compressed Air Mag., vol. 33, pp. 2473-2475, July, **1928**; pt. 3, by A. C. Stevenson, Compressed Air Mag., vol. 33, pp. 2507-2509, Aug., **1928.**§

The Sullivan electrolytic zinc plant, by U. C. Tainton: Eng. & Min. Jour., vol. 126, pp. 856-860, Dec. 1, **1928.**§

TETON COUNTY

Teton is one of the southeastern counties, being bounded on the east by the State of Wyoming, on the south by Bonneville County, on the west by Madison County, and on the north by Fremont County. Containing an area of but 463 square miles, it is the second smallest county in the State. The 1920 census accredited it with a population of 3921, or 8.5 persons to the square mile, the larger part of which is located in the Teton River valley. Practically all the county is farming land, and the principal industries are wheat, potato and stockraising.

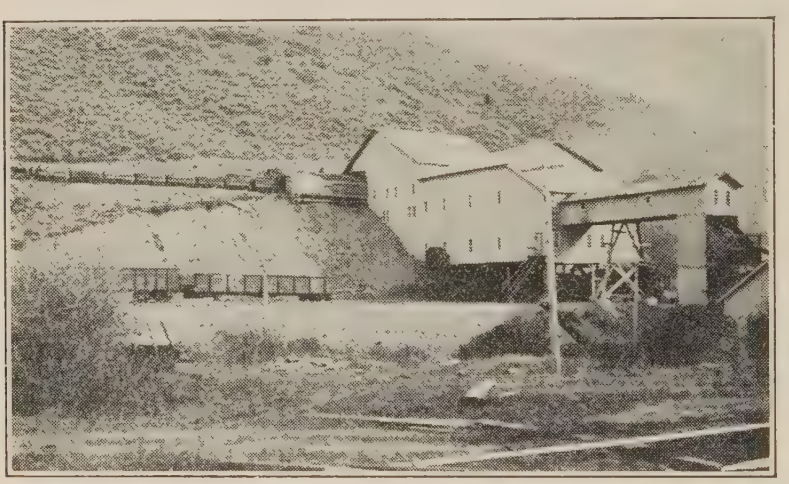
The county is served by the Teton State highway, good county roads, and the Ashton-Victor branch of the O. S. L. Railroad. Driggs is the largest town and county seat.

The principal mineral resources of Teton County are coal, phosphate rock, natural gas, limestone, and asbestos; and there are excellent possibilities for the discovery of petroleum. This county is one of the few in the State in which coal occurs in commercial quantity. Compared with the coal produced at Rock Springs, Wyoming, it is equal in quality and similar in appearance. As well as being of excellent quality for domestic and industrial purposes, it is especially adaptable for powdered coal.

The principal coal-bearing area is the Horseshoe district, seven miles west of Driggs. This district has never been sufficiently developed to prove the number or extent of the coal beds. Those which have been proved vary from one to eleven feet in thickness and repose at an angle of approximately 45 degrees. The Horseshoe district has been examined by the U. S. Geological Survey and by the U. S. Bureau of Mines in cooperation with the Idaho Bureau of Mines and Geology. The reports issued by these organizations are listed in the bibliographies, to which the reader is referred for complete descriptions, analyses, and tonnage estimates.

During the greater part of the year the Teton Coal Co. produced and marketed a substantial tonnage of coal. The Superior Coal Mining Co. and the Idaho Coal Mining Co. both conducted active development work throughout a large part of the year.

Press reports were to the effect that equipment had been installed and drilling commenced by a new organization in a search for oil.



TIPPLE: TETON COAL CO.

IDAHO COAL MINING CO.

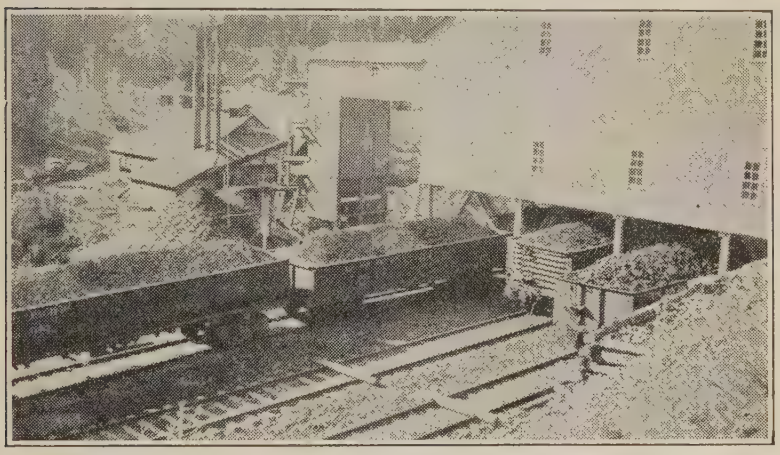
Office: Driggs. **Officers:** Peter Mickelsen, Pres., Rexburg; J. F. Miller, Sec., Rigby; John R. Cluff, Mgr., Driggs. **Inc.:** Aug. 13, 1926. **Capital:** 100,000 shares; par value $1; 90,000 shares issued. **Property:** Government prospecting permit on 2160 acres, Horseshoe dist.; Sam. **Development:** By 4 tunnels: No. 1, 338 ft.; No. 2, 172 ft.; No. 3, 412 ft.; No. 4, 490 ft. **Plant:** Small gas-driven compressor. **Mineral sought:** Coal. **Men employed:** Average, 3. **Remarks:** Compressor and mining equipment installed, and active development work conducted throughout the year.

SUPERIOR COAL MINING CO.

Office: Pocatello. **Officers:** Roy L. Black, Pres.; S. Hansen, Sec., both of Pocatello. **Inc.:** Dec. 24, 1924. **Capital:** 1,000,000 shares; par value $1; 250,000 shares issued. **Property:** Assignment of prospecting permits and applications for lease on 2400 acres; Horseshoe dist.; Sam. **Development:** By 8 short tunnels, the longest being 425 ft., all of which are drifts on coal veins; and an inclined shaft 158 ft. long. **Plant:** Steam-driven hoist. **Mineral sought:** Coal. **Men employed:** Average, 3. **Remarks:** This company's property adjoins that of the Teton Coal Co. Active development work, which consisted principally in driving a tunnel to intersect the Brown Bear and one other coal bed, was conducted throughout the greater part of the year.

TETON COAL CO.

Office: Sam. **Officers:** H. F. Samuels, Pres., Sam; Don H. Eagleson, Sec., Boise. **Inc.:** Oct. 3, 1923. Charter forfeited Nov. 30, 1928. **Capital:** 1,000,000 shares; no par value; 875,000 shares issued. **Property:** Brown Bear group; 1080 acres patented land, Horseshoe dist.; Sam. **Development:** By an inclined shaft 650 ft. long and a 5400-ft. crosscut tunnel. Total development, approximately 16,000 ft. **Plant:** Steam-driven hoist and 2 steam-driven compressors; tipple capable of handling 1000 tons in 24 hrs.; complete mining equipment and camp. **Mineral sought:** Coal. **Men employed:** Average, 25. **Remarks:** Active throughout the greater part of the year. A large tonnage of coal was produced and marketed.



LOADING TRACKS, TETON COAL CO.'S TIPPLE

TIETON VALLEY LAND & LEASING CO.

Office: Astoria, Ore. **Officers:** S. W. Lovell, Pres.; Charles Anet, Sec., both of Astoria, Ore.; F. J. Johnston, Mgr., Driggs. **Inc.:** Aug. 11, 1923. **Capital:** 100,000 shares; par value $1; 93,000 shares issued. **Property:** Oil and gas lease on 6000 acres of patented land lying west of Driggs. **Development:** 1325-ft. well. **Plant:** No. 26 Star drilling rig and complete drilling equipment. **Mineral sought:** Oil and gas. **Remarks:** Idle.

BIBLIOGRAPHY

See pages 13-14 for publisher's address, meaning of reference marks, and abbreviations.

A reconnaissance of the phosphate deposits in western Wyoming, by Eliot Blackwelder: U. S. Geol. Survey Bull. 470, pp. 452-481, **1910.***

The Horseshoe Creek district of the Teton Basin coal field, by E. G. Woodruff: U. S. Geol. Survey Bull. 541, pp. 379-388, **1912.***

A geological reconnaissance for phosphate and coal in southeastern Idaho and western Wyoming, by A. R. Schultz: U. S. Geol. Survey Bull. 680, **1918.**‡

A preliminary report on the mining districts of Idaho, by Thomas Varley and others: U. S. Bureau of Mines Bull. 166, pp. 90-103, **1919.**‡

Oil shale in western Montana, southeastern Idaho, and adjacent parts of Wyoming and Utah, by D. D. Condit: U. S. Geol. Survey Bull. 711, pp. 15-40, **1920.**‡

Coal in eastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 716, **1920.**‡

Petroleum possibilities of certain anticlines in southeastern Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Bull. 4, **1922.***

The Horseshoe Basin area of the Teton coal field in southeastern Idaho, by G. W. Evans: Idaho Bureau of Mines and Geology Pamphlet 10, **1924.***

VALLEY COUNTY

Valley County occupies the geographical center of the State. It is bounded on the north by Idaho, on the east by Lemhi and Custer, on the south by Boise, and on the west by Gem and Adams counties. It contains an area of 3779 square miles, and was accredited with a population of 2524 in the 1920 census, or 0.7 persons to the square mile. The principal industries are farming, stockraising, lumbering and mining. Cascade is the county seat.

The State highway, Payette, extending from Boise to Cascade, McCall, and New Meadows, is the principal highway; the Forest Service highways from Cascade to Knox and Yellow Pine, and from Knox into Deadwood Basin and Bear Valley, connecting with the Sawtooth Park and Payette highways, are practically completed and opened to travel. The Nampa-McCall branch of the O. S. L. Railroad is the only railroad in the county.

Isolation and lack of transportation have prevented mineral development and compelled many valuable properties to lie idle, but the system of forest roads which has been designated and partly constructed, is making many of the various sections accessible to travel, and is stimulating mining. When these roads are completed the largest undeveloped mineralized area in the State will become available to profitable development and exploitation.

The principal mineral resources of Valley County are gold (placer and lode), lead, silver, zinc, antimony, mercury, copper, tungsten, molybdenum, and monazite. Many mines containing these minerals are undeveloped but justify the finances to prove their possibilities, and many others warrant investigation. These properties and the possibilities in undiscovered veins present many opportunities to the investor, prospector, and development company.

Throughout the year the Bunker Hill & Sullivan M. & C. Co., at the Hall Interstate and Lost Pilgrim mines, continued to be one of the most outstanding development and new construction enterprises in central Idaho. Construction on its new mill, which was started in 1927, was fully completed. The ore-bins, crushing machinery, and building are sufficient for a daily capacity of 300 tons, although initial flotation equipment was installed for a daily capacity of 100 tons only. In addition to completing the mill, a sawmill was installed, a large new office and residence erected, a 700-ft. raise connecting the Independence tunnel and the Anderson tunnel completed, and a large amount of lateral development work performed. The development work greatly increased the known ore reserves and proved the ore to a vertical depth of approximately 1000 ft. in the Lost Pilgrim Mining Co.'s property. As the Hall Interstate vein occurs in granite or allied rocks, this enterprise is of value to the State, as it is stimulating prospecting and encouraging the investment of capital for the development of the many similar occurrences which are found throughout the granite area of central Idaho. In past years, this area has been looked upon with disfavor, but this demonstration proves the potentialities of these veins.

One of the largest and most important enterprises bearing on the future of south-central Idaho is the mine plant installed, buildings erected, and road construction performed during 1928 by Fred W. Bradley, president of the Bunker Hill & Sullivan M. & C. Co., operating as the Yellow Pine Co. near Yellow Pine. During the year construction on a 12-mile highway from Yellow Pine to Meadow Creek was started; a steam-driven sawmill, compressor, and complete mining equipment were installed on the Meadow Creek group at a large expenditure, as the equipment had to be drawn over the old Thunder Mountain road; and a large modern boarding and bunk house and 4 cottages were constructed. At the Cinnabar group mine development work was maintained throughout the year without interruption. The road work, new plant installation, new construction and mine developments conducted by this company were instrumental in attracting a large amount of attention to this part of the State.

The beginning of construction by the U. S. Forest Reserve on its projected highway from Yellow Pine over Profile Gap into the Edwardsburg and Big Creek districts, of which approximately 4 miles were constructed during the year, was one of the principal new road projects to be started. This road and the road into Meadow Creek, which is being constructed by the Yellow Pine Co., will open up one of the largest virgin mineral districts in the State—the Big Creek and Edwardsburg districts. During the year these districts received more attention from prospectors and large organizations seeking gold-mining enterprises than at any time since the Thunder Mountain boom, and at the close of the year three new organizations were actively engaged in raising funds with which to commence work in 1929.

In the Thunder Mountain district, McRae and Davis maintained active work at the Sunnyside mine throughout the year, and produced and milled a small tonnage of gold ore. In addition to the foregoing, this district received more investigation from those seeking new gold-mining enterprises than at any time during the past twenty-five years.

BIG CREEK GOLD MINES, INC.

Office: 618 Idaho Bldg., Boise. **Officers:** C. B. Faraday, Pres., Mountain Home; C. E. Winstead, Sec.; B. F. Goldman, Mgr., both of Boise. **Inc.:** June 9, 1928. **Capital:** 3,000,000 shares; no par value; 2,000,000 shares issued. **Property:** 17 unpatented lode claims and 480 acres unpatented placer claims, part of which are held under lease and option, Edwardsburg dist.; Edwardsburg. **Ore:** Gold.

BUNKER HILL & SULLIVAN MINING & CONCENTRATING CO.

(See Shoshone County.)

Officers: F. W. Bradley, Pres., 1022 Crocker Bldg., San Francisco, Calif.; Stanly A. Easton, Mgr., Kellogg; James W. Gwinn, Local Mgr., Cascade. **Property:** Lease and bond on mines owned by Hall Interstate Mining Co., and Lost Pilgrim Mining Co., Deadwood dist.; Cascade, 52 miles; Bernard. **Development:** Approximately 9000 ft. on both groups. **Plant:** 150-kw. hydroelectric power plant operating under a 510-ft. head; 385-cu-ft. I-R compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 35.

REMARKS

The properties controlled by this company were acquired in May, 1924, after many months of negotiation; immediately thereafter arrangements were completed for the construction of the necessary buildings and the installation of the equipment.

A large two-story boarding-house, a power-house, shop, barn, and outbuildings were built. The power plant was constructed, and the compressor and mining equipment were installed; mining operations were commenced on Oct. 24, 1924, and conducted without interruption throughout 1928.

The development campaign outlined consisted of extending the Independence tunnel, of the Hall group, a distance of 1500 ft., where it intersected the Hall vein at a vertical depth of approximately 600 ft. below the apex. In 1927 this ore was sufficiently explored to warrant building a mill, on which construction work was completed in 1928. The ore-bins, crushing machinery, and building are sufficient for a daily capacity of 300 tons, although initial flotation equipment was installed for a daily capacity of 100 tons only. In addition to completing the mill, a sawmill was installed, a large new office and residence erected, a 700-ft. raise connecting the Independence tunnel and the Anderson tunnel completed, and a large amount of lateral development work performed. The development work greatly increased the known ore reserves and proved the ore to a vertical depth of approximately 1000 ft. in the Lost Pilgrim Mining Co.'s property. This enterprise is one of the largest and most important in south-central Idaho and is of particular interest because the ore bodies occur in old gneissic and granitic rocks.

CASCADE VALLEY CORPORATION

Office: Fulton Nat'l Bank Bldg., Atlanta, Ga. **Officers:** N. S. Turner, Pres., Covington, Ga.; Ronald Ransom, Sec., Atlanta, Ga. **Inc.:** Apr. 27, 1925. **Capital:** 600 shares; par value $100; all shares issued. **Property:** Sunday group; 7 patented claims, Edwardsburg dist.; Edwardsburg.

COPPER CAMP MINING CO.

Office: Edwardsburg. **Officers:** W. H. Brittain, Pres., Atlanta, Ga.; Wm. A. Edwards, Sec.-Mgr., Edwardsburg. **Inc.:** Oct. 19, 1928. **Capital:** 2,500,000 shares; par value $1; 1,347,000 shares issued. **Property:** Copper Camp and Dixie groups; 29 unpatented claims, Edwardsburg dist.; Edwardsburg. **Ore:** Gold, silver, copper, lead.

DEADWOOD MINING CO., LTD.

Office: Boise. **Officers:** Jas. H. Hawley, Pres.; C. B. Steunenberg, Sec., both of Boise. **Inc.:** June 10, 1921. **Capital:** 1,000,000 shares; par value 10c; 307,504 shares issued. **Property:** Deadwood group; 8 unpatented claims, Deadwood dist.; Knox. **Development:** Principally by 1 tunnel, 600 ft. long. **Ore:** Lead-silver. **Remarks:** A small amount of development work during the year.



MILL AND OFFICE: BUNKER HILL & SULLIVAN M. & C. CO, AT HALL-INTERSTATE MINE

FERN QUICKSILVER MINING CO.

Office: Twin Falls. **Officers:** V. E. Morgan, Pres.; D. R. Edwards, Sec., both of Twin Falls. **Inc.:** Nov. 21, 1917. **Capital:** 1,500,000 shares; par value $1; 1,001,587 shares issued. **Property:** Fern group; 6 patented claims, Yellow Pine dist.; Yellow Pine. **Ore:** Mercury. **Remarks:** Idle.

GOLD FORK MINING CO.

Office: 218 N. Eighth St., Boise. **Officers:** W. E. Pierce, Pres.; W. Clyde Cox, Sec., both of Boise. **Inc.:** Jan. 18, 1916. **Capital:** 2000 shares; par value $100; all shares issued. **Property:** 1520 acres patented placer ground, Gold Fork dist.; Roseberry. **Ore:** Placer gold. **Remarks:** Idle throughout the year.

GREAT NORTHERN MINES CO.

Officers: Albert Hennessy, Pres., Yellow Pine. **Inc.:** Feb. 7, 1924. Charter forfeited Nov. 30, 1928. **Capital:** 100,000 shares; par value $1; all shares issued. **Property:** 11 unpatented claims, Yellow Pine dist.; Yellow Pine. **Development:** By 2 short tunnels. **Ore:** Gold. **Remarks:** Small amount of work throughout the year.

HALL INTERSTATE MINING CO.
Office: Boise. **Officers:** Jas. H. Hawley, Pres.; Chas. W. Mack, Sec., both of Boise. **Inc.:** Oct. 30, 1915. **Capital:** 1,000,000 shares; par value 25c; 155,500 shares issued. **Property:** Hall group; 5 unpatented claims, Deadwood dist.; Knox. **Development:** By 2 tunnels: Independence, 6000 ft. long; Anderson, 300 ft. long. **Ore:** Lead-silver. **Remarks:** Under lease and option to Bunker Hill & Sullivan M. & C. Co.

HOLCOMB CO., LTD.
Office: Boise. **Officers:** Ario Pardee, Sec., 1600 Walnut St., Philadelphia; Chas. W. Mack, Mgr., Boise. **Inc.:** Apr. 20, 1908. **Capital:** 500,000 shares; par value $1; 169,280 shares issued. **Property:** 16 patented claims, Thunder Mountain dist.; Yellow Pine. **Ore:** Gold.

HURLEY CREEK MINING & MILLING CO.
Office: Cascade. **Officers:** Chas. C. Smith, Pres., Smiths Ferry; Forest E. Robb, Sec., Cascade. **Inc.:** Aug. 21, 1923. **Capital:** 1,000,000 shares; par value 10c; 683,426 shares issued. **Property:** Maloney group; 10 unpatented claims, unorganized dist.; Cabarton. **Development:** By 3 tunnels: No. 1, 450 ft. long; No. 2, 200 ft. long; No. 3, 1100 ft. long. **Ore:** Silver-gold-copper. **Men employed:** Average, 2. **Remarks:** This company is operating the Maloney group and actively developed the property during the greater part of the year.

IDAHO CENTRAL MINES CO.
Office: Mabton, Wash. **Officers:** A. L. Livingston, Pres.; H. S. Whiting, Sec., both of Mabton, Wash.; J. R. Butler, Mgr., Cascade. **Inc.:** May 12, 1927. **Capital:** 3,000,000 shares; par value $1; 1,563,010 shares issued. **Property:** Idaho Central group; 5 unpatented claims, Thunder Mountain dist.; Clover. **Development:** By 2 short tunnels. **Ore:** Copper-gold. **Remarks:** Small amount of work during the summer months.

INDEPENDENCE MINES & POWER CO.
Office: Topeka, Kan. **Officers:** W. H. Davis, Pres.; L. Biscoe, Sec., both of Topeka, Kan. **Inc.:** Apr. 27, 1906. **Capital:** 500,000 shares; par value 5c; 400,000 shares issued. **Property:** 10 patented claims, Big Creek dist.; Yellow Pine. **Development:** By 1 tunnel 500 ft. long. **Ore:** Copper-silver-gold. **Remarks:** Idle for many years.

LOST PILGRIM MINING CO.
Office: Boise. **Officers:** Jas. H. Hawley, Pres.; Chas. W. Mack, Sec., both of Boise. **Inc.:** Nov. 22, 1921. **Capital:** 600,000 shares; par value $1; 355,144 shares issued. **Property:** Lost Pilgrim group; 8 unpatented claims, Deadwood dist.; Knox. **Development:** By 2 tunnels: No. 1, 400 ft. long; No. 2, 300 ft. long; and 1 vertical shaft 40 ft. deep, at the bottom of which is a 70-ft. drift; also by Independence tunnel. Total development, approximately 2500 ft. **Ore:** Silver-lead-zinc. **Remarks:** Under lease and option to Bunker Hill & Sullivan M. & C. Co.

PROFILE-TAMARACK MINES CO.
Office: Yellow Pine. **Officers:** Geo. Webber, Pres.; Emil P. Slovarp, Sec., both of Henry Bldg., Portland, Ore.; H. T. Abstein, Mgr., Yellow Pine. **Inc.:** June 18, 1926. **Capital:** 20,000 shares; no par value; 9700 shares issued. **Property:** 27 unpatented claims, Missouri and Profile creeks, Yellow Pine dist.; Yellow Pine. **Development:** Approximately 1000 ft. of workings on both groups. **Ore:** Lead-silver, copper-gold. **Men employed:** Average, 3. **Remarks:** Active development work throughout the summer months.

PROSPECTORS MINING & DEVELOPING CO., LTD.
Office: Kuna. **Officers:** John R. Clark, Pres., Escalon, Calif.; Homer I. Clark, Sec.-Mgr., Kuna. **Inc.:** April 12, 1906. **Capital:** 50,000 shares; par value $1; 26,725 shares issued. **Property:** Golden Ibex group; on Wilson Creek, Thunder Mountain dist.; Meyers Cove. **Development:** Approximately 525 ft. of workings, the principal one of which is a tunnel 125 ft. long. **Ore:** Gold. **Men employed:** Average, 1. **Remarks:** Annual labor only.

RETALLAC MINING CO.

Office: 695 Multnomah St., Portland, Ore. **Officers:** Fenton Merrill, Pres., P. O. Box 1221, Seattle, Wash.; Paul DeHaas, Sec., Portland, Ore. **Inc.:** Unknown. **Capital:** 5000 shares; par value $1; all shares issued. **Property:** 2 unpatented claims, Yellow Pine dist.; Yellow Pine. **Ore:** Gold. **Remarks:** Annual labor only.

SMITH CREEK HYDRAULIC MINING CO., INC.

Office: 308 McCarty Bldg., Boise. **Officers:** A. C. Bunger, Pres.; H. M. Nelson, Sec.; J. K. Burns, Mgr., all of Boise. **Inc.:** Sept. 11, 1928. A reorganization of the Smith Creek Hydraulic Mining Co. **Capital:** 750,000 shares; no par value; 402,611 shares issued. **Property:** Smith Creek group; 20 unpatented placer claims, Edwardsburg dist.; Edwardsburg. **Ore:** Placer gold. **Men employed:** Average, 10. **Remarks:** Hydraulic equipment installed and a small amount of work during a period of 5 months, which consisted principally of ditch and road construction.



PARTIAL VIEW OF MEADOW CREEK CAMP AND AIRPORT, YELLOW PINE CO.

UNITED MERCURY MINES CO.

Office: 605 Eastman Bldg., Boise. **Officers:** J. J. Oberbillig, Pres.-Mgr.; J. F. Koelsch, Sec., both of Boise. **Inc.:** Jan. 20, 1921. **Capital:** 5,000,000 shares; par value 10c; 4,340,491 shares issued. **Property:** 11 patented, 193 unpatented claims, consisting of 3 groups: Hermes, principal ore, cinnabar; Meadow Creek, principal ore, gold; Babbitt Metal, principal ore, antimony; Yellow Pine dist.; Yellow Pine. **Development:** Total development, approximately 10,000 ft. on all groups, consisting principally of No. 1 tunnel, 900 ft. long; No. 2 tunnel, 2700 ft. long, on Cinnabar group, and 1 tunnel 1700 ft. long on Meadow Creek group. **Plant:** A 6-cylindrical tube retort. **Ore:** Mercury, gold, silver, lead, and antimony. **Remarks:** Cinnabar and Meadow Creek groups under option to Yellow Pine Co., which see. Annual labor only on Babbitt Metal group.

VENABLE GROUP

Owner: J. M. Venable, Boise. **Property:** Venable group; 3 unpatented claims adjoining the Sunnyside mine, Thunder Mountain dist.; Cascade. **Development:** Principally by a crosscut tunnel 840 ft. long, in which is a 150-ft. drift on the vein. **Ore:** Gold. **Remarks:** Annual labor only. The owner reports a good showing of low-grade gold ore.

WEST MOUNTAIN MINING CO.

Office: 314 Yates Bldg., Boise. **Officers:** John Alden, Pres.; H. A. Alden, Sec., both of Boise. **Inc.:** Maf. 8, 1922. **Capital:** 1,000,000 shares; par value 1c; 764,619 shares issued. **Property:** Silver Bell group; 13 unpatented claims, West Mountain dist.; Cascade. **Development:** By 2 tunnels: No. 1, 40 ft. long; No. 2, 700 ft. long. **Ore:** Lead-silver-gold-zinc. **Remarks:** Annual labor only.

YELLOW PINE CO.

Office: 1022 Crocker Bldg., San Francisco, Calif. **Officers:** Fred W. Bradley, Pres.; E. A. Griffin, Sec., both of San Francisco; Geo. Hampton, Supt., Yellow Pine. **Inc.:** Filed in Idaho May 25, 1928. **Capital:** 200,000 shares; par value $1; 62,605 shares issued. **Property:** Lease and option on Cinnabar group; 116 claims, and Meadow Creek group, 84 claims, owned by United Mercury Mines Co. **Ore:** Mercury, gold-silver. **Men employed:** Average, 80. **Remarks:** During the year construction on a 12-mile highway from Yellow Pine to Meadow Creek was started; a steam-driven sawmill, compressor, and complete mining equipment were installed on the Meadow Creek group at a large expenditure, as the equipment had to be drawn over the old Thunder Mountain road; and a large modern boarding and bunk house and 4 cottages were constructed. At the Cinnabar group mine development work was maintained throughout the year without interruption.

The road work, new plant installation, new construction and mine developments conducted by this company make it one of the largest and most important enterprises in south-central Idaho and one which is instrumental in attracting a large amount of attention to this part of the State.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Baker Pl.	Deadwood	Wm. Baker	Cascade
Boyle Gr.	Yellow Pine	Cy Boyle	Yellow Pine
Buckeye et al.	Edwardsburg	Wm. Mitchell	Meyers Cove
Call Gr.	Yellow Pine	Ray Call	Yellow Pine
Cascade	Yellow Pine	Mike Popovich	Yellow Pine
Copper King	Yellow Pine	Crosby Brewer	Warren
Crater Lake	Yellow Pine	Wm. Lockpitch	Yellow Pine
Dewey	Thunder Mt.	R. A. Davis, Jr.	Nampa
Ellis Gr.	Deadwood	Jas. Ellis	Knox
Gold Fork Meadows Gr.	Unknown	W. H. Shane	Emmett
Gold Reef	Deadwood	Edw. Moran	Knox
Gold Ridge et al.	Yellow Pine	H. B. Abstein	Yellow Pine
Golden Gate Gr.	Yellow Pine	Mark Campbell	Yellow Pine
Golden Way Gr.	Big Creek	Geo. W. Laufer	Yellow Pine
Gum Boot et al.	Edwardsburg	E. M. Hussey et al.	Cascade
Hard Rock Gr.	Deadwood	Clay Kalfus	Knox
Hill Top et al.	Unorganized	Nick Randa	Donnelly
Homestake	Yellow Pine	Albert Hennessy	Cascade
Independence	Edwardsburg	J. B. Eldridge	Boise
Jensen Gr.	Edwardsburg	Jensen Bros.	Clover
Keystone Gr.	Deadwood	Mitchell Jeannott	Pioneerville
Lake City Pl.	Lake City	Jacob Storer	McCall
Link	Deadwood	Bedan Davis	Cascade
Lucky Strike	Hurdy Cr.	D. J. Cain	Cascade
Ludwig Gr.	Edwardsburg	Anthony Ludwig	Edwardsburg
Maxwelton	Yellow Pine	Boyle & Holum	Yellow Pine
Merry Blue Gr.	Deadwood	J. Goecke	Cascade
Muck Flats et al.	Unorganized	J. H. Schlehuber	Cambridge
.....	Edwardsburg	Mattie Mahan	Clover
Pathfinder Gr.	Profile	Crosby Brewer	Warren
Pioneer	Yellow Pine	A. C. Behne	Yellow Pine
Profile Gap Gr.	Profile	Sam Wilson	Yellow Pine
Ramey Ridge	Edwardsburg	James Hand	Clover

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Red Metal	Profile	Chas. Ellison Est.	Yellow Pine
Rubarbe Pl.	Yellow Pine	Vernon White	Yellow Pine
Ruby Hill	Lake City	L. L. Alsager	Emmett
Silver Blossom Gr.	Unknown	E. T. Horine	Cascade
Silver Shield	Hurdy Cr.	Charles Hardin	Cabarton
Smith Cr. Gr.	Edwardsburg	John Koutsen	Warren
Snow Shoe	Big Creek	Jacob Jensen	Clover
Sparkling Spgs. Gr.	Unorganized	O. D. Bradbury	Yellow Pine
Stadium	Yellow Pine	Kennedy and Elliott	Yellow Pine
Sunday et al.	Edwardsburg	Wm. A. Edwards	Yellow Pine
Sunnyside	Thunder Mt.	Dan McRae	McCall
Taylor Ramby 1, 2, 3	Deadwood	Harold Taylor	Cascade
Thomson et al.	Edwardsburg	W. G. Thomson	Vale, Ore.
Union Gr.	Unorganized	J. L. Tyson et al.	Cabarton
Valley Gr.	Deadwood	Lee Bunch et al.	Boise
Warm Spring	Unorganized	E. H. Heller	Cascade

BIBLIOGRAPHY

See pages 13-14 for publisher's address, meaning of reference marks, and abbreviations.

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey, Twentieth Ann. Rept., pt. 3, pp. 75-256, **1900.***

Thunder Mountain and Mackay, Idaho, by R. N. Bell: Min. and Sci. Press, vol. 84, p. 62, Feb. 1, **1902.***

Geology of Thunder Mountain and central Idaho, by R. N. Bell: Eng. & Min. Jour., vol. 73, pp. 791-793, June 7, **1902.**§

Facts about Thunder Mountain, by R. N. Bell: Eng. and Min. Jour., vol. 74, pp. 273-275, Aug. 30, **1902.**§

Thunder Mountain, by W. E. L'Hame: Mines and Minerals, vol. 21, p. 558, July, **1901**; and vol. 24, pp. 207-209, December, **1903.***

Central Idaho gold district, by S. P. Jellum: Northwest Min. News, vol. 3, pp. 83-91, 107-114, 134-139, **1908**; vol. 4, pp. 2-6, 31-37, 66-73, **1909.***

Big Creek gold district, Idaho, by R. N. Bell: Eng. and Min. Jour., vol. 94, pp. 891-892, Nov. 9, **1912.**§

Quicksilver and antimony discoveries in central Idaho, by R. N. Bell: Idaho Mining Dept. Bull. 1, **1918.****

Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****

Geology of the Yellow Pine cinnabar mining district, Idaho, by E. S. Larsen and D. C. Livingston: U. S. Geol. Survey Bull. 715, **1920.***

A reconnaissance in south central Idaho embracing Thunder Mountain, Big Creek, Stanley Basin, Sheep Mountain, and Seafoam districts, by J. B. Umpleby and D. C. Livingston: Idaho Bureau of Mines and Geology Bull. 3, pp. 3-12, **1920.****

Antimony and quicksilver deposits in the Yellow Pine district, Idaho, by F. C. Schrader and C. P. Ross: U. S. Geol. Survey Bull. 780, pp. 137-167, **1926.**‡

Ore deposits in Tertiary lava in the Salmon River Mountains, Idaho, by C. P. Ross: Idaho Bureau of Mines and Geology, Pamphlet 25, **1927.****

WASHINGTON COUNTY

Washington is one of the southwestern counties, adjoining and lying north of Payette and Gem counties, east of Gem, and east and south of Adams County. The Snake River, which flows north, forms the entire western boundary. The county contains an area of 1479 square miles, and was accredited with a population of 9424 in the 1920 census. It is primarily an agricultural and stockraising community; that part which occupies the Snake River Valley is intensively cultivated, and is the location of the larger part of the population. Weiser is the county seat.

The North and South highway extends from the southern to the northern boundary and is situated about in the geographical center. Branch roads leading to all the settlements are maintained by the county; these are kept in good repair and open to travel the larger part of the year. The county is served by three railroads, the Pacific and Idaho Northern, which extends from Weiser to New Meadows; the main line of the O. S. L. Railroad, and the Huntington-Homestead, Oregon, branch of the same road.

The principal mineral resources are silver, copper, gold, lead, zinc, manganese, diatomaceous earth, pyrites, gypsum, clay, and garnet, practically all of which occur in the three mining districts—Washington, Cuddy Mountain, and Heath—the principal of which is the Washington, or Mineral, district. At one time the Mineral district was a large producer of silver; two blast furnaces were in operation, and the camp of Mineral was a good-sized town; but it has been deserted for many years, the smelters have been dismantled, and the district has almost reverted to its primitive condition. Nearly all the deposits are high-grade silver-copper ores, rather complex, and in some mines partly oxidized, but amenable to modern flotation methods. Many of the deposits in this district are extensive, a large tonnage of ore is available, and there appears to be no reason why the district should not be receiving more attention than it has during the past few years, as there are many properties that are worthy of investigation and development. Large deposits of pyrites and disseminated copper ore also occur in this district.

During 1928 Washington County witnessed but little improvement in mining activities over the previous year. The Cuddy Mountain Gold Mining Co., which is operating in the Cuddy Mountain district, performed a small amount of work; an organization operating at Mineral worked a few men during part of the year; and the Heath district witnessed an increase in investigations. One operator on Cuddy Mountain marketed a small shipment of lead-silver ore.

CUDDY MOUNTAIN GOLD MINING CO.

Office: 103 Park Ave., New York City. **Officers:** J. N. Bishop, Pres.; W. S. Gordon, Sec., both of New York City; W. E. Freehafer, Mgr., Council. **Inc.:** Mar. 27, 1926. **Capital:** 300,000 shares; par value $1; shares issued, unknown. **Property:** Cuddy Mountain group; 20 unpatented claims, Cuddy Mountain dist.; Council. **Development:** By 2 tunnels: No. 1, 300 ft. long; No. 2, 250 ft. long. **Plant:** Sawmill; small steam-driven amalgamation mill; complete mining equipment and camp. **Ore:** Gold. **Men employed:** Average, 10. **Remarks:** Active development work throughout the summer months.

EDNA MAY MINES CO., INC.

Office: Council. **Officers:** Geo. Larsen, Pres., Mullan; Roy O. Howland, Vice-Pres., Heath; J. A. Boone, Sec., Cambridge. **Inc.:** Aug. 13, 1926. Charter forfeited Nov. 30, 1928. **Capital:** 1,200,000 shares; par value 25c; 606,383 shares issued. **Property:** 21 unpatented claims, Heath dist.; Council. **Development:** Principally by 1 tunnel 400 ft. long. **Ore:** Lead-copper. **Men employed:** Average, 3. **Remarks:** Small amount of work during the summer months.

IDAHO-OREGON COAL MINING CO.

Office: 1014 N. 8th St., Boise. **Officers:** A. E. Price, Pres.-Mgr.; A. Affleck, Sec., both of Boise. **Inc.:** Nov. 5, 1920. **Capital:** 100,000 shares; par value $1; 69,000 shares issued. **Property:** Government prospecting permit on 1282 acres near Cobb Siding; Weiser. **Development:** By 1 tunnel 500 ft. long. **Mineral sought:** Coal.

SILVER STILL MINING CO.

Office: Weiser. **Officers:** John G. Still, Pres., Huntington, Ore.; E. R. Coulter, Sec., Weiser. **Inc.:** Aug. 21, 1924. Charter forfeited Nov. 30, 1928. **Capital:** 10,000 shares; par value $1; all shares issued. **Property:** 10 unpatented claims, Mineral dist.; Home, Ore. **Development:** 6 short tunnels, 1 shaft. **Ore:** Silver-copper. **Remarks:** A small amount of work during the year.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Alcorn Gr.	Cuddy Mt.	J. I. Burden	Council
Bay Horse et al.	Washington	U. S. Metals Co.	Huntington, Ore.
Copper Bell Gr.	Washington	J. R. Weaver	Home, Ore.
Copper King Ext.	Heath	H. H. Mack	Baker, Ore.
Cuddy Mt. Gr.	Cuddy Mt.	W. E. Freehafer	Council
Darius Gr.	Washington	Mrs. J. G. Burnham	Home, Ore.
Eagle Gr.	Washington	John G. Still	Huntington, Ore.
Edna May	Heath	Roy Howland	Homestead, Ore.
Egan Gr.	Washington	Emil Melzer Est.	Baker, Ore.
Enterprise Gr.	Washington	Shane & McCorkle	Home, Ore.
Fernwood	Heath	Wm. Ulrich	Huntington, Ore.
Iron Mt. Gr.	Washington	John Seigwein	Weiser
Jonsail	Heath	E. C. Jones	Huntington, Ore.
Last Chance Gr.	Cuddy Mt.	Frank Peck	Council
L. T. Claim	Cuddy Mt.	L. J. Thibault	Council
Magdalene Gr.	Washington	J. R. Weaver	Home, Ore.
No Business Canon	Cuddy Mt.	Howland & Levander	Fruitvale
Pin Money Gr.	Mineral	F. J. Kennedy	Council
Porcupine Gr.	Cuddy Mt.	J. T. Morris	Council
Raymond	Heath	Paul Raymond, Sr.	Heath
Rinehart Gr.	Cuddy Mt.	Rinehart & Bloomfield	Council
River Bank Gr.	Cuddy Mt.	Earl Kerr	Council
S. & R. Gr.	Cuddy Mt.	Summercamp & Riley	Payette
Sunshine Idaho Gr.	Cuddy Mt.	H. A. Arnold	Council
View of the Valley	Heath	J. H. Schlehuber	Cambridge

BIBLIOGRAPHY

See pages 13-14 for publisher's address, meaning of reference marks, and abbreviations.

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey, Twentieth Ann. Rept., pt. 3, **1900.***

The gold belt of the Blue Mountains of Oregon, by Waldemar Lindgren: U. S. Geol. Survey, Twenty-second Ann. Rept., pt. 2, pp. 562, 568, 579, 585, 592, 626, 629, 638, 641 and 752-756, **1901.***

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Oil and gas prospects near Vale, Oregon, and Payette, Idaho, by C. W. Washburne: U. S. Geol. Survey Bull. 431, pp. 26-55, **1909.***

The I. X. L. copper prospect, by R. N. Bell: Eng. and Min. Jour., vol. 108, p. 400, Sept. 6, **1919.**§

Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****

A preliminary report on the clays of Idaho, by F. H. Skeels: Idaho Bureau of Mines and Geology Bull. 2, **1920.***

The copper deposits of the Seven Devils and adjacent districts, by D. C. Livingston and F. B. Laney: Idaho Bureau of Mines and Geology Bull. 1, **1920.***

Gypsum deposits of the United States, by R. W. Stone and others: U. S. Geol. Survey Bull. 697, pp. 99-100, **1920.**‡

Oil and gas possibilities of eastern Oregon, by J. P. Buwalda: Oregon Bureau of Mines and Geology, vol. 3, No. 2, **1921.***

A preliminary reconnaissance of the gas and oil possibilities of southwestern and south-central Idaho, by J. P. Buwalda: Idaho Bureau of Mines and Geology Pamphlet 5, **1923.****

A geologic reconnaissance of the Mineral and Cuddy Mountain mining district, Washington and Adams counties, Idaho, by D. C. Livingston: Idaho Bureau of Mines and Geology Pamphlet 13, **1925.****

DELINQUENT MINING COMPANIES

The Idaho mining law, section 5474, Idaho Compiled Statutes, was enacted with the intent to assist the inspector of mines in properly discharging his official duties. The Blue Sky law, as applicable to mining companies, section 5320, Idaho Compiled Statutes, was enacted on the assumption that if a mining company publicly files the facts relative to its mine and organization, this information should be sufficient to indicate the character and extent of the company and its undertaking.

The forms on which the reports are to be made to the inspector are mailed out in May of each year. These forms are so arranged that the required facts can be given with little effort, and as ignorance of the law is no excuse, there must be other reasons why many reports are not filed and why many that are filed are not complete. Possibly there might be some excuse for an inactive company neglecting to comply with the law, but none can be offered for a company that is operating, and most particularly when the stock is being actively marketed or when stock assessments are being levied.

Every effort possible has been put forth during the year to get a report from all mining companies operating in Idaho whose charters are in good standing. This effort has not been entirely successful, and, believing that the list of "Delinquent Mining Companies" as published in previous annual reports has been informative, a similar list for 1928 is included.

Corporations that have forfeited their charters, and that have failed to file their reports as required by law, have been considered as legally dead; therefore no mention is made of them.

Companies whose corporate charters are in good standing, but who have failed to file annual reports with inspector of mines, as provided in sections 5320 and 5474 of Idaho Compiled Statutes:

COMPANY NAME	OFFICER	P. O. ADDRESS
Atlas X Co.	W. Earl Greenough	Mullan
Bear Top Lead Mines	Marguerite Schick	Wallace
Big Ben Gold Mining Co.	C. H. Seagrave	Gooding
Binarch Creek Mining Co.	Arthur L. Hooper	501 City Hall, Spokane, Wash.
Blue Grouse Mining Co., Ltd.	D. A. Callahan	Wallace
Boise Mng., Mill. & Smelt. Co.	M. J. Minton	Boise
Bonner Mining Co.	J. A. Henderson	Oakesdale, Wash.
Boundary Cons. Mng. Co.	E. C. Outlaw	748 Peyton Bldg., Spokane, Wash.
Caledonia Silver-Lead Mng. Co.	A. C. Beal	Kellogg
Chloride Eureka Co.	Harriet E. Bowler	Salmon
Cincinnati Mining Co.	W. H. Herrick	Wallace
Coeur d'Alene Champion Mng. Co.	James Keeth	E. 1827 Sprague Ave., Spokane, Wash.
Coeur d'Alene Mines Corp.	Geo. Turner	Columbia Bldg., Spokane, Wash.
Come-Back Mining Co.	C. C. Fairchild	Idaho City
Consolidated Metals Inc.	Geo. T. Walker	Wallace
Discovery Gulch Mng. Co.	E. H. Miley	530 N. Harrison St., Pocatello
Eagle Creek Gold Mng. Co.	W. H. Hanson	Wallace
East Standard Mining Co.	J. E. Gyde	Wallace
Echo Mining Co., Ltd.	W. H. Hanson	Wallace
E & M Mining Co.	Kenneth G. Felt	Ketchum
Enchanted Hill Mining Co.	A. C. Beal	Kellogg
Eureka M. & M. Co., Ltd.	W. M. Crowell	Wenatchee, Wash.
Falls Creek Mining Co.	Wm. Hollenbaek	Sandpoint

COMPANY NAME	OFFICER	P. O. ADDRESS
Gaiety Mt. Gold Mines Co.	Geo. H. Cochran	279 Forest Ave., Englewood, N. J.
Giant Ledge Syndicate, Inc.	G. F. Walker	Kendrick
Gilmore-Mountain Boy Mng. Co.	Enoch Stewart	Gilmore
Gold Ore Mines of Idaho, Inc.	Fremont Wood	Boise
Grand Teton Oil Co.	Geo. W. Edgington	Idaho Falls
Gray Wolf Mining Co.	J. E. Crawford	Coeur d'Alene
Grey Eagle M. & M. Co.	W. H. Hanson	Wallace
Harmony Mines Co.	E. F. Neiman	Salmon
Hennessy-Burns Mining Co.	J. F. Whelan	Wallace
Hercules Exploration Co.	W. B. Heitfeld	Wallace
High Grade Mining Co.	L. L. Ruthruff	Kellogg
Hollinger Gold Mines Co., Ltd.	Geo. P. Myers	Bonners Ferry
Homestake Gold Mining Co.	A. W. Boyd	Elk City
Hunter Creek Mines Corp.	Fred W. Julian	Spokane, Wash.
Idaho Lakeview Mines Co.	D. M. Drumheller	Spokane, Wash.
Idaho Manganese Mining Co.	Geo. L. Smith	Cleveland
Idaho Mines Corporation	W.H. Hanson	Wallace
Idaho & Nevada Mining Co.	N. W. Nute	Portland, Ore.
Idaho Silver Magnet Mines Co.	Thos. Fahey	Spokane, Wash.
Irbis Placer Association	G. S. DeWolf	Grangeville
Jupiter Mining Co.	Theodore Wellman	Wallace
Knickerbocker Mines Co.	C. J. Shoemaker	Sandpoint
Lead Bell Mining Co.	Drusilla Godfrey	Lava Hot Springs
Lemhi-Union Co.	W. H. Gilliam	Rexburg
Liberal King Mining Co.	J. B. Cox	Kellogg
Lime Peak Copper Co.	L. B. Reeder	214 Couch Bldg., Portland, Ore.
Little Mint Mining Co.	J. F. Whelan	Wallace
Loney Leasing Co.	R. E. Weniger	Wallace
M & B Exploration Co.	Harry Barton	Boise
Meadow Creek Oil Co.	Frank D. Turner	Rexburg
Merry Widow Mining Co.	A. L. Strope	Wallace
Metals Mining Co.	G. A. Cunningham	E. 327 Boone Ave., Spokane, Wash.
Metals Mining Co.	S. A. Anderson	Bonners Ferry
Minerva M. & M. Co., Ltd.	Henry A. Jones	730 Bakewell Bldg., Pittsburgh, Pa.
Missoula Copper Mining Co.	J. R. Bean	Wallace
Mountain Queen Mng. Co., Ltd.	Walter Keister	Murray
Mt. Sullivan Mining Co.	Joseph Munn	Pocatello
Mule Shoe Mining Co.	R. W. Johnson	580 Hamilton Court, Salt Lake City, Utah
National Copper Mines Co.	R. Fennell	606 Lewis Bldg., Portland, Ore.
Neva Copper Co.	Roberta Ripple	400 Hutton Bldg., Spokane, Wash.
Nevada Mines	Arthur L. Hooper	501 City Hall, Spokane, Wash.
Pacific Silver-Lead Co.	Geo. T. Walker	Wallace
Papurel & Graham Mt. Mng. Co.	J. F. Whelan	Wallace
Patrick Placer Mines	P. Chappell Browne	Fairmont Hotel, Spokane, Wash.
Patuxent Mining Co.	D. A. Callahan	Wallace
Pittsbgh. & Ida. M. & M. Co., Ltd.	Daniel Laverty	Pardee
Priest Lake Mining Co.	Joe Saccomanno	Priest River
Rapid Creek Mining Co., Ltd.	F. M. Kerby	Cascade
Rapid River M. & M. Co., Ltd.	J. G. Meyer	Genesee
Revett Mining Co.	J. F. Arnold	E. 604 Eighth Ave., Spokane, Wash.

COMPANY NAME	OFFICER	P. O. ADDRESS
Rockland Valley Oil Co.	Ed. M. Norris	Rockland
Rocky Bar Mining Co.	M. G. Martindale	1001 Paulsen Bldg., Spokane, Wash.
Roundtop Mining Co.	W. F. Sargent	St. Maries
Ruby Mining Co.	John Ball	83 Cowley Road, Chicago, Ill.
Sabina Mines Co.	James A. Wayne	Wallace
St. Joe Lead & Silver Mines Co.	Patrick Brady	Burke
S. E. Mining Co.	Geo. T. Ellison	Glenns Ferry
Silver Cable Syndicate	G. W. Ringel	Wallace
Syndicate Mining Co., Ltd.	Geo. L. Dougherty	Wallace
Tammany Oil Co.	V. F. Lorang	Lewiston
Torino Mining Co.	J. F. Whelan	Wallace
Troy Mica Co.	A. N. Conger	Lewiston
Tuscumbia Mining Co., Ltd.	Morton Webster	Wallace
U. S. Silver-Lead Mines Co.	Jos. McCarthy	Paulsen Bldg., Spokane, Wash.
Verde-May Mining Co., Ltd.	W. H. Hanson	Wallace
Wallace Silver-Lead Mines Co.	W. H. Hanson	Wallace
War Eagle M. & M. Co.	Lafayette Boone	Boise
Weiser Gas & Petroleum Co.	Ed. R. Coulter	Weiser
Wilcox Leasing Co.	R. B. Lundy	Wallace
Wione Mining Co.	V. H. Stone	Lander, Wyo.
Yakima-Shoshone Mining Co.	E. S. Crane	1004 E. Mission Ave., Spokane, Wash.
Yankee-Polaris L. & D. Co.	E. C. Allen	Wallace
Ymir-Coeur d'Alene Mining Co.	W. C. Weber	Spirit Lake

Companies whose corporate charters are in good standing, but who have failed to file annual reports with the inspector of mines, as provided in sections 5320 and 5474 of Idaho Compiled Statutes, and who levied one or more stock assessments during 1928:

COMPANY NAME	OFFICER	P. O. ADDRESS
Blue Star M. & M. Co., Ltd.	A. C. Morbeck	Kingston
Mayflower Mining Co.	W. W. Smith	Wallace
Silver Dale & Big Hill Mng. Co.	D. W. Knudson	Kellogg
Silver Lode M. & M. Co.	D. Williams	Kellogg
Washington Mining Co.	R. W. Campbell	Burke

Companies whose forms of organization are unknown, who have never complied with sections 5320 and 5474 of Idaho Compiled Statutes, and who have been levying stock assessments during 1928:

COMPANY NAME	OFFICER	P. O. ADDRESS
Idaho Group Units	Geo. H. McKinnis	Kellogg

Companies whose names were gleaned from the press, whose forms of organization are unknown, and who have failed to file annual reports with the inspector of mines, as provided in sections 5320 and 5474 of Idaho Compiled Statutes:

COMPANY NAME	OFFICER	P. O. ADDRESS
Black Tail Mtn. Mng. Co.	Ernest E. Ward	Sandpoint
Boyer Bros. Mining Co.	Bruce Turnbull	Sandpoint
Buckhorn Mining Co.	J. F. Inglis	Salmon
Clipper Bullion Mining Co.	H. W. Ingalls	Mullan
Helena Mining Units	Milo B. Runyan	Rathdrum
Idaho Gold Associates	J. B. Mason	Mutual Life Bldg., Seattle, Wash.
Niagara Mining Co.	Herman J. Rossi	Wallace
Rush Gold & Silver Mining Co.	O. P. Barber	Pocatello

GENERAL BIBLIOGRAPHY

See pages 13-14 for publisher's address, meaning of reference marks, and abbreviations.

For production statistics, discussions on geology, description of mines and mining districts (location and production), see all volumes of: U. S. Geol. Survey Mineral Resources, U. S. Bureau of Mines Mineral Resources, Reports of Idaho Inspector of Mines, and the Annual Reports of the Director of the United States Mint.

GENERAL REFERENCES

Contributions to economic geology, by S. F. Emmons and E. C. Eckel: U. S. Geol. Survey Bull. 285, **1906.***

Retracement of the boundary line between Idaho and Washington from the junction of Snake and Clearwater rivers northward to the international boundary, by R. B. Marshall: U. S. Geol. Survey Bull. 466, **1911.**‡

An old erosion surface in Idaho, by J. B. Umpleby: Jour. Geology, vol. 20, pp. 139-147, **1912.**§

The mining districts of the western United States, by J. M. Hill, with a geological introduction, by Waldemar Lindgren: U. S. Geol. Survey Bull. 507, **1912.***

Useful minerals of the United States, by Samuel Sanford and R. W. Stone: U. S. Geol. Survey Bull. 585, pp. 63-68, **1914.***

Useful minerals of the United States, by F. C. Schrader et al.: U. S. Geol. Survey Bull. 624, pp. 115-121, **1917.***

Gold dredging in the United States, by Charles Janin: U. S. Bureau of Mines Bull. 127, **1918.**‡

An old erosion surface in Idaho: Is it Eocene? by J. L. Rich: Econ. Geology, vol. 13, pp. 120-136, March, **1918.**§

The Idaho peneplain, by Waldemar Lindgren (Discussion): Econ. Geology, vol. 13, pp. 486-488, Sept., **1918.**§

An old erosion surface in Idaho, by D. C. Livingston (Discussion of Mr. Rich's article): Econ. Geology, vol. 13, pp. 488-492, Sept., **1918.**§

A preliminary report on the mining districts of Idaho, by Thomas Varley et al.: U. S. Bureau of Mines (in cooperation with the Univ. of Idaho) Bull. 166, **1919.**‡

Types of Rocky Mountain structure in southeastern Idaho (abstract with discussion by G. W. Stose): Geol. Soc. America Bull., vol. 31, No. 1, pp. 126-127, March 31, **1920.**§

Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon, No. 2398: U. S. Nat. Museum Proc., vol. 60, art. 3, pp. 1-133, **1921.**‡

Igneous geology of southeastern Idaho, by G. R. Mansfield: Geol. Soc. America Bull., vol. 32, pp. 249-266, **1921.**§

Boundaries, areas, geographic centers and altitudes of the United States and the several states, by E. M. Douglas: U. S. Geol. Survey Bull. 689, **1923.** (Idaho, p. 210.)‡

Power resources of Snake River between Huntington, Oregon, and Lewiston, Idaho, by W. G. Hoyt: U. S. Geol. Survey Water-Supply Paper 520C, pp. 27-51, **1924.**‡

Zonal distribution of gold, silver, lead, and copper ores in Idaho, by F. A. Thomson and Fritz McGonigle: Eng. and Min. Jour., vol. 120, pp. 216-218, Aug. 8, **1925.**§

The future of Idaho as a mineral producer, by F. A. Thomson: Mining Congress Journal, vol. 11, pp. 536-538, Nov., **1925.**§

The minerals of Idaho, by E. V. Shannon: U. S. Nat. Mus. Bull. 131, **1926.**‡

CINNABAR

U. S. Geol. Survey Mineral Resources, **1917**, pt. 1, pp. 414-415.*

Quicksilver and antimony discoveries in Central Idaho, by R. N. Bell: Idaho Mining Department Bull. 1, **1918.****

Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****

Geology of the Yellow Pine cinnabar mining district, Idaho, by E. S. Larsen and D. C. Livingston: U. S. Geol. Survey Bull. 715, **1920.***

COAL

Description of the Boise quadrangle, by Waldemar Lindgren: U. S. Geol. Survey Geol. Atlas, Folio No. 45, **1898.** (Boise and Gem counties.)*

A geological reconnaissance across the Bitterroot Range and Clearwater Mountains, in Montana and Idaho, by Waldemar Lindgren: U. S. Geol. Survey Prof. Paper 27, pp. 111-113, **1904.** (Clearwater County.)*

Lignite in the Goose Creek district, Cassia County, Idaho, by C. F. Bowen: U. S. Geol. Survey Bull. 531, pp. 252-262, **1911.***

Coal at Horseshoe Bend and Jerusalem Valley, Boise County, Idaho, by C. F. Bowen: U. S. Geol. Survey Bull. 531, pp. 245-251, **1911.***

A geological reconnaissance in southeastern Idaho, by A. R. Schultz and R. W. Richards: U. S. Geol. Survey Bull. 530, p. 281, **1911.** (Bonneville County.)*

The Horseshoe Creek district of the Teton Basin coal field, by E. G. Woodruff: U. S. Geol. Survey Bull. 541, pp. 379-388, **1912.** (Teton County.)*

The Orofino coal field, Clearwater, Lewis, and Idaho counties, Idaho, by C. T. Lupton: U. S. Geol. Survey Bull. 621, pp. 99-108, **1915.***

A geologic reconnaissance for phosphate and coal in southeastern Idaho and western Wyoming, by A. R. Schultz: U. S. Geol. Survey Bull. 680, pp. 64-79, **1918.** (Teton, Bonneville, and Caribou counties.)‡

Preliminary report on the Horseshoe district of the Teton coal basin, southeastern Idaho, by G. W. Evans: A preliminary report on the mining districts of Idaho, by Thomas Varley and others: U. S. Bureau of Mines Bull. 166, pp. 90-103, **1919.** (Teton County.)‡

Coal in eastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 716, **1920.** (Fremont, Teton, Madison, and Bonneville counties.)‡

The Horseshoe Basin area of the Teton coal fields in southeastern Idaho, by G. W. Evans: Idaho Bureau of Mines and Geology Pamphlet 10, **1924.***

MONAZITE

The monazite sands, by Waldemar Lindgren: Mining districts of Idaho Basin and Boise Ridge: U. S. Geol. Survey, Eighteenth Ann. Rept., pt. 3, pp. 677-679, **1898.***

Useful minerals in the black sands of the Pacific slope, by D. T. Day and R. H. Richards: U. S. Geol. Survey Mineral Resources, **1905**, pp. 1175-1258.*

Monazite in Idaho, by D. B. Sterrett: U. S. Geol. Survey Mineral Resources, **1909**, pt. 2, pp. 898-903.*

An occurrence of monazite in northern Idaho, by F. C. Schrader: U. S. Geol. Survey Bull. 430, pp. 184-191, **1909.***

OIL AND GAS

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Notes on geology of southwestern Idaho and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Bull. 217, **1903.**‡

Gas and oil prospects near Vale, Oregon, and Payette, Idaho, by C. W. Washburne: U. S. Geol. Survey Bull. 431, pp. 26-55, **1909.** (Payette County.)*

A geologic reconnaissance for phosphate and coal in southeastern Idaho and western Wyoming, by A. R. Schultz: U. S. Geol. Survey Bull. 680, pp. 79-81, **1918.** (Teton, Bonneville, and Caribou counties.)‡

Oil shale in western Montana, southeastern Idaho, and adjacent parts of Wyoming and Utah, by D. D. Condit: U. S. Geol. Survey Bull. 711, pp. 15-40, **1920.**‡

Oil and gas possibilities of eastern Oregon, by J. P. Buwalda: Oregon Bureau of Mines and Geology, vol. 3, No. 2, **1921.** (Southwestern Idaho.)*

Petroleum possibilities of certain anticlines in southeastern Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Bull. 4, **1922.***

Oil in Idaho? by K. C. Heald: Am. Assoc. Petroleum Geologists Bull., vol. 6, No. 5, pp. 472-473, Sept.-Oct., **1922.**§

Oil shale of the Rocky Mountain region, by D. E. Winchester: U. S. Geol. Survey Bull. 729, **1923.**‡

Notes on the geology of eastern Bear Lake County, Idaho, with reference to oil possibilities, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 7, **1923.****

Geology and water resources of the Goose Creek Basin, Cassia County, Idaho, by A. M. Piper: Idaho Bureau of Mines and Geol. Bull. 6, **1923.****

A preliminary reconnaissance of the gas and oil possibilities of southwestern and south-central Idaho, by J. P. Buwalda: Idaho Bureau of Mines and Geology Pamphlet 5, **1923.****

Possibilities of petroleum in Power and Oneida Counties, Idaho, by A. M. Piper: Idaho Bureau of Mines and Geology Pamphlet 12, **1924.****

Geology and oil possibilities of Bingham, Bonneville, and Caribou counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Bull. 8, **1924.****

Oil possibilities of southeastern Idaho, by V. R. D. Kirkham: Mining and Metallurgy, vol. 6, No. 218, Feb., **1925.**§

PHOSPHATE

(Principal references only)

The Bear River formation and its characteristic fauna, by C. A. White: U. S. Geol. Survey Bull. 128, **1895.***

Phosphate deposits in western United States, by F. B. Weeks and W. F. Ferrier: U. S. Geol. Survey Bull. 315, pp. 449-462, **1907.***

Phosphate deposits in western United States, by F. B. Weeks: U. S. Geol. Survey Bull. 340, pp. 441-447, **1908.***

Preliminary report on the phosphate deposits in southeastern Idaho and adjacent parts of Wyoming and Utah, by H. S. Gale and R. W. Richards: U. S. Geol. Survey Bull. 430, pp. 457-531, **1909.***

The fauna of the phosphate beds of the Park City formation in Idaho, Wyoming and Utah, by G. H. Girty: U. S. Geol. Survey Bull. 436, **1910.**‡

Preliminary reports on a portion of the Idaho phosphate reserve, by R. W. Richards and G. R. Mansfield: U. S. Geol. Survey Bull. 470, pp. 371-439, **1910.***

A geologic reconnaissance in southeastern Idaho, by A. R. Schultz and R. W. Richards: U. S. Geol. Survey Bull. 530, pp. 267-284, **1911.***

Geology of the phosphate deposits northeast of Georgetown, Idaho, by R. W. Richards and G. R. Mansfield: U. S. Geol. Survey Bull. 577, **1914.**‡

Revision of the Beckwith and Bear River formations of southeastern Idaho, by G. R. Mansfield and P. V. Roundy: U. S. Geol. Survey Prof. Paper 98, pp. 75-84, **1916.***

Phosphate deposits in Idaho, by R. N. Bell: Eng. and Min. Jour., vol. 104, pp. 293-294, Aug. 18, **1917.**§

A geologic reconnaissance for phosphate and coal in southeastern Idaho and western Wyoming, by A. R. Schultz: U. S. Geol. Survey Bull. 680, **1918.**‡

Geography, geology, and mineral resources of the Fort Hall Indian Reservation, Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 713, **1920.**‡

Phosphate mine of Anaconda Copper Company, by C. E. Nighman: Twenty-fifth Ann. Rept., Min. Industry of Idaho, **1923.***
Phosphate deposits of Idaho and their relation to the world supply, by V. R. D. Kirkham: Trans. Am. Inst. Min. Eng., vol. 71, pp. 308-338, **1925.**§
Geography, geology, and mineral resources of part of southeastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Prof. Paper 152, **1927.****
The Idaho phosphate field, by G. R. Mansfield: Mining and Metallurgy, vol. 9, No. 253, Jan., **1928.**§

SNAKE RIVER GOLD

Sixth Ann. Rept. U. S. Geol. and Geog. Survey Terr., by F. H. Bradley, p. 266, **1873.***
Eleventh Ann. Rept. U. S. Geol. and Geog. Survey Terr., by Orestes St. John, pt. 1, pp. 321-474, **1883.***
Treatment of the fine gold in the sands of Snake River, Idaho, by Thomas Egleston: Trans. Am. Inst. Min. Eng., vol. 18, pp. 597-609, **1889.**§
Snake River gold fields, by Don Maguire: Mines and Minerals, vol. 20, pp. 56-58, September, **1899.***
Hydraulic pumping plant on the Snake River, Idaho, for power irrigation and treatment of gold sands, by John Birkinbine: Trans. Am. Inst. Min. Eng., vol. 30, p. 518, **1900.**§
Gold dredging on Snake River in Idaho, by F. Powell: Eng. and Min. Jour., vol. 70, pp. 395-396, Oct. 6, **1900.**§
Gold in Snake River gravel bars, by W. H. Washburn: Min. and Sci. Press, vol. 81, p. 610, **1900.***
The gold belt of the Blue Mountains of Oregon, by Waldemar Lindgren: U. S. Geol. Survey, Twenty-second Ann. Rept., pt. 2, pp. 759-762, **1901.***
Dredging for fine gold in Idaho, by R. N. Bell: Eng. and Min. Jour., vol. 72, pp. 241-242, **1902.**§
The origin of the fine gold of the Snake, by R. N. Bell: Eng. and Min. Jour., vol. 73, pp. 143-144, **1902.**§
The origin of the fine gold in Snake River, Idaho, by J. H. Shockley: Eng. and Min. Jour., vol. 73, pp. 280-281, **1902.**§
Description of the Nampa quadrangle, by Waldemar Lindgren and N. F. Drake: U. S. Geol. Survey Geol. Atlas, Folio No. 103, **1904.***
Useful minerals in the black sands of the Pacific slope, by D. T. Day and R. H. Richards: U. S. Geol. Survey Mineral Resources, **1905,** pp. 1175-1258.*
Investigation of black sands from placer mines, by D. T. Day and R. H. Richards: U. S. Geol. Survey Bull. 285, pp. 150-164, **1906.***
Gold development in central Uinta County, Wyoming, and at other points on Snake River, by A. R. Schultz: U. S. Geol. Survey Bull. 315, pp. 71-88, **1906.***
The gold of the Snake River, by R. N. Bell: Min. and Sci. Press, vol. 94, p. 542, Apr. 27, **1907.***
Fine gold of Snake River, by C. B. Irvine: Min. World, vol. 29, p. 916, **1908.***
A geologic reconnaissance in southeastern Idaho, by A. R. Schultz and R. W. Richards: U. S. Geol. Survey Bull. 530, pp. 282-283, **1911.***
Geology and geography of a portion of Lincoln County, Wyoming, by A. R. Schultz: U. S. Geol. Survey Bull. 543, pp. 121-129, **1914.***
Notes on the fine gold of Snake River, Idaho, by J. M. Hill: U. S. Geol. Survey Bull. 620, pp. 271-294, **1915.***
A geological reconnaissance for phosphate and coal in southeastern Idaho and western Wyoming, by A. R. Schultz: U. S. Geol. Survey Bull. 680, pp. 78-79, **1918.**‡
Annual reports of the Idaho Inspector of Mines, **1899** to **1919.***

1928 METAL PRODUCTION

The total value of the gold, silver, lead, zinc, and copper produced in Idaho in 1928 was $29,601,025.44, a decrease of $1,193,888.20 in value under the production of 1927, which was $30,794,913.64. The decrease in value in 1928 as compared with 1927 was caused by a decrease in the output and price of lead. Gold, zinc, and copper registered a substantial increase, and there was a slight increase in silver. In past years the output of silver varied in accordance with that of lead, but in 1928 the large increase in production from mines in which silver is the principal metal upset this precedent and the production exceeded that of the former year both in amount and in value. Blaine, Owyhee, and Idaho counties recorded an increase of about three times that of the previous year, the Boise County production was nearly doubled, Custer and Elmore counties were approximately the same, while Shoshone, Lemhi, Bonner, and Gem witnessed a decrease. The combined total production of all counties, excepting Shoshone, shows a marked increase over that of the previous year, thus indicating an expansion in the mining industry. This is further shown by an increase of 23 in the number of producers in 1928 over that of 1927.

Shoshone County continued to maintain its position as the principal mining county in the State and, with the exception of lead, recorded an increase in the production of the five chief metals, particularly zinc. Its rank in percentage as compared with the rest of the State was practically the same, being 92.82 per cent in 1928 and 92.79 per cent in 1927. Its total production in 1928 was $27,474,740.39 as against $28,574,891.88 in 1927, thus accounting for a large part of the total State decrease between the two years. This county was first in the production of lead, silver, zinc, and copper; Boise County was first in the production of gold; and Custer County was first in the production of copper from copper-producing mines, the Shoshone County copper being derived as a by-product from lead-silver ores.

The respective rank of the principal mining counties in point of total production was: Shoshone, Blaine, Custer, Lemhi, Boise, Butte, Bonner, Elmore, Boundary, Idaho, and Owyhee.

Gold

The 1928 output of gold was 20,739.95 ounces, valued at $428,694.77, an increase of 5,147.94 ounces and $106,407.91 as compared with that of 1927, which was 15,592.01 ounces valued at $322,286.86. This increase is significant in indicating that interest is again being taken in gold mining, and that this resource still offers many possibilities.

The respective rank of the leading mining counties in point of total gold produced was: Boise, Elmore, Owyhee, Custer, Lemhi, Shoshone, and Blaine. The principal gold-producing companies and their respective ranks were: Idawa Gold Mining Co., Boise County; South Park Dredging Co., Elmore County; Idaho Gold Dredging Co., Boise County; American Gold Dredging Corporation, Owyhee County; Unity Gold Mines Co., Idaho County; Boise Placer Co., Boise County; S. O. Miiller, Idaho County; and Mackay Metals, Custer County.

Silver

The output of silver increased from 8,896,293.80 ounces with a value of $5,014,840.42 in 1927 to 8,987,484.00 ounces with a value of $5,228,558.70 in 1928, an increase of 91,191.00 in ounces and of $213,718.28 in value. The small increase in ounces produced is quite significant, as it indicates a substantial increase over the production in 1927 because the total output of silver in 1928 did not decrease in proportion to that of lead. The substantial increase in value was due to an increase in price from $0.5637 per ounce in 1927 to $0.58176 per ounce in 1928. Shoshone and Blaine counties each showed a marked increase in production, but the decrease in other counties reduced the State total.

The 1928 silver production in Shoshone County was 8,472,560.00 ounces valued at $4,928,996.51, as compared with 8,236,341.70 ounces valued at $4,642,825.82 for 1927, and that of Blaine County for the respective years was 181,507.00 ounces valued at $105,593.51, and 96,168.00 ounces valued at $54,-

209.90. This record production for Shoshone County, 94.27 per cent of the total for the State, indicates the importance of mining in the Coeur d'Alene district, particularly as Idaho produces one-third of all the silver of the United States. The order of prominence of the principal silver-producing counties was: Shoshone, Blaine, Custer, Lemhi, Boundary, Bonner, Butte, and Boise. The largest producers in Shoshone County were: Federal M. & S. Co., Bunker Hill & Sullivan M. & C. Co., Hecla Mining Co., Sunshine Mining Co., Tamarack & Custer Consolidated Mining Co., Gold Hunter Mines, Inc., Callahan Zinc-Lead Co., Sherman Lead Co., Dayrock Mines Co., Golconda Lead Mines, Sidney Leasing Co., and Hayes Co. In other counties the most important producers were: United Idaho Mining Co. and the Allie mine, in Lemhi County; Livingston Mines Corporation, Ramshorn mine, and Mackay Metals, in Custer County; Whitedelf Mining & Development Co. and Hope Mining Co., in Bonner County; Triumph Development Co. and Independence mine of the Federal M. & S. Co., in Blaine County; Wilbert Mining Co., Ltd., in Butte County; and the Continental mine, in Boundary County.

Lead

The production of lead decreased from 312,770,885 pounds valued at $21,127,673.28 in 1927 to 302,590,871 pounds valued at $19,078,354.41 in 1928, a decrease of 10,180,014 pounds and a loss of $2,049,318.87 in value, in part due to a decrease in price. The average price of lead in 1928 was 6.305 cents per pound, while in 1927 it was 6.755 cents per pound.

Shoshone County furnished 95.69 per cent of the State total with a production of 289,539,236 pounds, a decrease of 4,189,154 pounds under that of the previous year. The decrease in lead production by the mines in Lemhi, Custer, and Bonner counties was responsible for the balance of the total State decrease, which was slightly offset by the increase in Blaine County.

The importance of Idaho as a lead-producing State, and particularly of Shoshone County, is apparent from the fact that the State ranks second in the United States and produces approximately one-fourth of the entire output of the nation.

The order of prominence of the principal lead-producing counties was: Shoshone, Blaine, Lemhi, Butte, Custer, Bonner, and Boundary.

The Bunker Hill & Sullivan M. & C. Co. maintained its record as the largest lead-producing company in the State, if not in the United States; the Federal M. & S. Co. was second; and the Hecla Mining Co. was third. The other large lead-producing companies in Shoshone County, in their order of prominence, were: Tamarack & Custer Consolidated Mining Co., Gold Hunter Mines, Inc., Dayrock Mines Co., Sherman Lead Co., Sidney Leasing Co., Callahan Zinc-Lead Co., Golconda Lead Mines, Jack Waite Consolidated Mining Co., Sunshine Mining Co., Hayes Co., and Humming Bird Mining Co. Important lead producers in other counties were: United Idaho Mining Co. and Allie mine, in Lemhi County; Livingston Mines Corporation and Ramshorn mine, in Custer County; Whitedelf Mining & Development Co. and Hope Mining Co., in Bonner County; Wilbert Mining Co., Ltd., in Butte County; Triumph Development Co. and the Independence mine of the Federal M. & S. Co., in Blaine County; and the Continental mine, in Boundary County.

Zinc

The 1928 production of recoverable zinc was greater than that of any year since 1917, exceeding the 1927 production by 9,854,710 pounds and $455,311.72 in value. The total production was 74,334,543 pounds valued at $4,480,142.90, as compared with 64,479,833 pounds valued at $4,024,831.18 in 1927.

The satisfactory price level which zinc maintained throughout the year was a dominant factor in stimulating production, and improvements in milling practice, particularly in flotation, were responsible for an increase in recoveries and grade of concentrate produced. In 1928 the price of zinc averaged 6.027 cents a pound, as compared with a price of 6.242 cents a pound in 1927.

The Anaconda Copper Mining Co. of Anaconda, Montana, and the Sullivan Mining Co. were the principal buyers of zinc concentrates; however, the Bunker Hill & Sullivan M. & C. Co. purchased and stock-piled a large tonnage.

The most important event of the year relating to the mining and marketing of zinc ores was the completion of construction and the commencement of operations of the electrolytic zinc plant by the Sullivan Mining Co. The metal produced by this company is the highest grade zinc ever obtained; new methods had to be devised for its analysis, and it is selling at a premium in price over any other zinc metal. The construction of this plant will tend to perpetuate the mining industry in Shoshone County and greatly stimulate the production of zinc ores.

Shoshone, Blaine, Custer, and Bonner were the only counties that produced a marketable zinc product. The output of the latter was unimportant, but the production of Blaine and Custer counties, obtained principally from the Triumph mine of the Triumph Development Co. and the Livingston mine of the Livingston Mines Corporation, was quite significant. The principal zinc-producing companies in Shoshone County were: Federal M. & S. Co., Sidney Leasing Co., Tamarack & Custer Consolidated Mining Co., Golconda Lead Mines, Sherman Lead Co., Bunker Hill & Sullivan M. & C. Co., and Sullivan Mining Co.

Copper

The output of copper in 1928 was 2,644,301 pounds valued at $385,274.66, an increase of 281,438 pounds and $79,992.76 in value over that of 1927, which was 2,362,863 pounds valued at $305,281.90. The price of copper averaged 14.57 cents a pound in 1928, and 12.92 cents a pound in 1927. The increase in production was due to the reopening of the Empire copper mine in Custer County by the Mackay Metals, which was active throughout a large part of the year, and to productive operations throughout the year by the Winder-Stillman Copper Co. in Lemhi County.

The order of prominence of the principal copper-producing counties was: Shoshone, Custer, and Lemhi. The principal copper-producing companies or mines were: The Mackay Metals, in Custer County; and the Winder-Stillman Copper Co., in Lemhi County. Excepting the copper produced by these companies and a few isolated small shipments, the remainder of the copper produced in the State was associated with lead-silver ores and was recovered by the smelters as a by-product.

STATISTICS

The production statistics are based upon the gross metal content of all ores or bullion produced and sold from Idaho mines during 1928. The tabulation constitutes the production as reported to the inspector's office; reports have been verified in every possible manner; and no estimates have been used in the compilation. If any error exists in the totals, it is due to unreported production, and as production statements were furnished by all the large producers, the margin of error is very small. Any unreported production would cause these figures to be larger than the amounts set forth, so this compilation represents, as nearly as possible, the correct minimum production.

The values have been figured from the average price of metals for the year, based on New York and St. Louis quotations, as published in the Engineering & Mining Journal.

1928 METAL PRODUCTION BY COUNTIES

Number of Producers	BLAINE COUNTY			Value
16	Gold	222.69	oz.	$ 4,603.00
	Silver	181,507.00	oz.	105,593.51
	Lead	3,417,988.00	lbs.	215,504.14
	Zinc	5,940,773.00	lbs.	358,050.39
	Copper	2,521.00	lbs.	367.31
				$ 684,118.35

Number of Producers				Value
	BOISE COUNTY			
22	Gold	11,078.90	oz.	$ 229,000.86
	Silver	18,321.38	oz.	10,658.65
	Lead	13,150.00	lbs.	829.11
	Copper	7,581.00	lbs.	1,104.55
				$ 241,593.17
	BONNER COUNTY			
5	Gold	5.39	oz.	$ 111.41
	Silver	75,643.40	oz.	44,006.30
	Lead	1,434,845.00	lbs.	90,466.98
	Zinc	1,900.00	lbs.	114.51
	Copper	847.00	lbs.	123.41
				$ 134,822.61
	BOUNDARY COUNTY			
2	Silver	19,744.35	oz.	$ 11,486.47
	Lead	871,263.00	lbs.	54,933.13
	Copper	3,956.00	lbs.	576.39
				$ 66,995.99
	BUTTE COUNTY			
5	Gold	1.58	oz.	$ 32.66
	Silver	33,043.71	oz.	19,223.51
	Lead	2,275,555.00	lbs.	143,473.74
	Copper	1,290.00	lbs.	187.95
				$ 162,917.86
	CAMAS COUNTY			
1	Gold	30.00	oz.	$ 620.10
	Silver	211.00	oz.	122.75
	Copper	730.00	lbs.	106.36
				$ 849.21
	CLEARWATER COUNTY			
3	Gold	28.62	oz.	$ 591.58
	Silver	8.23	oz.	4.79
				$ 596.37
	CUSTER COUNTY			
18	Gold	903.50	oz.	$ 18,675.35
	Silver	114,000.00	oz.	66,320.64
	Lead	2,251,031.00	lbs.	141,927.50
	Zinc	1,168,796.00	lbs.	70,443.33
	Copper	557,150.00	lbs.	81,176.76
				$ 378,543.58
	ELMORE COUNTY			
4	Gold	4,514.51	oz.	$ 93,314.92
	Silver	1,468.40	oz.	854.26
				$ 94,169.18
	GEM COUNTY			
1	Gold	187.23	oz.	$ 3,870.04
	Silver	2,643.00	oz.	1,537.59
	Lead	10,153.00	lbs.	640.15
	Copper	175.00	lbs.	25.50
				$ 6,073.28

Number of Producers				Value
	IDAHO COUNTY			
18	Gold	1,615.61	oz.	$ 33,394.66
	Silver	861.65	oz.	501.27
				$ 33,895.93
	LEMHI COUNTY			
34	Gold	601.53	oz.	$ 12,433.63
	Silver	62,220.00	oz.	36,197.11
	Lead	2,731,939.00	lbs.	172,248.75
	Copper	493,649.00	lbs.	71,924.66
				$ 292,804.15
	OWYHEE COUNTY			
16	Gold	913.80	oz.	$ 18,888.25
	Silver	5,011.22	oz.	2,915.33
	Lead	850.00	lbs.	53.59
	Copper	85.00	lbs.	12.38
				$ 21,869.55
	SHOSHONE COUNTY			
40	Gold	440.57	oz.	$ 9,106.58
	Silver	8,472,560.00	oz.	4,928,996.51
	Lead	289,539,236.00	lbs.	18,255,448.83
	Zinc	67,223,074.00	lbs.	4,051,534.67
	Copper	1,576,210.00	lbs.	229,653.80
				$27,474,740.39
	VALLEY COUNTY			
3	Gold	161.08	oz.	$ 3,329.52
	Silver	93.00	oz.	54.10
				$ 3,383.62
	WASHINGTON COUNTY			
2	Gold	13.17	oz.	$ 272.22
	Silver	85.70	oz.	49.86
	Lead	13,541.00	lbs.	853.76
				$ 1,175.84
	MISCELLANEOUS COUNTIES			
4	Gold	21.77	oz.	$ 449.99
	Silver	61.96	oz.	36.05
	Lead	31,320.00	lbs.	1,974.73
	Copper	107.00	lbs.	15.59
				$ 2,476.36
	STATE TOTALS			
194	Gold	20,739.95	oz.	$ 428,694.77
	Silver	8,987,484.00	oz.	5,228,558.70
	Lead	302,590,871.00	lbs.	19,078,354.41
	Zinc	74,334,543.00	lbs.	4,480,142.90
	Copper	2,644,301.00	lbs.	385,274.66
	TOTAL			**$29,601,025.44**
	MISCELLANEOUS			
	Building stone and coal			$ 104,000.00
	Limestone	82,778	tons	120,772.00
	Phosphate rock	46,000	tons	230,000.00
	Manganese	492	tons	9,840.00
	TOTAL			**$ 464,612.00**
	GRAND TOTAL			**$30,065,637.44**

ANNUAL METAL OUTPUT FOR IDAHO SINCE 1903

(Statistics for 1903 to 1920, inclusive, from U. S. Geol. Survey Mineral Resources. Statistics for 1921, 1922, 1923, 1924, 1925, 1926, and 1927 from Annual Reports, Mining Industry of Idaho.)

1903

Gold	65,850 oz.	$	1,361,119
Silver	7,398,970 oz.		3,951,790
Lead	213,143,618 lbs.		9,135,335
Copper	569,484 lbs.		78,589
	Total value	$	14,526,833

1904

Gold	82,739 oz.	$	1,710,365
Silver	7,666,382 oz.		4,389,004
Lead	233,096,375 lbs.		10,197,966
Zinc	2,600 lbs.		130
Copper	5,087,518 lbs.		635,940
	Total value	$	16,933,405

1905

Gold	52,033 oz.	$	1,075,618
Silver	8,679,093 oz.		5,242,172
Lead	259,812,428 lbs.		12,211,184
Zinc	1,228,449 lbs.		72,479
Copper	7,321,585 lbs.		1,142,167
	Total value	$	19,743,620

1906

Gold	55,588 oz.	$	1,149,100
Silver	9,018,815 oz.		6,042,606
Lead	255,014,446 lbs.		14,535,823
Zinc	2,065,597 lbs.		126,001
Copper	9,558,913 lbs.		1,844,870
	Total value	$	23,698,400

1907

Gold	60,755 oz.	$	1,255,911
Silver	8,415,431 oz.		5,554,185
Lead	233,823,854 lbs.		12,392,664
Zinc	6,985,732 lbs.		412,158
Copper	10,890,731 lbs.		2,178,146
	Total value	$	21,793,064

1908

Gold	69,827 oz.	$	1,443,459
Silver	7,469,981 oz.		3,959,090
Lead	206,827,816 lbs.		8,686,768
Zinc	37,410 lbs.		1,758
Copper	10,041,850 lbs.		1,325,524
	Total value	$	15,416,599

1909

Gold	70,329	oz.	$ 1,453,822
Silver	7,041,633	oz.	3,661,649
Lead	215,986,285	lbs.	9,287,410
Zinc	1,351,010	lbs.	72,954
Copper	9,115,489	lbs.	1,185,014
		Total value	$ 15,660,849

1910

Gold	53,060	oz.	$ 1,096,842
Silver	7,369,742	oz.	3,979,661
Lead	228,258,839	lbs.	10,043,389
Zinc	5,603,114	lbs.	302,568
Copper	7,037,292	lbs.	893,736
		Total value	$ 16,316,196

1911

Gold	66,389	oz.	$ 1,372,387
Silver	8,196,136	oz.	4,343,952
Lead	272,556,525	lbs.	12,265,044
Zinc	8,340,249	lbs.	475,394
Copper	5,152,937	lbs.	644,117
		Total value	$ 19,100,894

1912

Gold	66,816	oz.	$ 1,381,214
Silver	8,294,745	oz.	5,101,268
Lead	284,185,657	lbs.	12,788,355
Zinc	13,905,502	lbs.	959,479
Copper	7,492,152	lbs.	1,236,205
		Total value	$ 21,466,521

1913

Gold	65,043	oz.	$ 1,344,559
Silver	9,989,193	oz.	6,033,473
Lead	317,871,945	lbs.	13,986,366
Zinc	23,173,953	lbs.	1,297,741
Copper	9,592,966	lbs.	1,486,910
		Total value	$ 24,149,049

1914

Gold	55,743	oz.	$ 1,152,315
Silver	12,479,516	oz.	6,901,172
Lead	348,526,069	lbs.	13,592,517
Zinc	42,012,435	lbs.	2,142,634
Copper	6,445,187	lbs.	857,210
		Total value	$ 24,645,848

1915

Gold	57,069	oz.	$ 1,179,731
Silver	11,769,128	oz.	5,966,948
Lead	345,999,466	lbs.	16,261,975
Zinc	70,153,234	lbs.	8,699,001
Copper	6,978,713	lbs.	1,221,275
Total value			$ 33,328,930

1916

Gold	53,977	oz.	$ 1,115,810
Silver	12,300,873	oz.	8,093,974
Lead	375,081,781	lbs.	25,880,643
Zinc	86,505,219	lbs.	11,591,699
Copper	8,478,281	lbs.	2,085,657
Total value			$ 48,767,783

1917

Gold	38,933	oz.	$ 804,809
Silver	12,029,338	oz.	9,912,175
Lead	393,559,521	lbs.	33,846,119
Zinc	79,854,136	lbs.	8,145,122
Copper	7,827,574	lbs.	2,136,928
Total value			$ 54,845,153

1918

Gold	33,999	oz.	$ 702,816
Silver	9,172,340	oz.	9,172,340
Lead	294,695,993	lbs.	20,923,416
Zinc	45,161,712	lbs.	4,109,716
Copper	6,533,888	lbs.	1,613,870
Total value			$ 36,522,158

1919

Gold	34,503	oz.	$ 713,238
Silver	5,579,056	oz.	6,248,543
Lead	182,341,898	lbs.	9,664,121
Zinc	15,994,229	lbs.	1,167,579
Copper	3,122,763	lbs.	580,834
Total value			$ 18,374,315

1920

Gold	23,490	oz.	$ 485,590
Silver	7,326,794	oz.	7,986,205
Lead	249,609,976	lbs.	19,968,798
Zinc	27,932,326	lbs.	2,262,518
Copper	2,538,396	lbs.	467,065
Total value			$ 31,170,176

1921

Gold	26,750.76 oz.	$ 552,938
Silver	6,184,989.73 oz.	6,184,989
Lead	210,100,194.00 lbs.	9,559,558
Copper	1,380,168.00 lbs.	172,521
Zinc	1,818,313.00 lbs.	94,006
	Total value	$ 16,564,014

1922

Gold	22,178.39 oz.	$ 458,427.32
Silver	6,149,336.15 oz.	6,149,336.15
Lead	205,132,588.00 lbs.	11,762,302.60
Zinc	5,596,514.00 lbs.	394,666.17
Copper	3,225,762.00 lbs.	431,671.47
	Total value	$19,196,403.71

1923

Gold	35,506.23 oz.	$ 733,913.78
Silver	7,669,393.43 oz.	6,158,099.48
Lead	255,266,476.00 lbs.	18,550,214.82
Zinc	34,690,620.00 lbs.	2,292,009.26
Copper	4,183,495.00 lbs.	603,303.12
	Total value	$28,337,540.46

1924

Gold	26,237.21 oz.	$ 542,323.12
Silver	7,774,747.00 oz.	5,192,053.79
Lead	260,356,490.00 lbs.	21,081,065.00
Zinc	21,310,559.00 lbs.	1,351,941.86
Copper	3,146,997.00 lbs.	409,864.89
	Total value	$28,577,248.66

1925

Gold	20,108.41 oz.	$ 415,640.82
Silver	7,708,938.55 oz.	5,324,178.41
Lead	265,302,880.00 lbs.	23,930,319.78
Zinc	37,110,647.00 lbs.	2,828,573.51
Copper	3,370,016.00 lbs.	473,217.65
	Total value	$32,971,930.17

1926

Gold	14,754.64 oz.	$ 304,978.39
Silver	7,522,881.88 oz.	4,672,236.26
Lead	283,305,553.00 lbs.	23,845,828.39
Zinc	53,922,120.00 lbs.	3,956,265.95
Copper	1,381,334.00 lbs.	190,555.03
	Total value	$32,969,864.02

1927

Gold	15,592.01 oz.	$ 322,286.86
Silver	8,896,293.08 oz.	5,014,840.42
Lead	312,770,885.00 lbs.	21,127,673.28
Zinc	64,479,833.00 lbs.	4,024,831.18
Copper	2,362,863.00 lbs.	305,281.90
	Total value	$30,794,913.64

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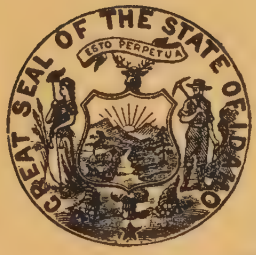
THIRTY-FIRST
ANNUAL REPORT

OF THE

Mining Industry of IDAHO

FOR THE YEAR

1929



STEWART CAMPBELL
INSPECTOR OF MINES

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THIRTY-FIRST
ANNUAL REPORT

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Mining Industry

of IDAHO

FOR THE YEAR

1929

STEWART CAMPBELL
INSPECTOR OF MINES

ALICE DARRAH
SECRETARY

LETTER OF TRANSMITTAL

To His Excellency,
THE HONORABLE H. C. BALDRIDGE,
Governor of Idaho.

SIR:

In compliance with the provisions of section 5480, Idaho Compiled Statutes, I have the honor to transmit herewith the annual report of the inspector of mines for the year ended December 31, 1929.

Respectfully submitted,
STEWART CAMPBELL,
Inspector of Mines.

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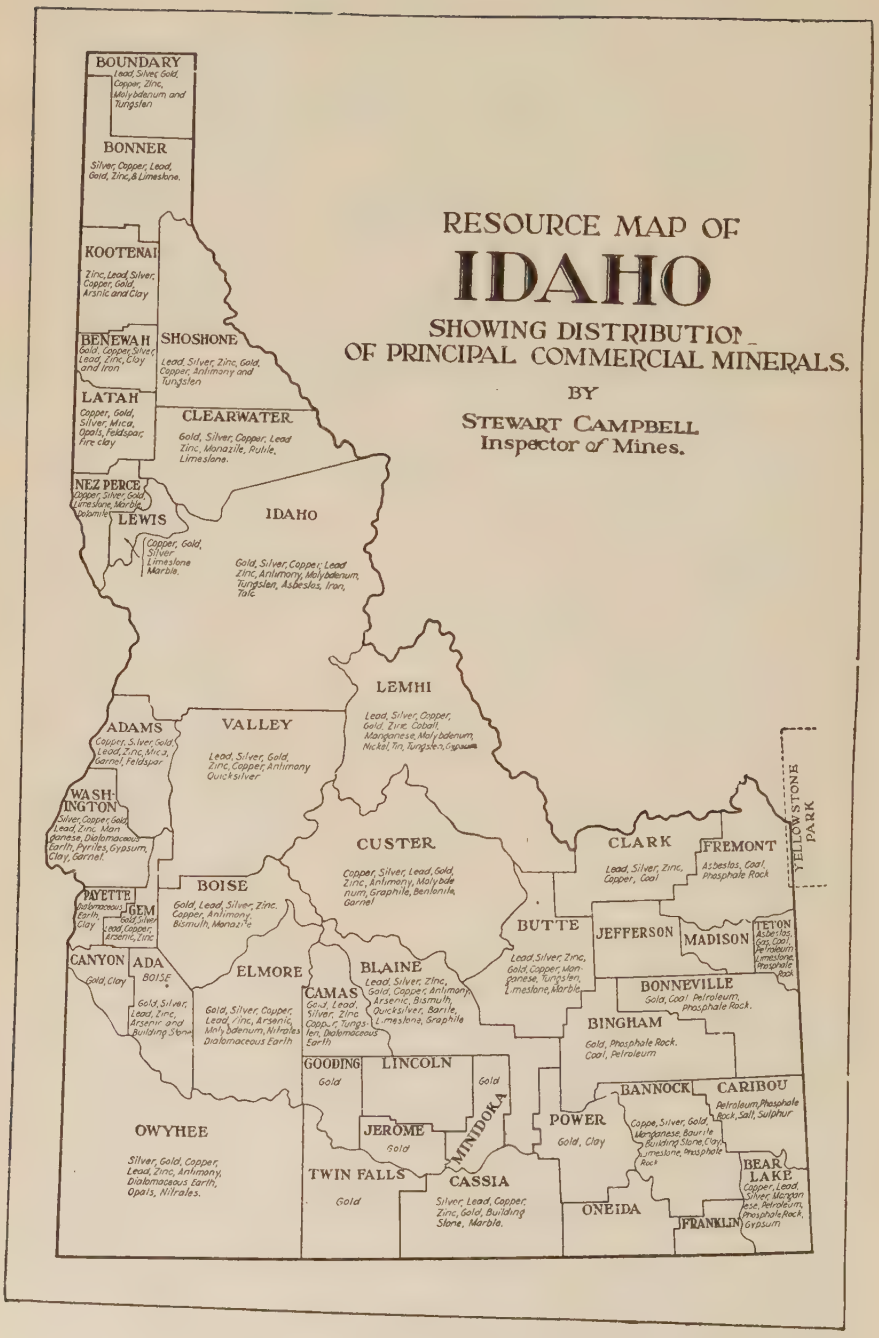
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RESOURCE MAP OF
IDAHO
SHOWING DISTRIBUTION
OF PRINCIPAL COMMERCIAL MINERALS.
BY
STEWART CAMPBELL
Inspector of Mines.
BOUNDARY
Lead, Silver, Gold, Copper, Zinc, Molybdenum and Tungsten
BONNER
Silver, Copper, Lead, Gold, Zinc, & Limestone.
KOOTENAI
Zinc, Lead, Silver, Copper, Gold, Arsnic and Clay
BENEWAH
Gold, Copper, Silver, Lead, Zinc, Clay and Iron
SHOSHONE
Lead, Silver, Zinc, Gold, Copper, Antimony and Tungsten
LATAH
Copper, Gold, Silver, Mica, Opals, Feldspar, Fire clay
CLEARWATER
Gold, Silver, Copper, Lead Zinc, Monazite, Rutile, Limestone.
NEZ PERCE
Copper, Silver, Gold, Limestone, Marble, Dolomite
LEWIS
Copper, Gold, Silver, Limestone Marble.
IDAHO
Gold, Silver, Copper, Lead Zinc, Antimony, Molybdenum, Tungsten, Asbestos, Iron, Talc
LEMHI
Lead, Silver, Copper, Gold, Zinc, Cobalt, Manganese, Molybdenum, Nickel, Tin, Tungsten, Gypsum
ADAMS
Copper, Silver, Gold, Lead, Zinc, Mica, Garnet, Feldspar
VALLEY
Lead, Silver, Gold, Zinc, Copper, Antimony Quicksilver
WASHINGTON
Silver, Copper, Gold, Lead, Zinc, Manganese, Diatomaceous Earth, Pyrites, Gypsum, Clay, Garnet
CUSTER
Copper, Silver, Lead, Gold, Zinc, Antimony, Molybdenum, Graphite, Bentonite, Garnet
CLARK
Lead, Silver, Zinc, Copper, Coal
FREMONT
Asbestos, Coal Phosphate Rock
YELLOWSTONE PARK
PAYETTE
Diatomaceous Earth, Clay
GEM
Gold Silver Lead, Copper, Arsenic, Zinc
BOISE
Gold, Lead, Silver, Zinc, Copper, Antimony, Bismuth, Monazite
BUTTE
Lead, Silver, Zinc, Gold, Copper, Manganese, Tungsten, Limestone, Marble.
JEFFERSON
MADISON
TETON
Asbestos, Gas, Coal, Petroleum, Limestone, Phosphate Rock
CANYON
Gold, Clay
ADA
BOISE
ELMORE
Gold, Silver, Copper, Lead, Zinc, Arsenic, Molybdenum, Nitrates Diatomaceous Earth
BLAINE
Lead, Silver, Zinc, Gold, Copper, Antimony, Arsenic, Bismuth, Quicksilver, Barite, Limestone, Graphite
CAMAS
Gold, Lead, Silver, Zinc, Copper, Tungsten, Diatomaceous Earth
BONNEVILLE
Gold, Coal Petroleum, Phosphate Rock.
BINGHAM
Gold, Phosphate Rock. Coal, Petroleum
GOODING
Gold
LINCOLN
Gold
MINIDOKA
BANNOCK
CARIBOU
Petroleum, Phosphate Rock, Salt, Sulphur
POWER
Gold, Clay
Copper, Silver, Gold, Manganese, Bauxite Building Stone, Clay, Limestone, Phosphate Rock
OWYHEE
Silver, Gold, Copper, Lead, Zinc, Antimony, Diatomaceous Earth, Opals, Nitrates.
JEROME
Gold
TWIN FALLS
Gold
CASSIA
Silver, Lead, Copper, Zinc, Gold, Building Stone, Marble.
ONEIDA
BEAR LAKE
Copper, Lead, Silver, Manganese, Petroleum, Phosphate Rock, Gypsum
FRANKLIN

FOREWORD

PUBLIC LANDS

The subject most widely discussed and commanding the most attention from the mining industry of Idaho during the year was President Hoover's suggestion, delivered through Dr. Ray Lyman Wilbur, Secretary of the Interior, at Boise, Idaho, on July 9, 1929, of ceding the surface rights of the public lands **"not included in national parks or monuments or in the national forests"** to the various states in which they are located, and reserving the mineral or subsoil rights to the Federal Government **"subject to some form of proper Federal prospecting law with development on a royalty basis of discoveries."**

This suggestion was also presented to a conference of the governors of the public land states at Salt Lake City, Utah, on August 26 and 27, by Joseph M. Dixon, Assistant Secretary of the Interior, who read a letter which was dictated by President Hoover on August 21, 1929. The President's letter indicated that his thoughts were on the minerals which are now reserved to the Federal Government, particularly oil, as he made no reference to the metalliferous minerals; by so doing he entirely overlooked the phase of this subject which is of vital importance to everybody who is interested in the development of the latent metalliferous mineral resources of Idaho. Secretary Wilbur's remarks also indicated that he was in accord with the President in thinking only of oil, because it is a well-known fact that, if the discovery and exploitation of a metalliferous mineral deposit is dependent on a royalty basis of discovery, such a basis for obtaining title to a deposit of this kind would kill all initiative for prospecting and development. As the President's suggestion was construed to include metalliferous deposits, the idea was looked upon with considerable apprehension. This was first evidenced at the Western Governors' Conference through their resolution offering to assist the President in his selection of a commission to investigate and analyze his proposals, and pledging their cooperation in the work of such commission only. A similar attitude was taken at the annual meeting of the Western Division of the American Mining Congress at Spokane, Washington, on October 1, when the following resolution was adopted:

> **"Resolved,** that we welcome this interest of the President in the problem of our public lands and the conservation of our natural resources and we applaud his expressed desire to assist in checking bureaucracy and aiding in more efficient local government. We endorse the proposal of the appointment of a commission to study these problems and we urge that the personnel of such a commission include one or more persons interested in and acquainted with the problems confronting the mining industry of the West. We await the decision of those vitally interested in agriculture and animal husbandry as to the advisability of turning over to the states the grazing lands referred to by the President, but we express apprehension of any policy which shall separate the surface from the subsurface rights of our public lands."

Shortly after the two meetings referred to above, the President appointed a commission, known as the Commission on Conservation and Administration of the Public Domain, to investigate this subject and report its findings. The commission met in Washington, D. C., on November 23-25, 1929, organized, and commenced its investigations, part of which took the form of submitting a questionnaire which sought the reaction of the mining industry to the President's suggestion, so far as it pertained to the subsoil rights. This questionnaire was sent out to all parts of the State to the people most prominently interested in mining and the development of Idaho's mineral resources.

The questionnaire appeared to be based on the assumption that the surface rights ARE to be ceded, and sought only to ascertain if the subsoil rights should be granted to the states or reserved to the United States, and if so, under what conditions or changes in the present laws and regulations. It did not contain the question: "Shall the public lands be ceded to the various states?" but those replying answered it. Practically all were opposed to ceding these lands, and all unanimously took the position that, if they were to be ceded, the mineral rights should be granted along with the surface rights; otherwise, the states would be receiving something of no particular value, and mining development would be severely hampered because the mineral claimant would be prevented from obtaining free and unencumbered title to the mineral and surface rights. Noteworthy stress was laid on the fact that surface and subsoil rights of metalliferous mineral deposits are inseparable, and that a mineral claimant should not be compelled to seek title from two different sources.

The opposition of those interested in the mining industry of Idaho to ceding the public lands to the states and to separating the surface and subsurface rights was forcibly expressed by many in replying to the questionnaire. Some of the reasons and arguments were as follows:

> "Much of the public land in the mountain states is practically worthless. Aside from the minerals, the other principal value of the land is for the timber. The preservation of the timber from fire and other destructive agencies involves great expense, and it is very doubtful whether the sales of mature timber would produce sufficient revenue to cover that expense. Furthermore, the preservation of the timber as protection of watersheds, as a means of restricting damage by flood waters, is of much greater importance to the states subject to floods than to the states in which the water originates. Such flood control is properly a task for the Federal Government; and it can exercise that control only so long as it owns the land. It is not incumbent on any state to expend large sums of money for the benefit of other states."
>
> "The chief use of the public domain is for watershed purposes in which are interested most of all the people of reclamation projects and the people in rainfall belts, also residents in states that are subject to floods from waters that have their origin in public land states. * * Timbered areas and the control of grazing of all lands suitable for grazing purposes should be under the control of the Federal Government."

"If the mineral rights were reserved to the United States it would be keeping the kernel and giving the State the shell. It seems to me that if the states accept conveyancé to them of the public lands without the mineral rights they will be accepting something that will cost more than it is worth. If the mineral rights are included, no doubt the states can derive considerable revenue from mines, but the mining industry probably will be worse off than at present."

"My principal objection to even considering any change is the fact that the western states in general, and Idaho in particular, are in no position to administer these public lands properly, and it would take many years, if ever, to build up a state organization competent to do so."

"I am opposed to the transfer of these lands to the states, either with or without reservation of subsurface rights. The mining industry will be best served by the retention of the public domain by the Federal Government. It could not be accomplished without changing the mining laws now so well understood, practically every phase of which has been construed by the courts."

"The Federal Government has ever dealt wisely and fairly with the mining man. It gave him freedom of the public range, with right unquestioned to dig wherever he pleased, stake off his claims in any way he chose and develop the ground according to his own manner. Under these rights the prospector made good. Unhampered, he found Butte, Bisbee, Leadville, Tintic, northern Idaho, and hundreds of other camps. And by the Federal regulations, or lack of regulations, the prospector has made good. The direct consequence of this nationally liberal attitude toward mining has been peculiarly beneficent. With simple, fair and equitable laws, the prospector has flourished and his efforts have redounded to the peopling of the intermountain west. There is still much undiscovered mineral wealth in these states, affording ample exercise for talents peculiar to the prospector. Given a chance to solve these problems in his own way, he will do it. But hampered and hindered in his work, he will quit, and there will be none to take his place. Your hired man can not fill it; nor can anybody else. The business of discovering new mines will fail, and the West will languish. Uncle Sam can not now afford to turn his back on the prospector; nor set up any obstacles to his work. And surely the complexity of state and forest control of surface rights would tend to discourage initial endeavor."

"It is my opinion, and seems to be the opinion of most of those to whom I have talked, that surface rights to the public lands remaining in Idaho are of practically no value. The value of such lands probably lies chiefly in their mineral deposits. I see no reason why Idaho, which has plenty of expensive problems to handle now, should assume the ownership and administration of a great area of non-productive, valueless land, while the United States retains the ownership of anything that might be profitable. If we do the work certainly we should receive the benefit."

"The mining laws as they stand have become so firmly fixed and defined in our legal jurisdiction until we now know where we are with respect to legal rights and it would be dangerous to make changes."

"The present laws which give absolute title both to surface and mineral rights are eminently satisfactory, and offer a stronger incentive for the development of contained minerals than any system of leasing can possibly do. The discovery and development of minerals is becoming increasingly difficult and expensive. Anything that tends to cut down the profit or to complicate the process of obtaining title tends to retard development and is undesirable."

"The severance of the surface and subsurface rights is, in the highest degree, inexpedient. * * * We would have as many types of mining regulations as there are public land states."

"There has been practically no demand on the part of the states to have public domain within their boundaries turned over to them."

"The states can not afford to administer such vast areas that are suitable only for grazing and for watersheds."

"I feel that under Federal supervision conservation measures having to do with nation-wide problems can best be administered."

"We are entirely satisfied with the present Government Administration and matters covered by present leasing laws."

"We believe in adhering faithfully to the principles embodied in the original National Forest Reservation Act, in the administration of all public lands whether in National Forests or outside thereof."

"It is obvious that the phrase 'lands belonging to the United States * * * are free and open to exploration and purchase' becomes meaningless if these lands no longer belong to the United States but to the several states in which they lie."

"The interests of the mining industry will be best served by making no change."

"We favor retention by the Government of the United States of surface and mineral rights on the public domain without change."

"Under the Federal Government, the problem of waste from overproduction can be better handled than if the remaining resources are turned over to the states."

"The surface rights and the subsurface rights should remain together, regardless of whether the lands are under state or national supervision. A mineral right is of questionable value unless it carries with it control of the surface which must be used to extract the mineral from the ground."

"From the information at hand I can not see any benefit to the mining industry through transfer of title in the public lands from the United States to the various individual states. On the other hand, there are serious objections to transfer of the surface rights to the states and retention of title to subsurface rights by the United States. If there is to be any transfer of title to the states, then the subsoil rights should go with the surface rights."

"It is recognized, however, that eleven states acting independently might adopt so many varieties of public land legislation that the result would be confusing."

"There is further difficulty inherent in any proposal of complete severance; namely, that one desiring to take up mineral land must derive his title from two sources, first from the Federal Government for the mineral and, second, from the state for the surface, which as anyone familiar with titles will immediately recognize is likely to result in a title clouded, insecure and indefinite."

"With regard to mineral lands, we are very much opposed to any change of policy whatever and we should very much regret the separation of surface and subsurface rights. Suppose the surface rights in these lands are turned over to the states, reserving mineral rights to the Federal Government. Then suppose oil or metals are discovered and the land is entered under Government regulations for the purpose of mining or drilling for oil. Our situation now is bad enough in the national forests because of the conflict in policy between the interior and agricultural departments of the Federal Government. But bad as that situation is or may become, it is infinitely to be preferred to a conflict between Federal and State authority."

"If the states accept title to these lands with the mineral rights reserved to the United States, how would mining claims then be located: If under the existing mining laws the industry apparently would not be affected. Though it is conceivable that State laws that might be enacted for the administration of the lands could hamper mining operations."

"If the surface rights are ceded, whether the mineral rights are reserved to the Government or granted to the states, the mineral industry will be confronted with two sets of mining laws: One applying to the lands in forest reserves; the other applying to lands which are now the public domain. This confusion of law will hamper and retard prospecting and mineral development."

"That the separation of the surface and mineral rights hampers, retards and practically prevents prospecting for and development of metalliferous minerals has been proved in Idaho by the 640-acre homestead law. This law reserves the mineral rights to the Federal Government, declares that the lands may be entered upon at all times for the purpose of prospecting for the minerals therein, and provides regulations for occupancy in the event of mining operations. The fencing of these homesteads and the attitude of the surface-rights owner have operated in debarring the prospector from the greater part of the lands patented under this law, thus nullifying Congressional intent and obstructing mineral development."

"A segregation of surface and underground rights creates a problem of conflicting ownership which the western American has not been used to, and which is quite likely, if the title comes from separate sources, to create misunderstanding and dissension. If an owner sells his subsurface right to another, under conditions that he himself prescribes, that is one thing. If the ownership is divided before title passes, and if it is held under rules laid down by unrelated extraneous agencies, that is quite another thing."

"I can not conceive of any satisfactory title which would be conveyed to mineral without at the same time conveying title to the surface. As I have pointed out elsewhere, under this assumption if one desires to locate a mining claim he will have two kinds of title to deal with, one to the surface and the other to the underground, and the net result inevitably would be to discourage prospecting and development."

"If the public lands are ceded, provide that possession and title may be acquired by citizens of the United States under the same or similar conditions to those provided by the present Federal statutes."

"Should the lands be ceded to the several states, then I believe the best procedure would be for the states to provide for the location of mining claims under practically the same conditions as are at present operative. It might be desirable to modify the provision requiring discovery prior to location, so as to permit bona fide efforts, such as geophysical prospecting, diamond drilling, and the like, where the mineral deposits do not crop out at the surface. I think it might also be well to increase the requirement for annual expenditure, possibly as much as $500, and to increase proportionately the expenditure which must be made prior to patent."

This questionnaire also sought the attitude of the mining industry as to whether phosphates and kindred materials, which are now withdrawn from entry and covered by the leasing laws, should continue to be reserved to the Government. As all of these deposits are withdrawn from entry and now reserved to the United States, the majority opinion favored no change, unless the public domain was ceded to the states; then the mineral rights, including phosphate as well as coal, sodium, potassium, oil, oil shale, and gas, should be transferred also. Approximately 85 per cent of the world's known phosphate rock is in Idaho. Some criticisms to the effect that the Federal Government is delinquent in not aiding in the development and utilization of this tremendous latent mineral resource were well taken. The following represents a good cross-section of the views on this subject:

"With regard to phosphates, most certainly the underground rights to these lands should be transferred to the states if the surface rights are transferred. I can think of nothing less valuable than the surface of most of the phosphate lands in Idaho, or anything that will become an empty husk more promptly than that same land after the phosphate has been taken out."

"I am not in sympathy with the present policy of reserving phosphates, coal lands, and the like. The phosphate situation is an excellent illustration: There is not the slightest danger of over-production of phosphates in Idaho or elsewhere. In fact, phosphate rock at the present time is suffering, not from over-production, but from lack of market."

The problem to lessen waste resulting from overproduction of oil and under which agency, Federal or State, it could be more readily solved, was given the most stress in the questionnaire. It received practically no discussion, because the reasons for maintaining Federal control over oil, oil shale, and potash do not apply to metalliferous deposits; those expressing an opinion were almost unanimous in favoring Federal control as now in effect. Many used this subject as a further opportunity to express opposition toward ceding the surface rights of the public lands to the states, and others did not lend much hope to its solution, as:

"The oil situation is an exceedingly difficult one, and up to the present neither the Federal Government nor the State Government has been particularly successful in any endeavors to control over-production. Only a relatively small amount of the over-production, however, is coming from Government-owned lands and what may be done by the Government to control over-production from lands held by it will make very little difference to the general situation. However, since we are already committed to a leasehold system on the part of the Federal Govrnment, so far as oil lands and certain other non-metallics are concerned, we had probably better continue to leave this matter in the hands of the Federal Government. However, there will again be complications should the surface be ceded to the states, in that an oil operator would be compelled to negotiate with the states for his surface, and to derive his leasehold from Federal agencies."

"The oil shale deposits are, of course, an ultimate, rather than an immediate, resource. The probabilities are that for the sake of uniformity, however, it would be well to consider them as oil lands and to handle them on a similar basis."

While the questionnaire was primarily designed to apply to lands of the public domain proposed to be ceded and not to lands that are now within Forest Reserves, some of those replying took advantage of the opportunity to express their displeasure at the attitude of the Forest Service toward delaying mineral patents within Forest Reserves. The fact that the attitude of the Forest Service throughout the northern part of Idaho has caused considerable delay and unwarranted expense in obtaining mineral patents can not be disputed, and as the Forest Service attitude is becoming more apparent through the controversy which now exists between the Department of the Interior and the Forest Service over the interpretation of present laws and regulations, it was hoped by many that the commission would make a recommendation for the correction of this condition:

"The only suggestion I offer in connection with any changes that might be made in the present laws is in regard to the present regulations which permit the Forestry Department to interfere and delay the patenting of mineral claims. I think these regulations should be so altered that mineral claims can be promptly patented where there is no evidence of fraud, and especially where the locations do not govern valuable water rights, valuable timber rights or valuable agricultural rights."

"Mining locations in these areas (Forest Reserves), although not forbidden by law, were frowned upon and discouraged by forest officials and much bitter feeling was engendered against the Forest Service, which has not entirely disappeared, in spite of a decided change of attitude on the part of many forest officials toward the miner and the prospector."

Another subject not covered by the questionnaire, although it is one worthy of attention, was the suggestion that Congress be requested to amend the Idaho Enabling Act so as to permit the State of Idaho to grant mineral leases on the present State-owned lands for periods of more than five years.

PLATINUM

Predatory platinum assayers, with and without assistance, are continuing to prey upon the unsuspecting public. During the year their purported assays and the resulting transactions in the barter and sale of "mining" properties were the basis for a great amount of newspaper publicity. Many of these stories appeared on the front page under blazing headlines; and the fabulous values reported in rare metals, such as platinum, palladium, and other related metals, together with the immense prices at which the properties were being optioned, caused such a large amount of excitement and interest that an official investigation was deemed necessary.

The "mineral" deposit was visited by the inspector, who was assisted in sampling the "ore" by one of the promoters. These samples were assayed by the U. S. Bureau of Mines, who were unsuccessful in detecting even the presence of any rare metals. The results were then given to the press, together with a warning to the public.

No credence whatsoever should be placed in rare metal assays or the reported high values in these metals which any promoter or questionable assayer may proclaim, until a properly obtained sample of the "ore", which is absolutely free from any probability of being salted, is assayed by competent and reliable assayers.

BUNKER HILL SOLARIUM

Ultra-violet rays of natural sunlight are essential and necessary to human health and happiness. These essential rays can be produced artificially, and the evidence of their many benefits is growing rapidly. In the past the practice of furnishing these rays by artificial light has been confined mostly to hospitals, thoroughbred-horse-racing stables, and athletic organizations; until recently but little effort has been made to apply them in the industries, particularly those where conditions are such that the employees are deprived of natural sunlight. This condition is especially true in the mining industry, and the Bunker Hill & Sullivan Mining & Concentrating Company has again established itself as one of the foremost and progressive companies in the United States for the attention it is giving to the health and welfare of its employees. This was manifested during the year by the installation of an automatic solarium, or sun room, whereby the benefits of the ultra-violet ray can be obtained by all company employees and their families without cost and at a minimum of effort. The management of the company is to be complimented, and this praiseworthy innovation justifies a permanent record in the annals of the mining industry.

ARTIFICIAL SUNSHINE FOR MINE WORKERS *

By Stanly A. Easton, Vice-president and Manager, Bunker Hill & Sullivan Mining & Concentrating Co.

Seven years ago there was installed in the hospital of the Bunker Hill & Sullivan Mining & Concentrating Co. at Kellogg, Idaho, an ultra-violet ray quartz lamp, the standard equipment which is found everywhere in the offices of physicians and among usual hospital equipment. The use of this lamp was confined largely to treatment of pathological cases, still treatment of undernourished children, run-down anemic people, both men and women, and, as a general tonic, was part of the routine hospital procedure. At the latitude of the Coeur d'Alene district and especially because of the position of the towns in deep canyons, with much overcast and cloudy weather, sunshine is not plentiful at any time of the year; for many of the winter months there is scarcely any. Underground workers, particularly during the winter, have little sunshine; it is not unusual to have none at all for weeks at a time.



Fig. 1. INTERIOR VIEW OF CABINET SHOWING ESCALATOR, LAMPS, AND VENTILATION FANS

Treatment by the ultra-violet ray lamp in the hospital has resulted in many extraordinary benefits, but the use of the lamp is expensive and limited. Early in the year attention was directed to the automatic solarium equipment of the Burdick Corporation. The doctors strongly recommended the increased use of the ultra-violet lamp for its curative powers and tonic effects, urging that it be made accessible to all employees. Real interest was also displayed by employees with the possibility of securing ultra-violet ray treatment for themselves and families under better conditions than it was possible to have by the limited use of the lamp at the hospital. This resulted in the installation of the so-called sun room or automatic solarium as an adjunct to the mine

*Published also as: All Year Sunshine for Mine Workers, by Stanly A. Easton: Mining and Metallurgy, vol. 10, Dec., 1929.

change-house. An annex was built to the change-house, with dressing rooms for women, children, and men from other departments, and the outfit put into use on September 5, 1929. The installation consists of an escalator, or narrow moving platform, passing through a cabinet equipped with six ultra-violet ray lamps. (Fig. 1.)

The wide rail near the bottom of the curtain is a safety switch which automatically stops the escalator, should a person ride it beyond the exit. After taking their shower and before dressing the men step on the moving platform and ride through the cabinet. One minute is required and three treatments per week are recommended; the outfit can readily treat four hundred individuals per hour. (Fig. 2.)

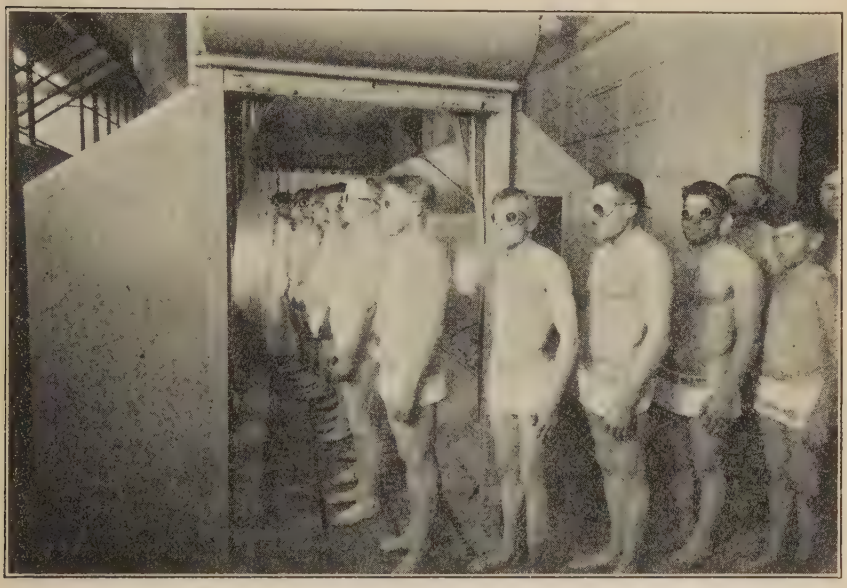


Fig. 2. MEN RIDING THROUGH CABINET

Use of the so-called sun room is wholly voluntary. The number of people applying for treatment is growing and with winter weather will probably increase even more rapidly. At the present time over two hundred men per day are treated and between fifty and sixty women and children. It is too early to describe individual cases where real benefits have been secured; because of the experience with the small quartz lamp at the hospital during the last seven years there can be no doubt as to the excellent results which can be confidently expected. For the purpose of ascertaining the results a careful record of everyone using the treatment is being maintained. It is predicted and believed that with the general use of the apparatus lost time because of colds and other respiratory ailments will be reduced at least one-half.

The regulations and suggestions which are issued in pamphlet form to employees and the public are as follows:

TREATMENT SUGGESTIONS

The ultra-violet ray or artificial sunshine treatments provided by this installation are primarily to supply the deficiency of natural sunshine which is seasonal at this latitude and which can not be regularly experienced by underground and other workers in the local industries because of climatic and winter conditions.

Wide experience extending over many years indicates the beneficial results of such treatments not only to the general health, but even in pathological cases; still the treatments cannot take the place of proper medical or surgical attention; in sickness or constitutional disorders see your physician. The treatments are primarily a constitutional tonic to fortify the system against infection and disease. In order to avoid any possible ill effects and to secure the best results from treatments they must be taken with regularity and according to the practice which experience has found to be most beneficial. Especially at the outset exposure to the ultra-violet rays should be taken frequently for periods of short duration. A treatment every other day, Sundays excepted, of one minute duration each should suffice for men and women patients, and forty-five seconds for children. With the consent of the medical director frequency of treatment and its duration can be changed. The foregoing schedule applies equally to all periods of the year, with special emphasis on the fall and winter seasons.

The cooperation of employees and others who avail themselves of the treatments provided by the solarium is asked in order that all may receive proper and sufficient attention. At no time must individuals enter the solarium or attempt to use it without the authorized attendant being present. This rule will be strictly enforced. Individuals presenting themselves for treatment must do so at the time assigned them, and at no other; this is most important and no deviation therefrom will be tolerated.

PATENT SURVEYS

Applicable as Annual Labor on Unpatented Mining Claims

Chapter 194, 1929 Session Laws of Idaho, page 362, is of vital interest to all owners of mining claims, as it deals with the important subject of assessment work on mining claims which are in process of being patented. The delay caused by Federal Government "red tape", from the time application for a patent survey is made until patent is issued, invariably extends over one year, so heretofore it has been necessary for the applicant to perform his annual labor requirements even after a full compliance with all laws and regulations for obtaining patent has been made, while waiting on governmental dilatoriness. The 1929 Legislature took cognizance of the fact that such an expenditure is generally a waste of time and money, and passed a law which is designed to assist the claim owner during one year of the delay. This law declares that an official patent survey of a mining claim constitutes annual labor, and allows crediting the cost of the survey on annual assessment work for one year. It is as follows:

"Sec. 5536-A. It is hereby declared that an official patent survey of a lode or placer mining claim or claims by a United States mineral surveyor constitutes and is labor performed upon an improvement made upon or for the benefit of an unpatented lode or placer mining claim or claims.

"Sec. 5536-B. That an official patent survey of a lode or placer mining claim or claims by a United States mineral surveyor may be credited to annual assessment work or labor, but in no case shall the credit for such survey and its attendant expense exceed the required assessment for one year on the claim or claims surveyed. When credit is sought for such work or improvement, the claimant must file in the recorder's office in the county in which such claim is situated the affidavit of such United States mineral surveyor, showing the cost of such survey, and when so filed the actual cost of such survey shall be deemed and considered as labor and improvements done and performed upon said claim or claims."

The Legislature was not without precedent in passing this law, as such a one has been in effect in Alaska since 1915 (Laws Alaska 1915, c. 10), and the validity of this law was affirmed by a decision rendered in the U. S. Circuit Court of Appeals, Ninth Circuit, under date of February 13, 1928, in the case of Wigand v. Bryne's Unknown Heirs et al., 24 Fed. 2d, 179. The points involved and the reasoning of the court are considered of sufficient importance to quote the opinion wherein it affected this subject:

"Suit in equity by Albert Wigand against the unknown heirs of Mike Byrne, deceased, and Robert Kelly, as his administrator. Decree dismissing bill, and complainant appeals. Affirmed.

"From a decree dismissing the complaint in a suit to quiet title to a placer mining claim the plaintiff appeals. **The stipulated facts are as follows:**

"Mike Byrne located the claim in question in 1905. He died December 5, 1920. For the annual labor of 1921 the administrator of his estate did work on the claim to the value of $40, and had a survey of the claim made by a deputy United States mineral surveyor at a cost of $60, which was the usual and ordinary charge for such work. For the annual labor between July 1, 1922, and July 1, 1923, the administrator caused $100 worth of work to be done on the claim, and between July 1, 1923, and April 1, 1924, he did another $100 worth of work upon the claim. On April 11, 1924, the claim not being in the actual possession of any one, the appellant relocated it, and at the commencement of the suit he was in actual possession thereof. It was his contention that the survey made for the year 1921 did not constitute annual labor within the meaning of the law.

"The Legislature of Alaska (Session Laws 1915, c. 10) enacted that the cost of such a survey might be credited as annual labor, but provided that the claimant must file in the recorder's office in the district the field notes of the survey and a voucher showing the cost thereof, properly attested by the surveyor, to be incorporated into the proof of annual labor. The court below held the section unconstitutional, but was of the opinion that, inasmuch as it was apparently the law during the period in which the administrator followed it in good faith, he was entitled to have his work and the cost of the survey considered as legal assessment work for the period ending July 1, 1922. The court also found that the work on the claim by the administrator for the two succeeding years was done to the actual knowledge of the appellant, or, if not to his actual knowledge, that he could by reasonable effort have informed himself of the fact, and held that a miner should not be deprived of his property solely because he took the law of the Legislature at its face value, and that a court of equity should not aid one to relocate the claim with knowledge of the existing law, and knowledge of what the owner had done, and after standing by silent and inactive until the owner had done annual assessments for two succeeding years thereafter.

"GILBERT, Circuit Judge (after stating the facts as above). In the adjudicated cases there is dearth of precise definition of the nature of the work on a placer mining claim that will be accepted as meeting the requirement that 'not less than one hundred dollars worth of labor shall be performed or improvements made during each year.' It is held that the statute should be given a liberal construction, McCulloch v. Murphy (C. C.) 125 F. 147, and we find no case that holds that $100 worth of work done on a placer mining claim in good faith, in the belief that it will result in the development or improvement of the claim, is to be held insufficient for the reason that it is ill-advised, or does not in fact result in perceptible improvement or development. On the contrary, it is held that the character of the work performed becomes material only when it is performed for the benefit of the claim but on land without its boundaries. In that event the labor must tend to the development or improvement of the mining claim for which it is designed. Wailes v. Davies (C. C.) 158 F. 667, 670, affirmed Wailes v. Davies (C. C. A.) 164 F. 397.

"In Mt. Diablo M. & M. Co. v. Callison, 5 Sawy. 439, 456, Fed. Cas. No. 9886, it was said: 'We therefore conclude that when a miner does the necessary labor, anywhere within his boundaries upon the surface or below it, the condition of the mining claim as to labor has been complied with. We cannot hold that he shall make no mistakes; that he is bound to ascertain at the risk of forfeiture, whether he is working on a lode having its apex outside his surface lines.' In the Session Laws of Alaska above referred to it is provided that a survey of the claim by a United States mineral surveyor may be credited to annual assessment work, provided that the credit shall not exceed the required assessment for one year on the claim. We may concede that the Legislature of the territory had no authority to add to or take from the requirements of the statute of the United States in regard to the annual assessment work. But its enactment may be referred to as evidence of the opinion of miners in that territory that a survey of a mining claim might be regarded as assessment work, in compliance with the law of the United States.

"We are not convinced that that view is erroneous. A survey of a mining claim is an improvement which obviously may tend to aid in the development of the claim. In Richen v. Davis, 76 Or. 311, 148 P. 1130, it was held that work done in clearing the brush from a mining claim to facilitate the work thereon, might be deemed assessment work. In Hough v. Hunt, 138 Cal. 142, 70 P. 1059, 94 Am. St. Rep. 17, the court recognized the right to charge the wages of a watchman to annual assessment work, if the work were but temporarily suspended, and was intended to be resumed in a reasonable time, and if structures which would be required when the work was resumed were likely to be lost, if not cared for. That decision involves a construction of the law more liberal than that which is claimed by the appellee in the case at bar, for a survey of a mining claim is clearly in the nature of a permanent improvement, which tends to facilitate its development and to enhance its value.

"* * * * All that was determined was that the appellant had no valid location and that his suit to quiet title should be dismissed.

"The decree is affirmed."

When the court said, "A survey of a mining claim is clearly in the nature of a permanent improvement, which tends to facilitate its development and to enhance its value", it established a precedent in law that is of vital importance, because the fact is recognized that a survey greatly enhances the value of a mining claim.

NEW HOISTS OF HECLA MINING CO.

By A. C. Stevenson, Chief Electrical Engineer

In 1907 the Hecla Mining Co. installed one of the first Ilgner-type hoists with Ward-Leonard control built in the United States. It consisted of two reels, equipped with flat-sewn rope and mounted on a common shaft with a direct-current motor, and a flywheel motor-generator set. The ultimate depth from which hoisting could be done with this equipment was 2,000 feet, and its maximum load of rock or ore was 2.8 tons. This hoist, along with the entire Hecla surface plant and the town of Burke, was destroyed by fire on July 13, 1923.

The development and operation of the Sullivan Mining Co.'s Star mine, which is connected with the Hecla shaft at the 2,000-foot level by the Star crosscut, more than doubled the Hecla demand made upon the hoist. This, together with the future needs of the Hecla mine when opened below the 2,000-foot level, required hoisting equipment adequate for tonnage and depth greater than those of which the old hoist was capable. So the future hoisting requirements had been given considerable thought and study prior to the fire.

Before starting to rebuild the surface plant, the company made an unsuccessful endeavor to procure hoisting equipment which would provide for future needs, but no suitable second-hand equipment was available and the time-deliveries given by makers of new equipment were so remote as to preclude all thought of delaying reconstruction until a new hoist could be manufactured. Therefore it was necessary to rebuild the old hoist, but in so doing all anticipated requirements for a new hoist, such as adequate head-frame, building site, and ore bins, were given consideration, and reconstruction was in accordance with them. The company made a thorough, exhaustive study, including many experiments, to ascertain future hoisting requirements and to provide every possible safety feature, after which the new hoists were ordered and construction of the necessary buildings was started in 1928. Construction and installation were completed and the hoists put into operation on November 1, 1929.



NEW HOIST BUILDING, HECLA MINING CO.

Specifications

The specifications as to speeds, duty, and dimensions are briefly as follows:

MAIN HOIST

Drums:

Cylindrical double drum. Both drums clutched. 10 ft. diameter, 6 ft. face. Steel shell grooved for winding 3585 ft. of 1¾ in. round rope.

Drive:

First motion direct-connected to motor.
One bearing between motor and drums.

Brakes:

Gravity operated, released by oil pressure.

Duty:

Net weight of muck, per trip	14,000 lbs.
Weight of skip and skip-cage	14,000 lbs.
Weight of caged load in counterbalance	12,000 lbs.
Weight of three-deck cage	8,000 lbs.
Tonnage to be hoisted each 24 hrs	2,000 tons

Speeds:

Maximum rope speed	2,400 ft. per min.
Man speed	1,350 ft. per min.
Acceleration time	18 sec.
Retardation time	14 sec.

Weight:

Total weight	346,000 lbs.
Weight of motor	151,000 lbs.

MATERIAL HOIST

Drum:

Cylindrical single drum, keyed to shaft. 8 ft. diameter, 6 ft. face. Steel shell grooved to wind 3585 ft. of 1⅜ in. round rope.

Drive:

First motion direct-connected to motor.

Brakes:

Gravity operated, released by oil pressure.

Duty:

Net weight of material, per trip	8,000 lbs.
Weight of three-deck cage	8,000 lbs.

Speeds:

Full speed	1,350 ft. per min.
Acceleration time	10 sec.
Retardation time	10 sec.

Weight:

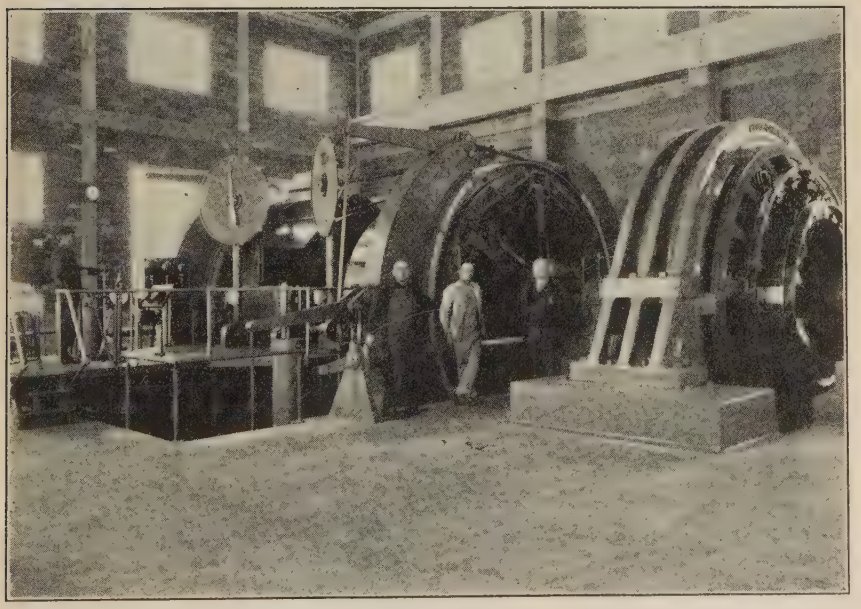
Total weight	102,000 lbs.
Weight of motor	99,000 lbs.

Motors

The main hoist is driven by a 2100-horsepower continuous, 3750-horsepower peak, direct-connected motor. The material hoist's motor rating is 850-horsepower continuous, 1600-horsepower peak. The material hoist always operates out of balance, while the main hoist is supposed always to operate in balance, although the motor has sufficient capacity to operate unbalanced under full load, should it become necessary to do so.

Safety Features

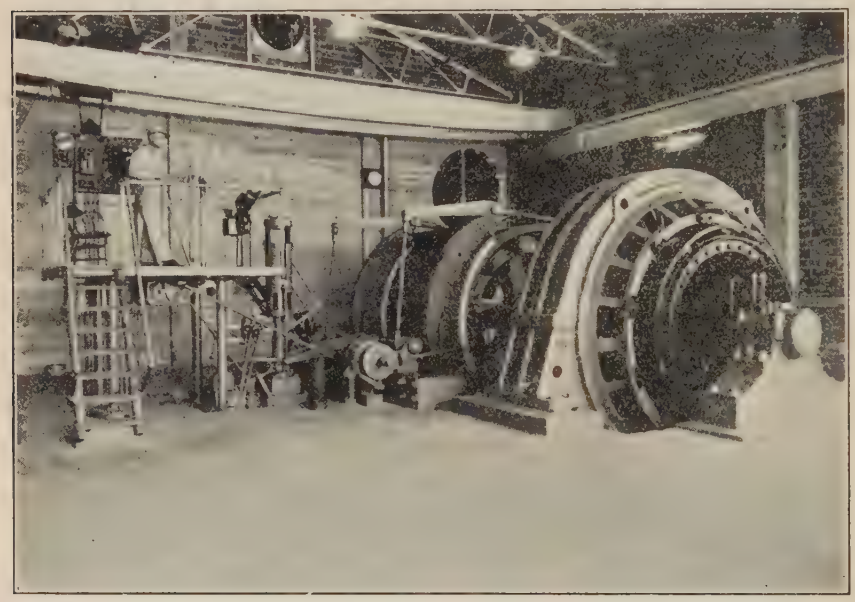
In the selection of safety devices every endeavor was made to provide safe operation. A Lilly safety-controller prevents overwind and overspeed. A man-speed setting is provided which changes the main hoist from 2400 feet per minute to 1350 feet per minute, with all safety devices operating the same as at the higher speed. All actions of the Lilly controller are preceded by the ringing of an alarm bell to warn the operator that something is wrong. In addition to the Lilly controllers, but entirely independent of them, is a device known as the cam safety. This is a mechanical device and parallels the electrical operation of the Lilly controller. It is geared to the drum and operates the master controller at both ends of the wind, automatically slowing down and stopping the hoist if the operator fails to do so. An emergency stop-switch is placed on the operator's platform and also at the collar of the shaft. Pulling either of these switches shuts off the hoist control and sets the brakes. Hatchway-limit switches are placed in the shaft to stop the hoists if the cage or skip goes past the point of attachment of these switches. A suicide circuit is incorporated which prevents any operation when the control is off. In case of the operation of any safety stop device the master controller must be brought to the off position and the brakes set before the control is resumed. In case of running into the over or underwind devices the hoist will travel only in a direction opposite to that in which it was going at the time of the engagement of the safety, preventing a confused operator from putting the cage farther into the sheave or sump. Interlocks are placed so the brake may not be released with the clutches out or vice versa.



MAIN HOIST, HECLA MINING CO.

Brakes

The brakes are set by gravity from heavy weights and released automatically, oil under pressure being used. The oil piping is completed through valves which are controlled by solenoids. Any failure of the control circuit de-energizes these solenoids and the brakes will set. Provision is made so that the rate of setting will be proportional to the speed at which the hoist is traveling when the action takes place. It is evident that rapid setting of the brakes at full speed would cause tremendous strain throughout the whole equipment and the danger of failure of the hoisting rope.



MATERIAL HOIST, HECLA MINING CO.

Acceleration and Retardation

Acceleration and retardation are automatically controlled. Irrespective of the speed at which the control handle is moved, the motor will not speed up any faster than this pre-determined rate. The control handle may be jerked from the full-speed hoisting position to the full-speed lowering. The motor will gradually slow down, reverse direction, and then come up to speed in the opposite direction.

Hoist Building

The hoist building is of reinforced concrete beam-and-column construction, with tile panels, and is entirely fire-proof. The steel was fabricated with electric welding. All available information, coupled with exhaustive tests, proved that a welded truss was approximately 9 per cent lighter, for the same strength, than a riveted truss, and its fabrication cost appreciably less. All floors are designed to carry the weight of the heaviest single piece of the equipment which might be placed upon them.

Each hoist is placed in a room separate from the other and from the motor generators, in order that noise may not bother the operator nor signals be confused.

HERCULES CUSTOM MILL

By Henry Lawrence Day, Assistant Manager, Hercules Mining Co.

The Hercules Custom Mill is located at the western limits of the City of Wallace, Shoshone County, Idaho. The concentrator, originally of 300 tons capacity, was built in 1910-11 to handle the output of the Hercules mine, seven miles to the northeast, near Burke, Idaho. The plant was enlarged from time to time until in 1917-18 more than 1000 tons were milled daily. The first flow-sheet, embracing straight gravity concentration, was altered as new developments in wet metallurgy took place. When the Hercules ore body was exhausted in the spring of 1925, the flow-sheet consisted of crushing, jigging, grinding and tabling; regrinding, floating, and tabling; re-regrinding and floating. Only one product was recovered, a silver-lead concentrate.

After the Hercules mine was shut down in April, 1925, the availability of a small tonnage from the Ambergris mine revealed the fact that a substantial demand existed for a custom concentrator. Accordingly, the Hercules Mining Co. began the rehabilitation of the Wallace mill into a custom plant. Commencing in the fall of 1926, provision was made for the differential separation of lead and zinc by the construction of a new flotation unit. A second section was added in the spring of 1928, and a third during the summer of 1929.

These and other comprehensive alterations, proceeding for more than three years, have changed the mill from a gravity concentrator to an all-flotation plant. The new flow-sheet is much simpler than the old. It may be divided into four parts: Crushing, grinding, floating, and drying.

Crushing:

Ore from the mines is brought to the head of the mill on a high-line spur of the Northern Pacific Railway. (Fig. 1.) It is dumped into any of five bins available, holding 10, 7, 5, 5, and 6 railroad cars, respectively. Individual ores are kept separate in the crushing department, so that the proper samples may be procured. Ore is fed from the bins by impact feeders onto conveyor-belts, which lead past a magnet for removing tramp iron, to an electrically vibrated screen with 1-inch clear openings. The oversize drops thru a 9x15-inch Blake type jaw-crusher, set to minus 3 inches, and then passes thru a 24-inch horizontal-disc crusher, set to discharge minus 1-inch material. The crushed oversize then joins the undersize from the screen, and after sampling, both are dropped onto the ball-mill bin shuttle-conveyor.

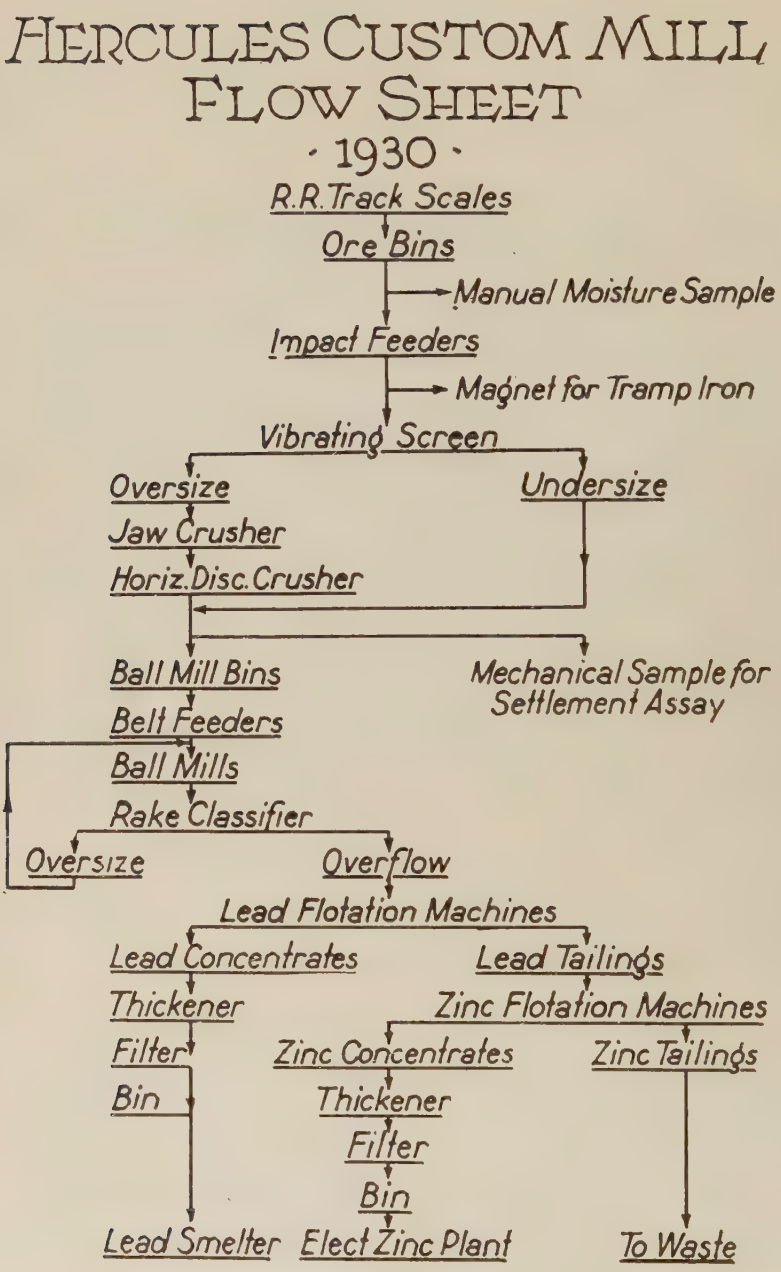
The original mill-feed, crushed to 1 inch, is sampled automatically by a bucket-and-chain sampler. Cuts are made every 25 seconds, amounting to one-ninetieth of the original feed. This one-ninetieth is fed to small rolls, reducing it to ½ inch. Next, a Vezin sampler rejects three-fourths, and the remaining one-fourth is reduced by a second set of rolls to ¼ inch. About four-fifths is then rejected by a second Vezin sampler; and the remainder, amounting to approximately $\frac{1}{2000}$ of the original feed, is split by hand until a suitable weight is reached for the assay office.

Grinding:

Ore from the crushing department is distributed by means of a shuttle-conveyor into the ball-mill bins. These are six in number and each holds about 12 hours' supply for one ball mill. Short belt-feeders supply the six mills at a constant rate. All the mills are cylindrical in shape. Five are 7 feet by 7 feet, driven by 125-horsepower, slip-ring motors, speed 440 r.p.m.; the sixth mill is 6 feet by 7 feet, with a 75-horsepower motor. (Fig. 2.) Herringbone gears and pinions are employed to give a reduction of 20 to 1.

Each of the mills is in closed circuit with a classifier to provide a uniformly fine grind. Four of the classifiers are of the reciprocating rake type, 6 feet by 20 feet. One of the same type is 8 feet by 20 feet, and the last is a 20-inch plain drag. The usual density of the mill discharge is about 70 per cent solids. The classifier overflow approximates 30 per cent solids, with 75 to 80 per cent minus 200 mesh. These are average figures, which will vary considerably for the different ores treated.

Fig. 1.


HERCULES CUSTOM MILL
FLOW SHEET
· 1930 ·
R.R. Track Scales
Ore Bins
Manual Moisture Sample
Impact Feeders
Magnet for Tramp Iron
Vibrating Screen
Oversize
Undersize
Jaw Crusher
Horiz. Disc. Crusher
Ball Mill Bins
Mechanical Sample for Settlement Assay
Belt Feeders
Ball Mills
Rake Classifier
Oversize
Overflow
Lead Flotation Machines
Lead Concentrates
Lead Tailings
Thickener
Zinc Flotation Machines
Filter
Zinc Concentrates
Zinc Tailings
Bin
Thickener
Filter
Bin
Lead Smelter
Elect Zinc Plant
To Waste

Floating:

The flotation department is divided into three sections, similarly arranged, so that a differential lead-zinc separation can be made on each. Mechanically agitated cells are used for the roughers, and pneumatically agitated for the cleaners. Section One consists of 12 Fahrenwald type cells with 18-inch impellers, and 10 Minerals Separation type cells with 18-inch impellers. The second section consists of 24 Minerals Separation type cells with 18-inch impellers. Section Three has 28 Fahrenwald type cells with 24-inch impellers. (Fig. 3.) The general practice is to double-clean the rougher concentrates with pneumatic machines of a type developed at the Hercules mill. Section Three is equipped with a regrinding unit, consisting of a thickener and a small ball mill, operating in closed circuit with a bowl classifier. This unit is used for the regrinding of middlings of ores that require exceptionally fine comminution.

Sampling of the various flotation products is done chiefly by mechanical pulp-cutters, although hand methods are also in use. The bulk of the reagents are fed by mechanical means, automatic feeders gradually being installed to supplant the drip buckets. The reagents are fed dry insofar as possible, although wet feeding is found to be the more satisfactory in some instances.

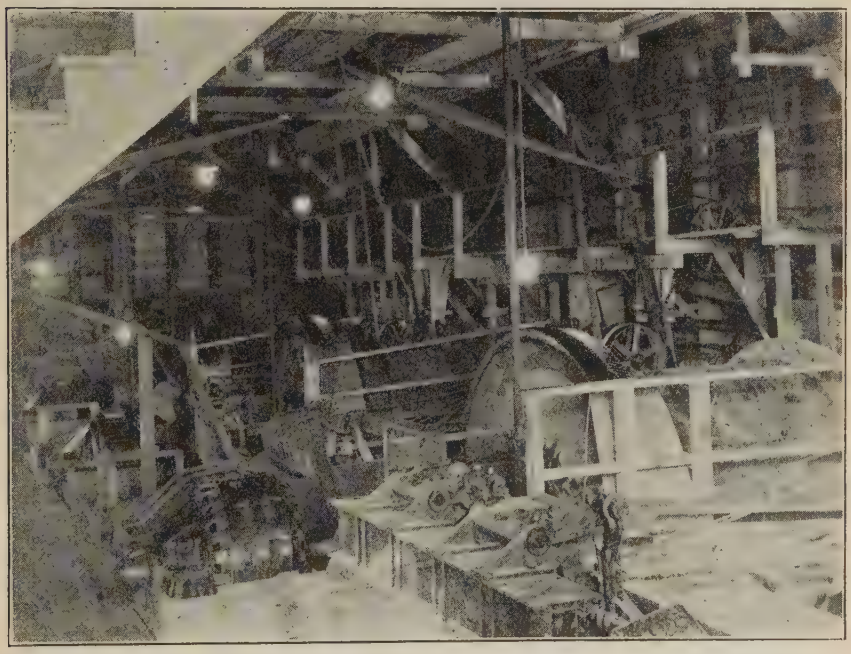


Fig. 2. EAST END OF BALL MILL FLOOR

Drying:

The lead concentrates are pumped to a thickener, 54 feet in diameter, and dewatered on two drum-type filters, 8 feet by 6 feet. The zinc concentrates are dewatered by two thickeners, each 30 feet in diameter, and one drum-type filter, 8 feet by 6 feet. The filtered concentrates are carried by inclined conveyors to separate bins, and loaded in box-cars or gondolas on railroad track scales.

The mill is heated by a 60-horsepower boiler, fed with slack coal by a mechanical stoker. It is necessary to maintain in conjunction with the milling operations a complete assay office, as well as a testing laboratory. In addition a well-equipped machine shop, a carpenter shop, and a pipe shop are provided. A new change-room with showers completes the facilities.

Custom milling requires special care in weighing, moisturing, and sampling. Ore destined for the Hercules mill is weighed on Northern Pacific track scales, which are regularly inspected and tested. The moisture determination is made at the mill, following standard practice. The sampling is all performed mechanically, using modern accepted equipment.

The development of the custom business has resulted in the shipping of a great variety of ores to the mill for concentration. The ores treated have included these types: Silver-lead; silver-lead-zinc; zinc; slimes; and reclaimed tailings, a large part of which are oxidized. Experience has shown that it is not feasible to bed or mix these widely differing ores to provide a uniform mill-feed. Hence each lot is treated separately. Naturally this means considerable difficulty in handling small lots and requires far more than the usual skill in operation and detail in supervision. This fact may be readily seen when it is noted that the usual practice is to grind and float three different ores simultaneously, each calling for its own pulp densities and reagents. It was found necessary to make many changes to render the flowsheet flexible enough to overcome in some measure the difficulties due to the variety of ores. The demand for custom milling facilities is shown by the following table:

Year	Number of Shippers	Dry Tons Milled
1926	5	11,800
1927	16	37,700
1928	24	158,000
1929	26	195,300

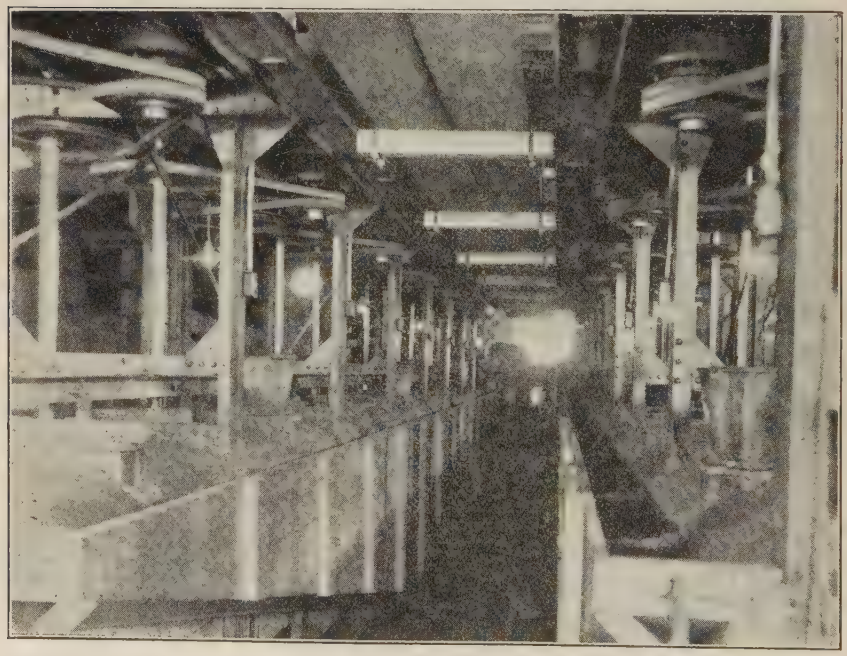


Fig. 3. NEW STEEL-FRAME FAHRENWALD FLOTATION MACHINES



HERCULES MINING CO.- CUSTOM MILL

INCLINED TOP-SLICE STOPING METHOD

AS USED AT PHOSPHATE MINE OF ANACONDA COPPER MINING CO., CONDA, IDAHO*

By E. M. Norris, Superintendent

The phosphate mines and milling plant of the Anaconda Copper Mining Co. are situated nine miles north of Soda Springs, Idaho, at the town of Conda, which was built by the company to house its employees. A branch railroad connects with the main line of the Union Pacific Railroad at Soda Springs.

The phosphate deposits are of sedimentary origin, and were originally laid down horizontally. During the formation of the mountains the beds were raised and folded into an anticlinal structure, and tilted at angles varying from 45 to 90 degrees from the horizontal. Erosion of the anticline has produced an outcrop of the phosphate bed which can be traced by shallow depressions for many miles. The minable phosphate bed has a fairly uniform width of 7 feet, and is confined within soft phosphatic shales lying on top of limestone. The ore body and hanging wall are soft and will not stand without support for more than a few hours after opening. This, together with the fact that special care in mining is necessary to prevent contamination of the ore by wall rock, makes a difficult mining condition which has been solved by the use of an inclined top-slicing method of stoping.

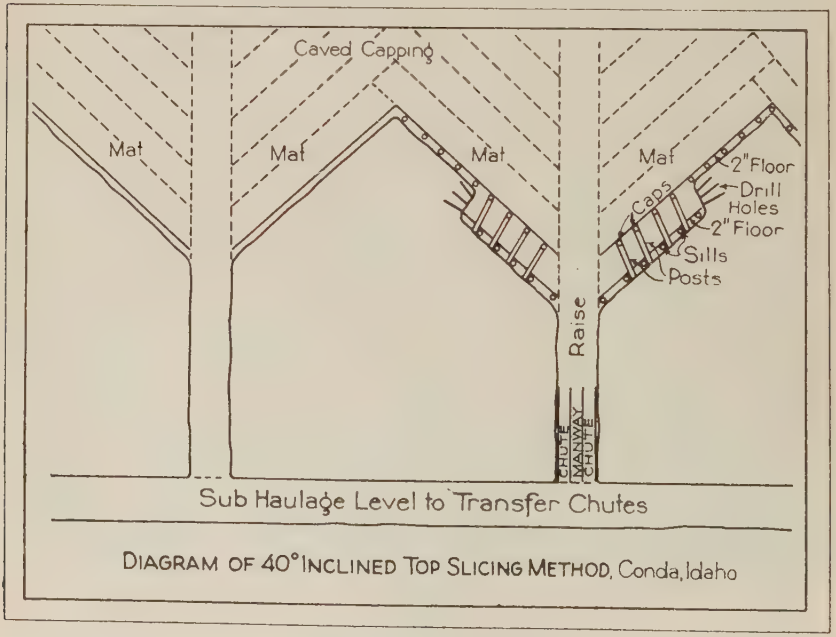


DIAGRAM OF 40° INCLINED TOP SLICING METHOD, Conda, Idaho

*For a complete description of this enterprise see Twenty-fifth Annual Report of the Mining Industry of Idaho for the Year 1923, page 26.

The mine is opened by an adit or main haulage level, 9 feet wide by 10 feet 2 inches high inside of timber, and by main or transfer raises leading into it. The portal of this tunnel is adjacent to the milling plant. Three-compartment raises, spaced at 100-foot intervals, are driven on the phosphate bed from the main and subhaulage levels to the top of the ore or surface. Sublevels spaced at successive intervals of 150 feet are then driven on the vein from these raises; these drifts are small and almost entirely untimbered. Stoping is commenced by driving a 40-degree inclined drift (raise) along the top of the ore. The roof of this drift is supported by caps and posts, and a floor of 2-inch lumber is laid lengthwise on sills, which are 5½ feet from center to center, across the bottom of the drift. The hanging wall of the vein is supported by the posts with 2-inch lagging placed behind them. The incline of the stope raise (drift), together with the smooth floor, is sufficient to cause the broken rock from the headings to drop by gravity into the ore chute, from which it is loaded into 2-ton side-dump mine-cars and trammed by hand to the transfer raises leading into the main haulage level.

Two to four adjacent stopes are usually worked simultaneously and all of the ore is recovered, as the adjoining slices are connected by lagging off the vertical (top) end of the finished drift or slice. After the slice is completed, the roof of the drift is brought down on to the floor by blasting the supporting timbers. One to two holes are bored in each cap and post into which the powder is placed; the fuses are ignited by hand, and the entire slice shot at one time, thus forming a timbered mat on top of the floor, which then becomes the roof of the next slice. The whole procedure is then repeated for consecutive slices until the block of ore is worked out.

A production of about 13½ tons per man-shift is obtained, and the timber requirement is approximately 12 feet, board measure, per ton of ore.



ANACONDA COPPER MINING CO.: MINE AND MILL IN BACKGROUND

IDAHO PORTLAND CEMENT CO.*

By Gordon F. Sondraker, Associate Editor, Pit and Quarry

The new plant of the Idaho Portland Cement Co. at Inkom, near Pocatello, Idaho, was placed in operation in June of this year. While the buildings were not quite complete and other minor changes remained to be made, it was decided by the officers of the company to place the plant in operation in order that the product, Eagle Brand cement, might be placed on the market during the summer construction period and that definite dealer connections might be established before the winter, with its consequent slack in trade, might set in.

The company was conceived by a group of business men of Spokane, Washington, and Pocatello, Idaho, headed by E. J. Simons, president of the General Machinery Company of Spokane. Erection of the plant was started during the fall of 1928. Situated on the beautiful Port Neuf river, the company enjoys all the natural facilities necessary to a successful cement plant. It was intended originally to establish a quarry on a large ledge of lime-rock near the company's mill, but, as a cut was being made through a hillside preparatory to laying tracks for the narrow-gauge railroad, it was discovered that the hill itself contained an immense quantity of shattered lime-rock and shale so intermixed as to almost form an ideal raw mix. Immediately upon this discovery sufficient exploration work was performed to prove up an immense tonnage of this material in the hill. In fact, the tonnage is sufficient to furnish this plant with material for well over two hundred years, if operating at its present capacity. The hill roughly measures 2200 feet in length by 400 feet in height and contains 80 acres. The company owns also a shale deposit covering approximately 80 acres, although, from the present knowledge of the shattered lime deposit, it appears probable that the shale deposit will never be used.

One may gather an idea of the nature of the deposit when it is stated that, to date, no powder has been used on the deposit, the material being so small in size that it may all be handled easily by steam shovels. As one may readily perceive from the panorama photograph shown herewith, the deposit is about 100 feet higher than the plant, thus allowing a gravity flow of material through the plant and the consequent elimination of many elevators that are customary in the average cement plant.

A 7-ton gasoline locomotive, designed especially for this operation by the General Machinery Company of Spokane, Wash., hauls six 5-yard Western side-dump cars over 1800 feet of narrow-gauge track running from the crushers to the farthest end of the quarry. A Speeder gasoline shovel equipped with a ½-yard dipper and powered by a 45-horsepower Hercules gas engine, and a General shovel equipped with a ¾-yard dipper dig the material from the quarry and dump it directly into the dump cars which convey the material over a grizzly manufactured of railroad iron. This grizzly eliminates the material 3 inches and under in size and passes the oversize material to a 12-inch by 24-inch Reliance jaw crusher.

This crusher reduces the oversized material to 3-inch and under and then lets it fall to a vibrating screen manufactured by Universal Vibrating Screen Company. This screen removes the material ¾-inch and under in size and passes it to a General Machinery Company's belt-conveyor 24 inches in width and 77 feet in length. The oversized material falls into a type B 36-inch by 24-inch Jeffrey hammer-mill and is reduced to ¾-inch and finer. This material then falls to the conveyor-belt mentioned above and is conveyed to wooden storage bins having a total capacity of 800 tons of dry material.

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*From Pit and Quarry, vol. 18, p. 36, Sept. 11, 1929. Reproduced by permission.



IDAHO PORTLAND CEMENT CO.: PLANT

The material is drawn from the storage bins onto a General Machinery Company conveyor-belt measuring 20 inches in width and 108 feet in length. The material is drawn from the bins onto this belt conveyor by three variable-speed feeders especially designed for this particular operation by the same company. Due to the variable speed of these feeders ,a preliminary mixture of the raw materials is obtained at this point. The belt-conveyor conveys the material to a General Machinery Company bucket elevator having 55-foot centers and using 7-inch by 14-inch buckets. This elevator takes the material from the belt-conveyor to wooden storage bins over the raw mill.

Raw Grinding:

The raw material ¾-inch and finer is drawn from the mill bin onto an Allis-Chalmers table feeder which, in turn, feeds it into an 8-foot by 7-foot by 26-foot Allis-Chalmers Compeb mill. This mill is driven by a 600-horse-power Allis-Chalmers high-torque motor through a flexible coupling. The motor operates at 180 r.p.m. and the mill turns over at the rate of 20 r.p.m. Water to form the slurry is introduced into the mill at the feed end. As the slurry leaves the mill it is taken by a 3-inch Wilfley pump, which is driven by a 40-horsepower Howell motor through a flexible coupling, and is pumped to any one of the five steel slurry tanks.

Each of these steel slurry tanks measures 20 feet in diameter by 25 feet in height and each has a concrete cone bottom. Slurry is agitated by air through a system designed by the General Machinery Company. Piping is so arranged that any of the five tanks may be used either for mixing, storage, or kiln feed. Slurry is pumped from tank to tank, in correcting, by a 4-inch Krogh pump manufactured by the Krogh Manufacturing Company.

This pump is driven by a 30-horsepower Howell motor through a flexible coupling. After a thorough and satisfactory raw mix is obtained, slurry is pumped from the tank then being used as a kiln-feed tank to an Allis-Chalmers ferris-wheel type kiln-feeder by a 3-inch pump manufactured by the Union Iron Works.

Clinker Burning and Coal Handling:

The ferris-wheel type feeder supplies the slurry to a water-jacketed feed-pipe which, in turn, introduces the slurry to the kiln. Any slurry overflow from the feeder is returned to the slurry feed tank by a 2-inch Union Iron Works centrifugal pump driven by a 5-horsepower Howell motor through a belt drive.

A single Allis-Chalmers kiln, measuring 10 feet in diameter by 200 feet in length, is in operation. This kiln is supported by four sets of single-roll trunions and is driven by a 75-horsepower 6-phase variable-speed Allis-Chalmers motor, through a gear speed reducer. Full speed of the kiln is one and one-quarter minutes per revolution and slow speed is two and one-half minutes per revolution of the kiln.

Fuel for the burning of the clinker consists of powdered soft coal obtained from the mines of Utah. This coal is received in gondola cars on elevated tracks over the coal storage. The coal is dumped from the cars into the storage pit. A General Machinery Company drag-line takes the coal from the storage pit to a General Machinery Company elevator having 35-foot centers and using 7½-inch by 16-inch buckets. This elevates the coal to a 30-ton-capacity steel bin from which it flows by gravity to the feeder of a 5-roll low-side Raymond mill. This mill reduces the material so that 80 per cent will pass through a 200-mesh screen. The coal, when properly sized, is drawn from the mill by a Raymond air separator having a 16-inch fan. The ground, dried coal then goes to a 30-ton-capacity steel bin over the kiln. Heat for drying in the Raymond mill is obtained through piping from a hood over the front end of the kiln.

Coal for burning is drawn from the aforementioned fuel bin by a double-screw type Allis-Chalmers coal feeder and is blown into the kiln by a 48-inch Sirroco fan manufactured by the American Blower Company. The kiln is operated in three 8-hour shifts.

Clinker Handling and Finish Grinding:

The clinker falls from the kiln to a Link-Belt drag chain conveyor 110 feet in length and is discharged into a Link-Belt bucket elevator having buckets measuring 20 inches by 14 inches by 7 inches. Both the chain drag and the elevator are driven by a 25-horsepower motor through a Falk speed reducer. This motor as well as all Howell motors in use throughout the plant are manufactured by the Howell Motor Company. The elevator discharges the clinker into the storage pile where it is distributed for cooling by means of a stiff-leg derrick and a clam shell. The derrick is driven by 75-horsepower and 25-horsepower Westinghouse motors.

The same stiff-leg derrick reclaims the clinker from the clinker storage pile and places it in a 16-foot square steel bin over the finish mill. Gypsum is added in this bin, according to requirements, by the same derrick.

Clinker is drawn from the mill-feed bin onto an Allis-Chalmers table feeder and is fed into an 8-foot by 7-foot by 30-foot Allis-Chalmers Compeb mill. This mill is driven through a Falk flexible coupling by a 600-horsepower Allis-Chalmers high-torque motor operating at 180 r.p.m. The finished cement is discharged into a 5-inch Fuller-Kinyon pump driven, through a Falk flexible coupling, by a 25-horsepower Howell motor. The cement is pumped by this Fuller-Kinyon pump to two temporary stock-house bins in the temporary stock-house, or rather immediately adjoining it.

The cement is drawn from either of the two bins by a Link-Belt screw conveyor 12 inches in diameter and 6 feet in length. This conveyor delivers the material to a General Machinery Company bucket elevator having 45-foot centers and using buckets 7 inches by 14 inches. The elevator elevates and dumps the cement into an 18-inch by 12-foot General Machinery Company rotary screen using 10-mesh screen cloth. This screen removes any tramp material that may have found its way into the cement since leaving the finish mill.

From the screen the cement falls into a steel bin over the packing machine. This bin has a capacity of 160 barrels of cement. From the bin it is drawn into a Bates 3-valve packer and, after packing, is either trucked by hand into freight cars for shipment or loaded onto trucks. The plant is served by the Union Pacific Railway Company's transcontinental lines.

Machine Shop and Laboratory:

The machine shop is equipped with an adequate supply of tools and equipment to take care of the needs of the company. A Monarch 20-inch by 12-foot lathe takes care of the necessary lathe work. A Champion Blower & Forge Company's powered emery wheel; a drill press manufactured by Aurora Tool Works; a milling machine manufactured by Rockford Milling Machine Company; a 14-inch American wood-joiner, and a 25-pound Little Giant power hammer manufactured by the Star Foundry Company comprise the balance of the equipment. Three air compressors are in operation. One of these, a 12-inch by 12¼-inch Ingersoll-Rand single-stage air compressor driven by a 50-horsepower Westinghouse motor through a belt transmission, is housed in the machine shop. This compressor furnishes the air necessary for slurry agitation. An 8-inch by 9-inch Sullivan single-stage compressor furnishes air for the Fuller-Kinyon pumping system. A 30-horsepower Howell motor drives this compressor through a belt. An 8-inch by 9-inch Chicago Pneumatic compressor driven by a 50-horsepower motor through belt transmission is used as an auxiliary in time of need. All of the compressors are connected by a single pipe-line so that each may be used for any desired purpose.

A completely equipped laboratory, under the direction of F. H. Beyer, chief chemist, insures the quality of cement before it leaves the mill. The laboratory is equipped with a small crusher, and a pebble mill, manufactured by the General Machinery Company, a Tinius Olsen tensile-strength machine, and other equipment necessary for successful operation.

GENERAL REVIEW AND 1929 ACTIVITIES

The year 1929 closed with the mining industry of Idaho witnessing a very prosperous year. Excepting for three mines, which curtained production about 15 per cent for a few months at the close of the year, capacity production was maintained at all of the large mines and in a few instances the output was increased. This, with the increase by small producers, resulted in an increase in the total production over that of the previous year. During the year four former dividend-paying mines increased their payments, two new ones were added to the list, and four others were placed on a profitable operating basis. Practically all of the large mines conducted active development work throughout the year, which proved the extent of their ore bodies at greater depth and laterally. The increased ore reserves and the improvements to mine and mill plants greatly enhanced the physical condition and future life of these mines. The money expended for new mining equipment and machinery, new reduction plants and the remodeling of old plants, and the number of new plants installed (both mining and milling) exceeded those for any of the past five years. The organization of and commencing of operations by new companies and the development work undertaken by the large companies at new properties greatly exceeded those of 1928. The number of producing mines in which the ore reserves were increased and the number of new ore disclosures in non-producing mines and prospects greatly exceeded those of former years.

The majority of the new companies and the new construction work was in counties other than Shoshone, although this county witnessed a substantial increase. In addition to the new enterprises, new discoveries, and improved conditions throughout the State, there were also many inquiries and investigations by those seeking mines and mining investments, particularly in Custer, Boise, Valley, Blaine, Lemhi, and Idaho counties. Many of these inquiries were conducted by large mining companies who in some instances were favorably impressed by their investigations. As Idaho offers unequalled opportunities in mining and the diversity of its mineral wealth exceeds that of any state of similar size in the Union, the substantial growth witnessed during 1929 should be maintained in the future. The healthy condition of Idaho's mining industry at the close of the year can best be outlined by the five principal factors responsible for it:

1. Increased ore reserves of producing mines.
2. New ore disclosures of importance.
3. New dividend-paying mines.
4. New reduction plants.
5. Principal activities, new enterprises, and new mine plants.

1. Increased Ore Reserves of Producing Mines:

The principal producing mines in which the ore reserves were increased by new development work during the year were: Constitution mine of the Constitution Mining & Milling Co., Galena mine of the Callahan Lead-Zinc Co., Stratton mine of the Dayrock Mining Co., Golconda mine of the Golconda Lead Mines, Jack Waite mine of the Jack Waite Consolidated Mining Co., Sidney mine, being operated by the Sidney Leasing Co., Sherman mine of the Sherman Lead Co., Sunshine mine of the Sunshine Mining Co., and Morning and Page mines of the Federal Mining & Smelting Co., all in Shoshone County; the Triumph mine of the Hailey Triumph Mines Co., in Blaine County; the Gold Hill & Iowa mine of the Talache Mines, Inc., in Boise County; the Whitedelf mine of the Whitedelf Mining & Development Co., in Bonner County; the Wilbert mine of the Wilbert Mining Co., Ltd., in Butte County; the

Empire mine of the Mackay Metals and the Livingston mine of the Livingston Mines Corporation, both in Custer County; the Lone Pine mine at Golden, owned by O. F. Miiller, in Idaho County; and the Pope-Shenon mine of the Winder-Stillman Copper Co., in Lemhi County.

The companies which increased the amount of their dividend payments for 1929 were: Bunker Hill & Sullivan M. & C. Co., Hecla Mining Co., Sunshine Mining Co., Sidney Mining Co., and Sidney Leasing Co., all in Shoshone County.

2. New Ore Disclosures of Importance:

The principal new ore disclosures and new discoveries of importance at non-producing mines and prospects were those at: The Carbonate Hill mine of the Atlas Mining Co., the Crescent mine of the Bunker Hill & Sullivan M. & C. Co., the Douglas mine of the Douglas Mining Co., and the Little Pittsburg mine of the Pine Creek Lead-Zinc Mining Co., all in Shoshone County; the Vienna mine, under operation by A. F. Peery, in Blaine County; the Hewer mine of the Idaho Lakeview Mines Co., in Bonner County; the Horn Silver mine of the Horn Silver Consolidated Mines Co., in Butte County; and the Monte Carlo mine, owned by Ed. Salomon, in Custer County.

3. New Dividend-Paying Mines:

Companies which entered the ranks of dividend payers during the year were: Dayrock Mining Co. and Golconda Lead Mines, both in Shoshone County.

Mines which were placed on a profitable operating basis during the year were those of: The Sherman Lead Co. and Jack Waite Consolidated Mining Co., both in Shoshone County; Wilbert Mining Co., Ltd., Butte County; and the Hall Interstate and Lost Pilgrim mines of the Bunker Hill & Sullivan M. & C. Co., Valley County.

4. New Reduction Plants:

The most important new construction work during the year was the enlargement of the Bunker Hill smelter to almost double its former capacity; the addition of a cadmium recovery unit to the electrolytic zinc plant of the Sullivan Mining Co.; and the remodeling of its mill into a custom plant by the Hercules Mining Co. All these are in Shoshone County. Other mill construction work in Shoshone County was as follows: Remodeling and enlarging of milling plants by the Jack Waite Consolidated Mining Co. and the Sunshine Mining Co.; rebuilding of Page mill by the Federal M. & S. Co.; commencing of work on a new flotation concentrator by the Pine Creek Lead-Zinc Mining Co.

The principal new milling plant construction in other counties during the year was: Small 50-ton jig concentrator by the United Mines Co. of Idaho, Blaine County; new 75-ton flotation concentrator by the Missouri Mining Co., Ltd., enlarging of buildings and installation of new milling equipment at the Gold Hill & Iowa mill of the Talache Mines, Inc., and installation of new milling equipment at the Mountain Chief mill by the Federated Mines Co., all in Boise County; completion of new 75-ton flotation concentrator by the Whitedelf Mining & Development Co., in Bonner County; erection of flumes and mill building and installation of screening and tabling machinery by the Salmon River Development Co. and the Seelridge Gold Mining Co. (both placer-mining enterprises), the erection of new mill building and installation of milling equipment of 150 tons capacity, fine grinding, amalgamation, and flotation, by the Sherman Howe Mining Co., and the installation of a small 4-stamp steam-driven amalgamation mill by the Buffalo-Idaho Mining Co., all in Idaho County; and the erection by the Amalgamated Red Metals Mines Co. in Valley County of a mill building and installation of equipment of 25 tons capacity which is portable on horseback.

The most important non-metallic reduction plant to be constructed in the State during 1929 was the new 1500-barrel capacity cement plant of the Idaho Cement Co. at Inkom, Bannock County.

5. Principal Activities, New Enterprises, and New Mine Plants:

The outstanding new enterprises and new mine plant installations were as follows: Rainbow Mining & Milling Co. in Benewah County constructed new camp buildings and installed small gas-driven compressor and complete mining equipment. In Blaine County the Hailey Triumph Mines Co. erected a large four-story boarding and bunk house and four new homes, also installed a large amount of mining equipment, and its allied company, the Hailey Tramway Co., constructed a four-mile aerial tramway, with head-house and terminal buildings; the Liberty Gem Mines, Inc., installed a small gas-driven compressor; A. F. Peery at the Vienna mine installed a large compressor direct-connected with Diesel engine, also new mining equipment. The Missouri Mining Co., Ltd., and the American Mines Development Co., both in Boise County, installed small gas-driven compressors and complete mining equipment, and the Talache Mines, Inc., at the Gold Hill & Iowa mine, also in Boise County, reconstructed its mine surface plant and installed a large electrically-driven hoist. The Wilbert Mining Co., Ltd., constructed a 17-mile electric power transmission line from Howe to its mine and converted the mine and mill plants from gas-driven to electrically-driven; the Era Consolidated Mines, Inc., constructed new camp buildings and installed small gas-driven compressor; these are both in Butte County. The Mackay Metals installed a new steam-driven 1200-cubic-foot compressor, four miles of pipeline, and a large amount of new mining equipment; H. B. Kingsbury at the Camp Bird mine installed a small hydroelectric power plant and a five-drill compressor; both of these are in Custer County. The St. Joseph Lead Co. commenced operations at the Boise Rochester-Monarch groups, Elmore County. The American Mines Development Co. at the Old Liberty mine, Gem County, erected new buildings and installed a small gas-driven compressor.

In Idaho County the Sherman Howe Mining Co. erected new mine and camp buildings, and installed new compressor and complete mining equipment; the Bunker Hill & Sullivan M. & C. Co. and its allied interests commenced operations at the new copper discovery in the Green Mountain district; both of these are new enterprises of importance. In Latah County the Spokane-Idaho Copper Co. commenced operations. In Lemhi County the Lead Mountain Mining Co., a new organization, erected new mine and camp buildings and installed compressor and complete mining equipment; the Winder-Stillman Copper Co. installed a new compressor; the Harmony Mines Co. installed at Baker a 450-horsepower generator driven by a Diesel engine, constructed eight miles of electric transmission line, and installed new mining equipment; and Mrs. H. F. Steen at the Continental group in the Yellow Jacket district installed a small gas-driven compressor.

The Exploration Co. of California, which acquired the Golconda group, South Mountain district, Owyhee County, late in the year, erected new mine and camp buildings and installed an additional gas-driven compressor. The Grand Teton Oil Co. in Teton County erected an additional derrick and installed complete new well-drilling equipment. In Valley County the Bunker Hill & Sullivan M. & C. Co. at the Lost Pilgrim and Hall Interstate mines erected a new hydroelectric power plant; the Yellow Pine Co. constructed a large number of new mine camp buildings, installed a new compressor and a large amount of new mining equipment, and completed construction on a 12-mile road into the camp; the Big Creek Gold Mines, Inc., installed a small portable water-driven compressor and small portable sawmill; the Amalgamated Red Metals Mines Co. installed a small portable hydroelectric power plant, a compressor and a small sawmill, both portable, and erected new mine and camp buildings. The Idaho Mineral Mining Co., a new organization in the Mineral district, Washington County, installed a gas-driven compressor and complete mining equipment.

The principal new mine plant construction and installations in Shoshone County during 1929 were: Hecla Mining Co., two new hoists and building to house them, which represented the largest expenditure in new mine plants made in the State; Constitution Mining & Milling Co., new 100-horsepower double-drum hoist and new 1600-cubic-foot Ingersoll-Rand compressor, both

electrically driven; Cedar Creek Mining & Development Co., new 530-cubic-foot compressor, replacing one destroyed by fire; Coeur d'Alene Mines Corporation (a new organization at the Mineral Point mine), new camp and mine buildings, power line, compressor and complete mining equipment; Dayrock Mining Co., new mine buildings and compressor; Federal Mining & Smelting Co. at its Page mine, new buildings and new electrically-driven 2550-cubic-foot compressor; Gold Hunter Mines, Inc., new mine buildings and new compressor, replacing those destroyed by fire early in the year; General Mines Corporation, new buildings, compressor, and complete mining equipment; Inspiration Lead Co. (a new organization at the Moe mine), new buildings, head-frame, electrically-driven 550-cubic-foot compressor and electrically-driven hoist; Keystone Mining Co. (a reorganization of the Florence Mining & Milling Co., Ltd.), new buildings and new compressor; Lookout Mountain Mining & Milling Co., new 12x12 compressor; New Jersey Consolidated Mines Co. at the King of Pine Creek mine, new head-frame, new buildings, two electrically-driven compressors and an electrically-driven hoist; E. M. Burt at the Peerless group near Wallace, power line, new compressor, complete mining equipment, also road constructed; Sidney Leasing Co. at the Sidney mine, large new compressor; Sunshine Mining Co., new compressor and large amount of new mining equipment; Stratton Silver Summit, Inc., electrically-driven compressor and complete mining equipment; Wolverine Mining Co., Ltd., new electrically-driven compressor and hoist; Western Mines, Ltd., at the Bell of the West group, new compressor and complete mining equipment. The Pine Creek Lead-Zinc Mining Co. at the Little Pittsburg group near the Sidney mine on Pine Creek, erected new buildings and removed the mining equipment to the lower tunnel. The Savage Mining Co., a new organization on Nine-Mile, erected new buildings and installed a new compressor and complete mining equipment early in the year; these were destroyed by fire in June and were entirely replaced in July. Th Tamarack & Custer Consolidated Mining Co. removed all of its mining equipment from its No. 6 tunnel on Nine-Mile Creek and reinstalled it at the No. 7 tunnel on Canyon Creek.

These are more extensively reviewed through the outline by counties which follows:

Bannock County

One of the most important new enterprises to be started in the State during 1928 was that of the Idaho Portland Cement Co., near Inkom, about 12 miles south of Pocatello. This company acquired a large deposit of limestone, constructed a new railroad siding, and commenced installation of a 1500-barrel Portland cement plant. Construction was completed and the manufacture of cement started during 1929. This company's product is marketed under the trade name of "Eagle Brand".

Seven manganese mines near Cleveland and Lava Hot Springs were active throughout the greater part of the year, and a substantial tonnage of high-grade manganese ore was produced and marketed.

Blaine County

The principal operation in this county throughout the year was that of the Hailey Triumph Mines Co. at the Triumph mine, which adjoins the North Star of the Federal Mining & Smelting Co. A large tonnage of mixed ore was produced and sent to a milling plant in Utah for reduction. The principal development work consisted of extending the inclined winze 400 feet, which was equal to a vertical depth of 200 feet below the bottom of the shaft. This work was successful in opening a substantial tonnage of ore. A large new bunk and boarding house and a number of new homes were erected. In addition to the foregoing, a four-mile aerial tramway connecting the mine with the railroad was constructed. Articles of incorporation for a Hailey Tramway Co. were filed on August 23, 1929. As no report was filed for this company, it is presumed that the two companies are operated independently of each other. This mine was formerly operated by the Triumph Development Co., of which Geo. W. Snyder, Felt Bldg., Salt Lake City, was secretary. The Homestake Mines Corporation, near Ketchum, was active for eight months in

developing its property. The Liberty Gem Mines, Inc., which was organized in 1927 to develop the new discovery made by the Mathewses in the early part of that year, maintained active development work throughout 1929 and late in the year installed an additional gas-driven compressor. The Crooked River Mining Co., operating in the Muldoon district, actively developed its property by contract throughout the year. The United Mines Co. of Idaho, Inc., which is also operating in this district, in addition to performing a small amount of development work, installed a short one-bucket aerial tramway and a small jig concentrating mill during the year. The Pandora Mining Co., with property in the Lava Creek district near the Butte County line, which acquired and equipped its property in 1928, constructed a four-mile road in cooperation with Butte County, shipped a small tonnage of ore, and maintained work throughout 1929. Lessees produced and marketed a substantial tonnage of ore from the Independence and North Star mines owned by the Federal Mining & Smelting Co., and from the Star mine near Hailey, owned by Leo J. Falk of Boise. Peter L. Kent at the Lone Pine group on Deer Creek performed a small amount of work, and lessees at the Eureka and Idahoan groups in the Bullion district and at the Baltimore mine near Ketchum were also active. A. F. Peery, who is operating the Vienna mine in the Sawtooth district, installed complete mining equipment and a compressor driven by a Diesel engine, and conducted active work throughout the year. This work was successful in opening a good showing of high-grade silver ore.

Two of the principal new events of the year were: The acquisition by the Hercules Mining Co. of Shoshone County and its allied interests of the Badger group, adjoining the property of the Liberty Gem Mines, Inc.; and the acquisition, late in October, of the Queen of the Hills and Queen of the Hills Extension groups near Bellevue by the Silver Star-Queens Mines, Inc. The former performed all necessary procedure in surveying and acquiring clear title to the property, and the latter commenced mining operations in December.

Boise County

The most important construction work was the completion of rebuilding the mine surface plant and mill building and the installation of complete new mill equipment at the Gold Hill & Iowa mine of the Talache Mines, Inc.; the remodeling of its mill by the Mineral Mining Co.; the remodeling of the mill at the Mountain Chief mine, which was operated during part of the year by the Federated Mines Co.; the construction of a new 50-ton flotation concentrator by the Missouri Mining Co., Ltd.; and the erection of ore bins and the installation of crushing equipment at the Banks mine of the American Mines Development Co.

The principal mine development during the year was the sinking of the vertical winze from the 700-foot to the 800-foot level of the Gold Hill mine of the Talache Mines, Inc. Others who developed their properties throughout the year were: American Mines Development Co.; Missouri Mining Co., Ltd.; Penn Mining Co. at the Coin Bond group; Jarvis Bros. at the Hay Fork mine; and the operators of the Mayflower group near Quartzburg.

The Idaho Gold Dredging Corporation and the Boise Placer Co., both producers of placer gold, were active throughout the summer months, and each increased its production over that of the previous year. The two largest gold producers from deep mines were the Idawa Gold Mining Co., and the Talache Mines, Inc. The Crooked River Mining Co. completed the reconstruction of its dredge, which sank on being put into operation in 1927, and conducted mining operations for a period of 27 days.

Bonner County

This county witnessed a greater substantial improvement in the development of new ore by old companies, new mine plant and mill plant installation, discoveries of new ore, development work by prospectors and new organizations than it had witnessed in many years. The Whitedelf Mining & Development Co. and the Hope Mining Co. both proved their properties and the continuation of ore at a greater depth, and both produced and marketed a greater tonnage of ore than for any previous year. During the early part of the year, the Whitedelf Mining & Development Co. completed the construction of a 75-ton flotation concentrator. One of the principal new ore dis-

closures in the State during 1929 was at the Hewer mine, under operation by the Idaho Lakeview Mines Co. In addition to maintaining active development work throughout the year, this company rehabilitated the mine camp and installed a new hoist and an electric generator driven by a semi-Diesel engine.

The International Portland Cement Co., with quarries at Bayview, mined the largest tonnage of limestone that it has ever produced in any one year. This limestone is ferried across the lake and then sent by rail to Spokane, where it is manufactured into cement.

Prospectors and small development companies in the Priest Lake district were active throughout the year, the principal ones being the Kaniksu Mining Co.; P. F. Vandever and C. W. Beardmore at the Grey Goose; and the Binarch Creek Mining Co. Many others increased their usual yearly work, and there continues to be an active search for new mines.

Encouraged by the success of the Whitedelf and Hope mines, the Clark Fork section witnessed more prospecting and more work by small development companies than during any other past year. New ore disclosures by two of these were reported by the press.

The properties owned by the Falls Creek Mining Co. and the Talache Mines, Inc., were under option during the greater part of the year and witnessed a little activity, none of which was reported. The reasons for refusing to file the reports required by law on these operations are probably best known by the promoters.

Boundary County

The year 1929 witnessed more new companies and a larger amount of attention from the press than for a great number of years, but for some unknown reason practically all the new organizations refused to file the information with the inspector of mines as required by law, so nothing is known as to their activities. The Continental mine at Porthill, owned by the Idaho Continental Mining Co., which was closed in 1928, remained idle throughout the year. The Idamont Lead-Zinc Mines Co., a reorganization of the Leonia Gold Mining Co., formerly the Idaho Gold & Ruby Mining Co., and the Metals Mining Co. performed a small amount of work during the year.

The Moyie Gold-Copper M. & M. Co., Ltd., and the International Molybdenum Co. expanded their operations over those of the previous year.

Butte County

This county witnessed more new mine development, more new investigations and more prospecting and location of new claims than during the past 30 years. A large amount of these activities were inspired to a great degree by the success of the Wilbert and Horn Silver mines. The Wilbert Mining Co., Ltd., operating in the Dome district, maintained active production and mine development work throughout the year, in addition to constructing a 17-mile electric power transmission line from Howe to the mine and transforming the mine and mill plants from gas-driven to electrically-driven. This company is one of the largest producers of lead-silver ore in southern Idaho.

The Dahle Bros. at the Horn Silver mine in the Lava Creek district, known as the Horn Silver Consolidated Mines Co., maintained active development work throughout the year and were successful in proving a substantial showing of new ore. Three new enterprises in the Lava Creek district were active throughout the year in developing their properties.

One of the principal publications issued during 1929 by the Idaho Bureau of Mines and Geology was its Pamphlet No. 32, "Geology and Ore Deposits of the Lava Creek District, Idaho", by Alfred L. Anderson. This publication is a comprehensive survey of the district and has greatly assisted in attracting attention to it.

Custer County

The most important event in this county in 1928 was the acquisition of the Empire copper mine at Mackay by the Mackay Metals. After this new company acquired control of the property, the mine and mill plants were entirely rebuilt, the mine rehabilitated, an active mine development campaign was started and operations commenced by a large number of lessees. These

were continued without interruption during 1929, the principal work being confined to the 1000-ft. level and the Cossack tunnel. This work was successful in opening a large tonnage of new ore, which is estimated to increase the life of the property many years. During the year a new 1200-cubic-foot Nordberg compressor, approximately four miles of new air-line, and a large amount of new mining equipment were installed. Production and shipping of crude ore and concentrate, both on company account and by lessees, were maintained without interruption throughout 1929.

At the Camp Bird group near Clayton, which was acquired in 1928 by H. B. Kingsbury of Wallace and Wilbur Greenough of Spokane, a small hydroelectric power plant and a five-drill compressor were installed, and a small amount of mine development work was performed.

The Livingston Mines Corporation improved and enlarged its mine and mill plants and proved the extent of its ore reserves through additional development at depth and laterally. This company is the largest producer of lead and zinc ore and concentrates in southern Idaho and maintains one of the largest payrolls. The Twin Apex Mining Co. on Squaw Creek near Clayton, the Aztec Mining & Milling Co. on Fourth of July Creek, and the Crater Mines Co. on Lake Creek conducted active operations during the summer months. A large amount of new development work was performed at the Phi Kappa group and the Black Rock group, both on the head of Big Lost River, and by the Estes Mountain Gold, Inc., at the Franklin group on Yankee Fork. The Red Bird mine of the Ford Motor Co. was idle throughout the year, while the only operation at the Ramshorn was that conducted by lessees, who produced and marketed a small tonnage of high-grade hand-sorted ore.

Elmore County

One of the principal and most important new enterprises to start in the State during the year was the commencing of operations at the Boise-Rochester mine near Atlanta by the St. Joseph Lead Co. This company acquired the Boise-Rochester in 1917, but, other than necessary repairs to the buildings and principal tunnels, nothing was done with it. In the latter part of 1929 the Monarch group, which is adjacent to the Boise-Rochester, was acquired and the development of both properties commenced.

Idaho County

The lower end of the Elk City highway was extended a distance of six miles during 1929 to the intersection of the old road between Newsome and Golden at Huston. The completion of the road to this point permitted the discontinuance of the road between Stites, Harpster, and Newsome, and the elimination of that portion over Mt. Baldy, one of the highest divides in the State of Idaho to be crossed by a road. On November 16, 1929, the starting point of the mail route to Elk City was changed from Stites to Grangeville, and now all traffic into Elk City and environs is using this road from Grangeville to Huston and then the old road from Huston to Elk City. This change has added over two months to the period during which the Elk City region is accessible to motor vehicles, and has greatly reduced the time required for transporting the mail.

A gradual return to more normal conditions, under which gold mining is again becoming profitable, affected this county during the year by a small substantial increase in mining operations, investigations, new enterprises and increased production. The most important of these was the Sherman Howe Mining Co., a new organization in the Marshall Lake district. This company's property adjoins that of the Golden Anchor Mining Co. and covers the western extension of the Holte vein system. Its expenditures were among the largest made by any company in the State during 1929 and consisted of the following: Construction of new camp buildings and mill building; installation of complete new mining and milling equipment; installation of a 250-horsepower Diesel engine, direct-connected to electric generator; and construction of a three-mile electric transmission line. This company also expended a substantial sum in road building. The Golden Anchor Mining Co., in the same district, was active throughout the year in extending its principal

tunnel to a total distance of 1200 feet; this is being driven to intersect the Holte vein at greater depth. In addition to the foregoing, the Marshall Lake district witnessed more prospecting and more small development enterprises than for many years past. The Unity Gold Mines Co. of Warren maintained production operations throughout the year, but performed no new development work.

The Golden or Ten Mile district was one of the most active sections of this county throughout 1929. Prior to this year there were, with one exception, practically no mining operations of any consequence in this district, other than annual labor. On account of the completion of the highway to Huston the district witnessed the influx of many prospectors; the location of a large number of mining claims, both placer and lode, on both sides of the South Fork of the Clearwater River; the incorporation, financing, and starting of work by three new companies; the quarreling of prospectors over property lines on ground which was unlocated two years ago; and the construction of a small four-stamp, steam-driven mill by the Buffalo-Idaho Mining Co. This company also maintained active mine development work and constructed three miles of new road into its property. The construction of a new mill at the Lone Pine mine was projected by F. O. Miiller and son, as a result of exposing a large tonnage of high-grade ore; in addition to maintaining development work throughout the year, they operated their mill during the high-water season and the gold production was of such a substantial amount that this property is considered one of the State's principal gold mines.

In anticipation of the early completion of the highway to Elk City, this district witnessed the visits of a larger number of mining engineers, prospectors, and those seeking new mining enterprises than it had during many years past. These resulted in negotiations being undertaken by a large mining organization to acquire one of the mines, and the decision of another large organization to conduct extensive examinations during 1930.

One of the most important new enterprises in Idaho during 1929 was the acquisition of a newly discovered copper-silver prospect in the Green Mountain district by the Bunker Hill & Sullivan Mining & Concentrating Co. and allied interests. This property is situated near the headwaters of Meadow Creek, a tributary to the Selway River, and is on the ridge connecting Green Mountain and Three Prong Mountain. It is 24 miles east of Elk City, and is reached by a 13-mile pack trail from Red River Hot Springs. In October buildings were erected, supplies installed, and all arrangements completed for conducting active mining operations throughout the winter.

During the entire open season of 1929 the "96" Mining Co., whose headquarters are at Tacoma, Washington, was engaged in prospecting with churn drills the flat-lying placer ground on Red River, American River, and Elk Creek, to ascertain its gold content and dredging feasibility. Their engineer recommended that, in accordance with the drill records, the construction of a a large dredge was warranted, and it is reported that plans are now being formulated to finance its construction. During the summer months the Moose Creek Placers Co. further rehabilitated its ditch, flume lines, and hydraulicking equipment.

The Salmon River or Simpson district in the vicinity of Lucile witnessed a large amount of activity and publicity throughout the year. The principal expenditures were based on the recovery of gold from placer deposits and the publicity resulting from fabulous values reported in rare metals, such as platinum and palladium, by questionable assayers. The Salmon River Development Co. expended a large sum of money in flume and mill-building construction and the installation of elevating, screening, sluicing, and table concentration equipment. The Seelridge Gold Mining Co. erected a mill building and installed drag-line excavating equipment, elevator, conveyors, screens, and concentration tables. In addition to the two foregoing, several smaller organizations and a large number of prospectors gave their attention to placer deposits during the year.

Copper prospects in the Pardee district received a large amount of press mention during the year; and the discovery of a deposit of high-grade silver ore in the vicinity of Kooskia was reported.

Latah County

The Muscovite Mica Co. reported that it had driven a 340-foot tunnel to intersect the vein at greater depth, and one other company performed a small amount of work. The most important event in this county during the year was the acquisition of the Mizpah group in the Hoodoo district by Jay P. Graves of Spokane, Washington, and the organization of the Spokane-Idaho Copper Co. The company was incorporated in November, the necessary arrangements completed, and work started on a large development campaign. The principal company exploiting the high-grade clays of this county is the Idaho Fire Brick Co., which was active the entire year. Its output is in great demand throughout the northwest.

Lemhi County

In point of production and number of men employed, Gilmore for many years has been one of the most active mining camps in Idaho outside of the Coeur d'Alene district. The Pittsburgh-Idaho mine of the United Idaho Mining Co., a subsidiary of the U. S. Smelting, Refining & Mining Co., is the largest mine in this district. During the first part of the year this company performed a large amount of development work and produced and marketed a substantial tonnage of high-grade, direct-shipping ore, some of which was obtained by lessees. About the middle of the year one of the large Diesel engines in the power plant exploded and was completely wrecked. This loss of power necessitated a cessation of operations until additional power was obtained. As the principal owners were unable to arrive at an agreement on the installation of a new power plant, only the men necessary to keep the mine open were employed during the latter part of the year. Late in 1928 the U. S. Smelting, Refining & Mining Co. obtained a lease and option on the Allie mine of the Gilmore Mercantile Co. and commenced developing it through the Transportation tunnel. This work was continued without interruption until the explosion of the power plant of the United Idaho Mining Co. Lack of power facilities was instrumental in curtailing all operations of the U. S. Smelting, Refining & Mining Co. and its subsidiaries in this district, and the lease was surrendered in September. Two small organizations developing prospects in the Gilmore district were active during part of the year.

The Spring Mountain district witnessed a little increase in activity over the previous year, with two organizations shipping a small amount of hand-sorted ore.

Activities in the Nicholia district throughout 1929 exceeded those of any year since production was suspended. Lessees at the old Viola mine produced and marketed a large tonnage of direct-shipping ore. A new road was constructed into the mines, and a new organization, the Lead Mountain Mining Co., acquired the Nicholia group, constructed new mine and camp buildings, installed mining equipment, and commenced active development work.

The only work done in the Leadore district during the year was the necessary annual labor and the commencing of a complete geological survey of this district by the Idaho Bureau of Mines and Geology in cooperation with the U. S. Geological Survey.

In the vicinity of Salmon there was a marked improvement in mining conditions, which was propably brought about by the operations at the Pope-Shenon mine by the Winder-Stillman Copper Co. During the year this company entirely rebuilt its mill and installed new equipment; it also installed a new compressor, performed a large amount of development work, and maintained production. This enterprise is the largest copper-producing mine in Lemhi County, and the development work was successful in opening up a substantial tonnage of new ore. The Harmony Mines Co. installed a 450-horsepower electric generator driven by a Diesel engine at Baker and erected an eight-mile transmission line to the mine. New milling equipment was installed, and a large amount of new mining equipment added. This company has been in almost continuous operation since 1916, and its property is one of the most completely equipped mines in Lemhi County. Its 1929 expenditure was one of the largest in southern Idaho. The stockholders in this company are to be complimented for their fortitude. The Tendoy Copper Queen Mining

Co. completed the reconstruction of its mill and operated for a few days. Financial difficulties were encountered and operations temporarily suspended in October.

What appears to be a revival in the Yellow Jacket district was started in 1929. Mrs. H. F. Steen at the Continental group installed a gas-driven compressor and complete mining equipment, and commenced an active development campaign, which consisted in extending the principal tunnel. This work was successful in exposing a large tonnage of commercial copper-silver ore. A small tonnage of high-grade ore was extracted and shipped. During the latter part of the year many of the other old properties in this district were receiving the attention of investigators and promoters.

In the Leesburg district the principal activities were based on hydraulic mining. Three enterprises constructed ditches, dams, and flumes and installed hydraulic mining equipment. These were the Leesburg Bonanza Placer Co.; H. F. Byram at the McNutt placers; and the Montana Mining & Livestock Co. The Clipper Bullion mine in the Shoup district, which was acquired by H. W. Ingalls and associates of Mullan in 1928, was active throughout the greater part of the year. The Sellers Bros. at the Buckhorn mine on Little Eight-Mile produced and marketed a small shipment of high-grade lead ore.

Oneida County

The only known mineral resources of this county are: Bentonite; various clays of excellent quality; and the reported occurrence of copper-lead ores carrying gold and silver. During 1929 the exploitation of the bentonite deposits was started; and the Blue Jay Mining Co. was organized for the purpose of developing one of the copper-lead prospects.

Owyhee County

The new dredge of the American Gold Dredging Corporation, which was of the flume type, was completed and placed in operation in January, 1928; operations were continued until freezing weather interrupted, and were then resumed for a short period in the spring of 1929. They were then suspended and the dredge was converted from flume type to table type, with revolving screens and a new stacker added. Shortage of water prevented a resumption of operations after new construction was completed. During the year two new development enterprises were started, and a large number of investigations by those seeking gold mines were conducted in the vicinity of Silver City.

One of the largest and most important new mining enterprises to be started in the State during 1929 was the Exploration Co. of California. The property was acquired in October by Messrs. Charles Butters and Thomas J. Barbour of San Francisco on the recommendation of Mr. Oscar H. Hershey, geologist for the Bunker Hill & Sullivan M. & C. Co., Mr. F. W. Bradley, and others, through the assistance of Mr. M. G. Sacrider of Mountain Home. The property covers the west half of the South Mountain district, a mineralized zone over two and a half miles long, which can be attacked by tunnels from many different points. This zone is on a contact of lime and granite. The east half or Cock's Mountain area of the district, which contains many excellent showings of lead-zinc-copper-silver ores, is owned by other interests. Mr. Hershey estimated over 54,000 tons of known ore in the Laxey tunnel, which is only partially developed, and that the cost of the development work necessary to fully prove the extent of the ore zones prior to building a mill and equipping the property would be about $250,000. This work will require approximately two years' time. Mining operations were commenced in November; at that time new camp buildings were erected; an additional compressor was installed; a contract for 2000 feet of tunnel at two different points was let; and sufficient supplies were put in to maintain operations throughout the winter.

Shoshone County

During 1929 this county witnessed much new development work, the starting of many new enterprises, more new profitably operating mines, more new dividend-paying companies, a larger payroll, and a greater production, with increased dividends, than in 1928. Two new producers reached the step

that places them in the list of mines with an assured future, and four others rapidly approached that position. All the large mines conducted active development work throughout the year which proved the extent of their ore bodies at increased depth and laterally. The increased ore reserves and the improvements added to mine, mill, and smelter plants, together with the new Sullivan zinc plant and the Hercules custom mill, have greatly enhanced the physical condition and future life of the mines, as well as assuring a long period of prosperity for the Coeur d'Alene district.

The thought and attention that all of the large operators are giving to safety conditions and safety supervision were reflected in the very small number of fatal accidents. Working conditions throughout the Coeur d'Alene district are exceptionally favorable. All the mines are well ventilated, and the operators devote much time and thought to making the mines safe and keeping them in such condition that the men can do a full day's work without expending the energy that is necessary in poorly ventilated mines. Both attention and money have been devoted to this phase of the operations, and it can safely be said that these are the best ventilated mines in the country. Serious attention is given not only to ventilation, but to safety, recreation, and general welfare. The value of the welfare work to company employees was further demonstrated during the year by the outstanding contribution of the Bunker Hill & Sullivan M. & C. Co. in the installation of its solarium.

The principal producing mines in which the ore reserves were increased by new development work, the most important new construction, new mine plant installations, new enterprises, and outstanding development work can best be reviewed by companies:

The extensive development work in the Bunker Hill mine greatly increased its resources. The completion of the shaft to the 1900-foot level and the opening of the ore bodies at that depth, where the ore and geological conditions were found to be normal, added much to the life of the mine which is estimated in decades instead of in years. The Bunker Hill & Sullivan M. &. C. Co., because of the magnitude of the Bunker Hill mine, has become more of a manufacturing than a mining operation, and with its smelter, mills, experimental plants, and organization, is one of the largest of its kind in the world. This company maintained its usual production record and increased its dividends during the year, while the many plant betterments which were added greatly increased the efficiency of the enterprise. The principal betterments were the remodeling of all mills to conform with the most recent developments in flotation, many of which have been evolved under this company's direction; enlargements and improvements at the mine surface plants; and the doubling of the capacity of the lead smelter, in anticipation of the termination on February 1, 1930, of the company's smelting contract with the American Smelting & Refining Co., to whom the Bunker Hill was obliged to ship one-half of its production. This work, in addition to the many other plant improvements, constituted the largest expenditure in new plant betterments made in the State during the year. The Crescent or Hooper tunnel, which was started late in 1928, was completed to a distance of 5000 feet, where it intersected the Crescent vein at a depth of approximately 500 feet below the upper workings. The ore exposed by this tunnel at the intersection was one of the largest and most important disclosures of new ore made in the State for a long period of years. In addition to extensive development work in the Bunker Hill and Crescent mines, this company was actively engaged in prospecting and developing other properties throughout the Coeur d'Alene district, in Valley County, and in Nevada, Alaska, and Canada.

The Hecla Mining Co., which is recognized as one of the principal lead-silver producing companies of the United States, greatly increased its ore reserves and resources in the Hecla mine. The vein was further explored on the 2800-foot level, and work in sinking the main shaft and cutting the station on this level was completed. The mill plant was enlarged and improved, and the mine maintained in first-class condition. In addition to this, the installation of two new electrically operated hoists was completed; these hoists constitute one of the largest and most expensive installations in the United States. This company was actively engaged in developing two other

properties in the Coeur d'Alene district, and installed a new mill and complete mine camp at the Union mine in British Columbia. Also, an active scouting and investigation campaign in the search for additional properties was maintained throughout the year.

The Morning mine of the Federal Mining & Smelting Co., which is one of the oldest in the Coeur d'Alene district in point of continuous production, as well as one of the largest lead-silver-zinc mines in the United States, was maintained at capacity production throughout a large part of the year. The number of years that this record will continue is unknown, as development work on the 3250 and 3450-foot levels has proved the ore bodies to be larger and more extensive than on any of the upper levels, and the ore on the 3450-foot level was found to be richer in metal content than on any of the levels above it. During the year the 3250 and 3450-foot levels were opened to the full length of the ore, and work was started on extending the shaft to the 3650-foot level. The mine and mill plants were greatly enlarged, and the mill was improved to conform with recent developments in flotation practice. In addition to the ore mined under company operation, a large tonnage was extracted from the upper levels by a number of lessees; the most important of these is the Sheridan Lease, which employs over 100 men.

The Page mine of the Federal Mining & Smelting Co., in Government Gulch near Kellogg, was operated throughout 1929 on a profitable basis; a large amount of development work was performed; and the ore bodies were fully opened on the 1200-foot level, at which point they proved to be of greater extent and higher grade than on any of the upper levels. New mine and camp buildings were erected, a new 2550-cubic-foot compressor and a large amount of new mining equipment installed, and the mill was enlarged and improved. The success of this operation can be accredited entirely to flotation, because with the old milling methods it was impossible to mine and mill such low-grade ore at a profit.

The Sullivan Mining Co., which in 1927 suspended production at its Star mine pending completion of its new electrolytic zinc plant at Kellogg, resumed production in February, 1929, in addition to maintaining underground development work throughout the year. The 4000-foot level of the Star mine is connected with the 2000-foot level of the Hecla mine by the Star crosscut, which is 8900 feet long. This crosscut made a blind connection with the Star vein at a point 2800 feet below the Star tunnel. A vertical operating raise and a vertical shaft, which were driven to connect the crosscut and the upper Star tunnel, were completed during the year. The zinc plant, which was fully described, with flow sheet and illustrations, in the 1927 Report of the Mining Industry of Idaho, was completed and formally placed in operation in June, 1928, and the first metallic zinc was produced on August 3, 1928. The metal produced by this plant is of exceptionally high grade and is finding a ready market at an increase in price over that of any other zinc metal. During the year this plant was further enlarged and improved; many new homes for the employees were constructed; and a cadmium recovery unit, which represented a large expenditure, was added. The zinc plant of the Sullivan Mining Co. now constitutes one of the largest and most important enterprises in the Pacific Northwest, and one which assures the perpetuation of the mining industry in Shoshone County.

One of the largest expenditures made by any company in the Coeur d'Alene district during the year for mine development, new mine plant installation, and mill improvements was that of the Sunshine Mining Co. The principal haulage level (No. 5) was entirely rebuilt; the inclined shaft was sunk to the 1300-foot level, and raised to the No. 5 tunnel level. This improvement obviates the transfer on No. 5 shaft level and the use of the vertical shaft, and permits direct operation throughout the mine. A large boarding house was erected, an additional compressor and much new mining equipment installed, and the mill was rebuilt and enlarged. In addition to the foregoing, the company maintained throughout the year an active development campaign, which was successful in greatly increasing the known ore reserves, particularly on the lower levels, where the ore proved to be of higher grade and greater extent.

One of the large and active development campaigns conducted during the year, including mine improvement, was that of the Dayrock Mining Co., formerly Strattons Mines Co., at the Stratton mine. A large amount of development work was performed on the 200, 300, and 400-foot levels; new mine buildings were erected; and a new compressor was installed. The development work greatly increased the known ore reserves, and production was maintained throughout the year. This mine is fast developing into one of the important producers of the Coeur d'Alene district, and entered the ranks of dividend-paying mines during 1929.

In addition to maintaining production throughout the year, the Golconda Lead Mines greatly enlarged and improved its surface plant and mine. The new main shaft was raised from the 1400-foot level to the 1000-foot level, where it connects with the haulage tunnel. The station and skip pockets were cut and the necessary connections driven preparatory to installing a large new hoist. The company also maintained development work on the 1200 and 1400-foot levels, where the ore was proved to be of greater extent than on the 1000-foot levels. These improvements involved the expenditure of a large amount of money, which was obtained from mine profits. In addition to this, the company began the payment of dividends, and two dividends were declared during the year.

One of the principal mines which was placed on a profitable operating basis during 1929 was the Sherman Lead Co., whose property is on Canyon Creek east of the Tamarack & Custer. Its mine is connected with the No. 5 tunnel of the Hercules mine through the Humming Bird workings; its mine plant is leased from the Hercules Mining Co.; and the ore is taken to the Hercules custom mill at Wallace for reduction. In addition to maintaining production throughout the greater part of the year, a large amount of development work was performed. This work resulted in greatly increasing the known ore reserves of the mine.

The Jack Waite Consolidated Mining Co. greatly enlarged its mine plant, enlarged and improved its mill, and produced and marketed a large tonnage of ore and concentrate, in addition to maintaining an active mine development campaign, which consisted principally of extending the No. 2 or lower tunnel. This work was successful in opening one of the largest and most important ore bodies disclosed in the Coeur d'Alene district for many years.

At the Galena mine of the Callahan Zinc-Lead Co. an extensive development campaign was maintained throughout the year and the mill operated on a one-shift basis on ore extracted in development work. The principal work consisted of crosscutting to and drifting on the 600-foot level on the new south vein, which was discovered by diamond drilling in 1928; and a large amount of drifting and raising was performed on the 600 and 800-foot levels in the former workings. The work resulted in exposing such a substantial amount of new ore that this company is fast becoming re-established as one of the principal producing mines of the Coeur d'Alene district. As the Galena is located in the so-called "dry belt", or south side of the district, the success it is attaining has been an important factor in stimulating development throughout this area.

At the Sidney mine, operated by the Sidney Leasing Co., an additional compressor was installed; the main shaft extended 250 feet; a large amount of development work performed; and capacity production maintained throughout the year. The new development work was successful in opening up an immense tonnage of new ore, particularly on the lower shaft level, where the lead content greatly exceeded that in the upper levels. The dividends paid by both the Sidney Mining Co., which owns the property, and the Sidney Leasing Co., which operates it, were increased over those of the previous year. The fact that this mine, located on Pine Creek, is being operated at a substantial profit and its ore improving in grade and extent as depth is gained, is significant in proving that this section of the Coeur d'Alene district is not without merit, and the success of this enterprise is greatly stimulating mine development in this part of the district.

The Humming Bird Mining Co. was active during the early part of the year, and produced a substantial tonnage of ore, which was transported to the Hercules custom mill at Wallace for treatment.

The expenditure made during the year by the Constitution Mining & Milling Co., whose mine is on Pine Creek, was one of the largest in the Coeur d'Alene district. The station, ore pockets, and connections for the new shaft were completed; the shaft was extended from the 400-foot level to the 600-foot level; and a large amount of development work was performed on the 400-foot level. This work resulted in greatly increasing the ore reserves of the mine. In addition to the foregoing, the installation of a large new electically-driven hoist was completed, new compressor installed, and the mill remodeled. The activities of this company and the increase of the ore bodies as depth is gained are adding greatly to the stimulus of mining in the Pine Creek section.

The Gold Hunter Mines, Inc., at Mullan, one of the oldest mines in Shoshone County in point of continuous production, maintained capacity output and an extensive development campaign during nine months of the year. The destruction by fire of the surface plant in January caused a suspension of operations. New buildings were erected, new compressor and equipment installed, and operations resumed in March. The development work greatly increased the ore reserves and added much to the future life of the mine.

The Tamarack & Custer Consolidated Mining Co., which operates one of the substantial producing mines of the Coeur d'Alene district, maintained a steady output and an extensive mine development campaign during 10 months of the year. In September operations were suspended and all mine machinery and equipment moved from the No. 6 tunnel on Nine Mile Creek and reinstalled at No. 7 tunnel on Canyon Creek. The mine camp at No. 6 tunnel was abandoned and all operations were transferred to No. 7 tunnel, which was converted into the principal outlet in 1928. From it the ore is transported in railroad cars to the Hercules custom mill at Wallace, which treats the entire output from this mine.

The Douglas Mining Co., Ltd., whose property is located on Pine Creek near the Constitution, maintained an active development campaign throughout the year and shipped a substantial tonnage of crude ore to the Sweeny mill of the Bunker Hill & Sullivan M. & C. Co. for experimental purposes. The development work consisted principally of extending the main shaft from the 170-foot level to the 330-foot level, and drifting on the 300-foot and intermediate levels of the shaft. The new ore developed by this work was one of the most important disclosures in the Coeur d'Alene district during the year.

The Atlas Mining Co. was active throughout the year in extending the Carbonate Hill drift to a distance of 3000 feet from its principal crosscut, which is 7000 feet long. This work was successful in encountering the ore zone which had been proved in the upper workings. The new ore was considered one of the substantial developments of the district for the year.

In the early part of the year machinery and equipment were removed from No. 2 tunnel to No. 3 tunnel of the Little Pittsburg mine on Pine Creek; new buildings were erected; and an extensive mine development campaign was commenced. This work resulted in proving a substantial tonnage of commercial ore. In November this enterprise was incorporated as the Pine Creek Lead-Zinc Mining Co. and work started on the construction of a new 250-ton flotation concentrator. The activities of this company and its new ore exposures were among the principal events in Shoshone County during the year.

The Cedar Creek Mining & Development Co., Ltd., completed adjustments on its new mill and commenced milling operations in May. Its entire mine surface plant was destroyed by fire in August. New buildings were erected; a new compressor was installed; and operations were resumed in October. A limited amount of development work was performed in the mine and a small tonnage of concentrates produced and shipped.

The Coeur d'Alene Mines Corporation, a new organization at the Mineral Point mine near Osburn, erected new mine and camp buildings, constructed a power line, and installed a compressor and complete mining equipment during the early part of the year, after which an active development campaign was maintained without interruption.

In May fire destroyed the hoist and compressor of the Dickens Consolidated Mines Co., after which new buildings were erected, machinery rebuilt, a small amount of mine development work performed, and the mill operated for a few days. Five one-cent stock assessments were levied during the year, and all operations were suspended in December.

The Delaware Mines Corporation at its Red Monarch tunnel installed a two-drill compressor, and maintained active work throughout the year in the extension of this tunnel.

The Evolution Mining Co. extended its inclined shaft a distance of 500 feet, installed new pumps and much new mining equipment, and performed a large amount of drifting on the 200 and 300-foot levels of the shaft.

The General Mines Corporation at its property on Pine Creek erected new mine buildings, installed a small compressor and complete mining equipment, and late in the year commenced development operations.

The Inspiration Lead Co., Inc., a new organization on the Moe property near Mullan, erected new mine buildings and new gallows frame, installed a 550-cubic-foot compressor, hoist, and complete mining equipment, and placed the mine in condition to commence sinking a 400-foot shaft; the first part of this work consisted in raising the shaft 80 feet from the lower tunnel. In addition to the foregoing, a substantial amount of development work was performed in drifting and crosscutting in this tunnel.

The Keystone Mining Co., a reorganization of the Florence Mining & Milling Co., Ltd., on Big Creek, erected a new building and installed a new compressor and additional mining equipment.

The Lookout Mountain Mining & Milling Co. installed a new 12x12 compressor and maintained an extensive development campaign throughout the year, part of which consisted in extending for an additional 100 feet the shaft which is in the lower tunnel.

The New Jersey Consolidated Mines Co. at the King of Pine Creek mine erected four new mine buildings and a head-frame, installed two large electrically-driven compressors and electrically-driven hoist, and maintained active work throughout the greater part of the year. This consisted of sinking a vertical shaft 220 feet deep and performing a large amount of crosscutting and drifting, which resulted in proving a substantial increase in ore mineralization as depth was obtained on the vein. After this work was completed, sinking of the shaft an additional 200 feet was started. This company's expenditures were among the largest in the Pine Creek section during 1929.

The Savage Mining Co., a new organization on Nine Mile Creek near the Dayrock, erected new mine buildings and installed a power line and complete mining equipment in January, in addition to contracting the driving of a 1000-foot crosscut. In June fire destroyed the entire surface plant, which was immediately reconstructed, and operations were continued without interruption.

The Stratton Silver Summit, Inc., installed electrically-driven compressor and complete mining equipment and maintained operations without interruption throughout the year. This work consisted in extending its projected 4000-foot crosscut a distance of 2640 feet during the year to a total distance of 3040 feet. This company is one of the important new enterprises of the Coeur d'Alene district and its expenditure was one of the largest.

The Wolverine Mining Co., whose property adjoins the Alhambra on Big Creek, installed a new electrically-driven hoist and compressor, extended its shaft 150 feet to the 500-foot level, and performed a large amount of drifting on this level, which resulted in opening a substantial showing of new ore.

The Western Mines, Ltd., which is operating under lease and option the property owned by the Bell of the West Mining Co. on Nine Mile Creek, erected new camp buildings and installed a new compressor and complete mining equipment.

One of the principal new development enterprises to start in the Coeur d'Alene district during the year was the Ambergris Consolidated Mining Co., a consolidation of the Ambergris Mines Co., the Guelph Mining & Milling Co., Ltd., and the Honolulu Mining Co., Ltd., which included a right-of-way through the Hercules No. 5 tunnel. After the consolidation was completed, an active development campaign was maintained throughout the year.

Companies which employed more than five men and which conducted development work throughout the year were as follows:

The Alameda Mining Co., whose property adjoins the Success mine on Nine Mile Creek, further explored the vein by drifts and raises. The Ajax Mining Co. performed a large amount of development work on the 400-foot level of its shaft during the early part of the year, after which these operations were suspended and all development work transferred to the Bixby tunnel level. The Bobby Anderson Group Mining Co. employed 10 men and performed over 1200 feet of lateral development work. The Blue Eagle Mining Co., whose property is on Pine Creek, further extended its principal tunnel. The Bismarck Mining Co. extended its crosscut 300 feet to a total distance of 1400 feet. The Consolidated Independent Calumet Mining Co. further explored its property through the lower tunnel of the National Copper Mining Co., Ltd. The Coeur d'Alene Mining & Smelting Co. extended its principal tunnel over 500 feet. The Hypotheek Mining & Milling Co. maintained an extensive development campaign on the 700 and 900-foot levels. The Hecla Extension Mining Co. performed a large amount of development work on the 600-foot level; part of this was diamond drilling. The Independence Lead Mines Co. extensively developed the Independence vein near the east end-line of the Morning mine; press reports were to the effect that this work encountered a good showing of lead-silver ore. The Little Sunshine Mining Co. further extended its principal tunnel. The Mutual Mines Development Co. installed a new hoist and pumps and maintained an extensive development campaign, part of which consisted of sinking a new shaft. The North Star Mining & Development Co. extended its principal tunnel 400 feet. The St. Joe Lead and Silver Mines Co. extended its principal tunnel 500 feet under contract. The Teddy Mining & Milling Co., Ltd., extended its principal tunnel 600 feet under contract.

Teton County

The most active enterprise in this county during 1929 was the Grand Teton Oil Co., a new organization which acquired a large part of the holdings of the Tieton Valley Land & Leasing Co. and its equipment. A large additional acreage was obtained and complete new standard well-drilling equipment was installed. Both rigs were placed on new locations, known as Blevins No. 1 well and Bevan No. 1 well; and drilling was maintained throughout the greater part of the year. The two wells reached depths of 1800 feet and 1376 feet, respectively.

Valley County

Throughout the year the Bunker Hill & Sullivan M. & C. Co., at the Hall Interstate and Lost Pilgrim mines, continued to be one of the most outstanding development and new construction enterprises in central Idaho. Construction on its new mill, which was started in 1927, was fully completed, and it was placed in operation early in 1929. The ore-bins, crushing machinery, and building are sufficient for a daily capacity of 300 tons, although initial flotation equipment was installed for a daily capacity of 100 tons only. In addition to completing the mill, the company installed a large pipe-line and a new hydroelectric power plant. Additional ore-bins were constructed at the mill; the 700-foot raise connecting the Independence tunnel and the Anderson tunnel was entirely rebuilt into a three-compartment operating raise; and the mine was placed in condition for uninterrupted production. More than 10,000 feet of entries have been driven on the Hall Interstate-Lost Pilgrim vein, and the ore reserves have been proved to a vertical depth of over 1000 feet. As the Hall Interstate-Lost Pilgrim vein occurs in granite or allied rocks, this enterprise is of value to the State in stimulating prospecting and

encouraging the investment of capital for the development of the many similar occurrences which are found throughout the granite area of central Idaho. In past years, this area has been looked upon with disfavor, but this demonstration proves the potentialities of these veins.

One of the most important enterprises bearing on the future of south-central Idaho is the mine plant installed, buildings erected, new tunnels started, and road construction performed during 1929 by Fred W. Bradley, president of the Bunker Hill & Sullivan M. & C. Co., operating as the Yellow Pine Co. near Yellow Pine. During the year construction on a 12-mile highway from Yellow Pine to Meadow Creek was completed; a steam-driven compressor and complete mining equipment were installed at the Meadow Creek tunnel, and a small gas-driven compressor and complete mining equipment were installed at the Monday tunnel, both tunnels being on the Meadow Creek vein. The Monday tunnel is a projected new tunnel 8000 feet north of and 450 feet lower than the Meadow Creek tunnel. A large modern boarding and bunk house was constructed at the Monday tunnel, and a number of new buildings at the Meadow Creek tunnel. In addition to maintaining development work at the Meadow Creek tunnel, a large part of which consisted of diamond drilling, the company started work on the Monday tunnel and a projected new 10,000-foot tunnel to open the Cinnabar group, the latter being opposite the Monday tunnel and at the same elevation. The road work, new plant installation, new construction, and mine developments conducted by this company were among the largest in south-central Idaho, and the activities of this company were instrumental in attracting a large amount of attention to this part of the State.

The Big Creek Gold Mines, Inc., is a new organization operating under lease and option the Janson group on Clover Creek, which is reached by a 16-mile trail from Edwardsburg. This company installed a small portable sawmill, pipe-line, and water-driven compressor, and constructed five new mine and camp buildings.

The Amalgamated Red Metals Mines Co. is a new organization holding the Ellison group, which is located near the divide between Profile and Big Creeks and is reached by a five-mile trail from the new Yellow Pine-Meadow Creek highway. This company installed a sawmill, small hydroelectric power plant, compressor, and 25-ton mill. New mill, mine, and camp buildings were erected; and a small amount of development work was performed. All of the equipment was transported to the property on horseback.

The Keystone Gold Mines, Inc., a new organization at the Werdenhoff mine on Big Creek, maintained active development work throughout the year.

In the Thunder Mountain district, McRae and Davis maintained active work at the Sunnyside mine throughout the summer months. In addition to the foregoing, this district received a large amount of investigation during the year from those seeking new mining enterprises.

Washington County

An event of importance to this county and to southern Idaho was the entry of the Idaho Mineral Mining Co.—a Nevada organization—into the Mineral district. Late in the year this company acquired practically all of the principal properties adjacent to the old town of Mineral and consisting of two groups on each side of Dennett Creek; a small gas-driven compressor and complete mining equipment were installed, and active development work was commenced.

The Crystal Dome Oil & Gas Co., a new organization whose property lies between the towns of Payette and Weiser, erected an 84-foot derrick, installed a standard steam-driven drilling rig, and commenced operations in sinking a 12-inch well. At the close of the year the well had reached a depth of 950 feet.

In the Cuddy Mountain district the Cuddy Mountain Gold Mining Co. was active throughout the summer months; and G. T. Hamill produced and shipped a carload of high-grade silver-lead ore. Press reports were to the effect that a new discovery of lead-silver ore was made in this district during the year.

MINE RESCUE AND FIRST AID IN THE COEUR D'ALENE DISTRICT

Early in the year 1923, two underground fires occurred in the mines of the Coeur d'Alene district. The first of these was in the Morning mine of the Federal Mining & Smelting Co. at Mullan, and the second in the Hercules mine of the Hercules Mining Co. at Burke. Shortly after the Hercules fire the Coeur d'Alene mine operators held a general meeting for the purpose of discussing underground fires and the prevention of them. The outcome of this conference was the establishing of a central mine-rescue station at Wallace.

At the time of these fires Karl T. Sparks was in charge of the U. S. Bureau of Mines Rescue Car No. 9, which was stationed at Butte, Montana. This car was ordered to the Coeur d'Alene district to assist in extinguishing the fires, and the commendable qualities, efficiency, and resourcefulness displayed by Mr. Sparks on these occasions resulted in his selection as director of the Central Mine-Rescue Station of the Coeur d'Alene Mine Operators' Association.

The first task which faced Mr. Sparks was the selection and installation of the proper equipment. A mine-rescue car was purchased from the U. S. Bureau of Mines, and the rescue and fire-fighting equipment assembled therein make it one of the most up-to-date installations in the United States. The car is stationed at Wallace, and a special engine is always available to take it quickly to the scene of a mine fire. In addition to equipping the rescue car, Mr. Sparks installed completely equipped stations at the mines of the Hercules Mining Co. and the Hecla Mining Co. at Burke, the Bunker Hill & Sullivan M. & C. Co. at Kellogg, the Tamarack & Custer Consolidated Mining Co. at Gem, and the Morning mine of the Federal Mining & Smelting Co. at Mullan.

After the rescue stations were established, it then became Mr. Sparks's duty to supervise them, direct underground fire-fighting operations, and train first-aid and "helmet" crews at each of the above mines. This training continued without interruption, and by 1929 there were more than 300 efficiently trained men with serviceable equipment in readiness to meet any emergency in the mines of the district.

This work kept Mr. Sparks in close contact with the management and men of all the mines, and by his unfailing devotion, efficiency, and courage he won and held their highest respect. His untimely death on October 2, 1929, was greatly regretted throughout the entire district.

After the death of Mr. Sparks, J. M. Harrington, mine-rescue engineer of the U. S. Bureau of Mines with headquarters at Berkeley, California, was selected, on October 7, to fill the vacancy. On December 31 Mr. Harrington was called to Burke to take charge of an underground fire in the Hecla mine. When returning to Wallace his automobile collided with a motor stagecoach, and he received injuries of the head which resulted in his death on January 16, 1930. During Mr. Harrington's short service in the Coeur d'Alene district, he displayed decided evidence of complete qualifications for the important work which he had undertaken, and his sudden death was a distinct shock to his employers and his many new friends.

ACCIDENTS

The minor accidents listed in the accompanying table, pages 54 and 55, "Classification of Accidents", are taken from the records of the Industrial Accident Board and arranged to comply more nearly with the classifications made by the U. S. Bureau of Mines. The table is somewhat misleading, as a very large proportion of the accidents listed "Time Lost Over 14 Days" did not greatly exceed this number of days, and the majority of those listed "One to 14 Days" did not exceed seven days. All accidents that did not cause a loss of time of more than seven days should not have been included, as no compensation is paid. However, as the U. S. Bureau of Mines and many State officials are including these minor injuries in their reports, they are therefore included in the accompanying table as a matter of uniformity.

A comparison of the total accidents in 1929 with those in 1928 shows an increase of 7 in the number of fatal accidents and a decrease of 122 in the number of minor accidents. A comparison of the total number of men employed with the total number of accidents shows the very low accident rate of 0.45 accidents per 1000 man-shifts. This low rate can be attributed to a great extent to the safety organizations, to the first-aid training given the men by all the larger mining companies, and to the sustained effort and interest maintained in safety work by those in charge, further augmented by close supervision. The results of this work are particularly apparent in the small number of fatal accidents in the large mines of Shoshone County; these mines employ over 80 per cent of the total number of men working in the mines of the State, yet out of a total of 20 fatal accidents during the year only 7 occurred in them.

Out of a total of 1005 accidents during the year, 20 were fatal. Nine of these fatalities, exclusive of those caused by explosives, could have been prevented, had the victims been more careful; company rsponsibility can not be placed for any of them; and the others were unavoidable. Out of the 985 minor accidents listed, 490 did not compel a loss of time to exceed 14 days; 495 incapacitated the injured person for more than 14 days, and 30 of these resulted in a permanent injury.

The loss of both legs or arms, one leg and one arm, total loss of eyesight, paralysis or other condition permanently incapacitating a workman from doing any work of a gainful occupation, is classified as "Permanent Total Disability." The loss of one foot, leg, hand, eye, one or more fingers, one or more toes, any dislocation where ligaments are severed, or other injury known in surgery to be a permanent partial disability, is classified as "Permanent Partial Disability."

Notes on Fatal Accidents

Feb. 27, Cuprum Mines Co.; Adams County. W. J. Reinhart, age 36, single, miner. Deceased, with Carl John Renstrom, was engaged in driving a tunnel. When they failed to return to the boarding house in the evening, their absence was investigated. Both men were found dead in the face of the tunnel, having been killed by the blasting of a round of holes. Accident was presumably due to a premature explosion or using fuse which was too short.

Feb. 27, Cuprum Mines Co.; Adams County. Carl John Renstrom, age 42, single, miner. Deceased, with W. J. Reinhart, was engaged in driving a tunnel. When they failed to return to the boarding house in the evening, their absence was investigated. Both men were found dead in the face of the tunnel, having been killed by the blasting of a round of holes. Accident was presumably due to a premature explosion or using fuse which was too short.

Apr. 23, ...; Idaho County. Henry Cornwell, a prospector, was killed by rock slide on surface following a blast. (No report; information obtained from the press.)

May 3, Federal Mining & Smelting Co.; Shoshone County. Thomas Brownlow, age 32, married, motorman. Deceased, an experienced operator who had been working at this particular job for the past three years, had removed from the chute two 10-car train-loads and an additional seven car-loads of muck toward the third train-load of ore when he found the chute was hung up. He called the attention of his helper to the fact, and had just finished

remarking about the circumstance when the wet ore suddenly freed itself and came down the chute with a surge which forced the supporting cleats and took the lower muck boards off the chute. He was buried by the wet muck flowing into the drift, where he fell alongside the car he was preparing to load. There were about 300 tons of muck in the chute, which had become saturated with surface water coming into the mine for a few days prior to the accident. The column of muck was estimated to have dropped about 40 feet in the chute when it came free.

May 3, Gold Hunter Mines, Inc.; Shoshone County. Melvin H. Noll, age 22, single, shoveler. Deceased was tapping muck pile from floor below, then went to top of muck pile on floor above with bar. He misjudged place where hole in floor was, and when he struck bar in muck pile it gave way and carried him down with it, crushing and smothering him to death.

May 21, Bunker Hill & Sullivan M. & C. Co.; Shoshone County. Robert Mills, age 36, sample-mill foreman. Deceased was engaged in dumping a car of ore. These cars dump by lifting a pawl; occasionally the doors stick, and in such an event it is customary to strike the side of the car with a bar. No one witnessed this accident, but evidently deceased struck the rachet at the moment the door opened. The wound on head of deceased indicated that the rachet threw the bar against the side of his head, instantly killing him, and he fell into the ore-bin.

July 1, Hecla Mining Co.; Shoshone County. Ellis B. Griffin, age 59, married, laborer. Deceased was snubbing a rail in the surface ore-bin chute. The lip or cover of this chute had not been closed, and a skip-load of ore which should have been dumped into the bin, had the chute been closed, was carried down the chute in which deceased was working. He was instantly killed.

July 1, Anaconda Copper Mining Co.; Caribou County. Claud Ray Owens, age 34, married, miner. Deceased, with three others, had finished lighting a round of 22 holes and was about to leave the working face, when one of the holes exploded and killed him instantly.

Aug. 20, Cedar Creek Mining & Development Co., Ltd.; Shoshone County. Russell Lee, age 33, married, mine foreman. Death was evidently caused by monoxide gas derived from a surface fire which destroyed the surface plant at No. 3 tunnel, the portals of No. 2 and No. 3 tunnels, and a large amount of timber on the surface nearby. The destruction of the timbers at the portal of No. 2 tunnel caused it to cave in, thus cutting off all ventilation into it and No. 3 tunnel. It was presumed that the men should have known this fact, as they attempted to enter No. 2 tunnel and, on being unable to do so, returned down the hill and entered the mine through No. 3 tunnel, in which is a 350-ft. inclined shaft. The bodies were found on the 200-ft. level of the shaft by a rescuing crew wearing oxygen helmets, and it was evident that death had been caused by asphyxiation.

Aug. 20, Cedar Creek Mining & Development Co., Ltd.; Shoshone County. H. L. Matthews, age 21, single, timber helper. Death was evidently caused by monoxide gas derived from a surface fire which destroyed the surface plant at No. 3 tunnel, the portals of No. 2 and No. 3 tunnels, and a large amount of timber on the surface nearby. The destruction of the timbers at the portal of No. 2 tunnel caused it to cave in, thus cutting off all ventilation into it and No. 3 tunnel. It was presumed that the men should have known this fact, as they attempted to enter No. 2 tunnel and, on being unable to do so, returned down the hill, accompanied by the foreman, and entered the mine through No. 3 tunnel, in which is a 350-ft. inclined shaft. The bodies were found on the 200-ft. level of the shaft by a rescuing crew wearing oxygen helmets, and it was evident that death had been caused by asphyxiation.

Aug. 20, Cedar Creek Mining & Development Co., Ltd.; Shoshone County. W. N. Welch, age 41, single, miner. Death was evidently caused by monoxide gas derived from a surface fire which destroyed the surface plant at No. 3 tunnel, the portals of No. 2 and No. 3 tunnels, and a large amount of timber on the surface nearby. The destruction of the timbers at the portal of No. 2 tunnel caused it to cave in, thus cutting off all ventilation into it and No. 3

CLASSIFICATION OF ACCIDENTS

MINE	Killed	Seriously Injured Time Lost More Than 14 Days		Slightly Injured	
		Permanent total disability	Permanent partial disability	Time lost over 14 days	Time lost 1 to 14 days
UNDERGROUND					
1. Fall of rock or ore from roof or wall	5		6	106	64
2. Rock or ore while loading at working face or chute	2			28	44
3. Timber			3	26	29
4. Explosives	4		4	2	2
5. Haulage, Cars or Motors			1	36	39
6. Persons falling down chute, winze, raise or stope			1	20	18
7. Drilling (by machine or hand drills)				23	12
8. Hand tools				28	33
9. Machinery (other than motors or drills)			1	8	6
10. Flying or falling objects			3	23	67
11. Fall of persons				29	24
12. Lifting				7	10
13. Nails and splinters				11	24
14. Other causes	4		2		3
Total	15		19	349	375

MILL	Killed	Seriously Injured Time Lost More Than 14 Days		Slightly Injured	
		Permanent total disability	Permanent partial disability	Time lost over 14 days	Time lost 1 to 14 days
MILLING ACCIDENTS					
1. Haulage (cars and locomotives)				3	
2. Railway cars or motors					
3. Crushers, rolls or stamps					
4. Tables, jigs, etc					
5. Other machinery			1	4	5
6. Falls of persons				5	4
7. Suffocation in ore bins	1				
8. Falling objects (rocks, timbers)				8	6
9. Scalding (steam, water or acid)					
10. Lifting					2
11. Hand tools, axes, bars, etc					4
12. Nails, splinters, etc				1	4
13. Electricity					1
14. Other causes					
Total	1		1	21	26

SHAFT ACCIDENTS					
15. Falling down shaft					
16. Objects falling down shaft				2	
17. Breaking of cables					
18. Overwinding					
19. Cage, skip, or bucket	1		1	3	2
20. Other causes				1	4
Total	1		1	6	6
SURFACE ACCIDENTS Yards, Shops, and Construction					
21. Mine cars or mine locomotives, gravity or aerial trams			2	7	6
22. Flying and falling objects			1	9	19
23. Lifting				3	5
24. Falls of persons			1	15	8
25. Nails and splinters				3	3
26. Hand tools, axes, bars, etc.				10	6
27. Falls or run of ore in or from bin	2				
28. Machinery			3	3	2
29. Other causes				3	3
Total	2		7	53	52
Grand Total	18		27	408	433

SMELTER ACCIDENTS					
15. Haulage (cars, motors, etc.)	1				3
16. Machinery				2	1
17. Cranes					1
18. Lead colic					
19. Falls of persons				5	4
20. Flying or falling objects (rocks, timbers, etc.)				11	7
21. Hand tools, axes, bars, etc.				1	1
22. Burns from matte, slag or molten metal (pouring or spilling)			2	2	1
23. Other causes				4	4
Total	1		2	25	22
AUXILIARY WORKS ACCIDENTS Placers, Tramways and Dredges					
24. Falls of persons				1	2
25. Flying and falling objects				5	2
26. Nails and splinters					1
27. Hand tools, axes, bars etc.					1
28. Lifting				2	1
29. Machinery				2	2
30. Handling hot materials					
31. Other causes				1	
Total				11	9
Grand Total	2		3	57	57

tunnel. It was presumed that the men should have known this fact, as they attempted to enter No. 2 tunnel and, on being unable to do so, returned down the hill, accompanied by the foreman, and entered the mine through No. 3 tunnel, in which is a 350-ft. inclined shaft. The bodies were found on the 200-ft. level of the shaft by a rescuing crew wearing oxygen helmets, and it was evident that death had been caused by asphyxiation.

Aug. 20, Bunker Hill & Sullivan M. & C. Co.; Shoshone County. Harold L. Durban, age 19, single, oiler in mill. Deceased went into an ore-bin, evidently to bar down some loose ore which had hung up. While he was standing on the ore, it gave way and he was caught in the vortex and crushed to death, although not smothered.

Aug. 27, Pine Creek Consolidated Mining Co.; Shoshone County. Hans Helgeson, age 55, single, miner. Deceased, with two others, was engaged in clearing rock from an old chute. Part of the rock had been withdrawn and the remainder had hung up in the chute; the men had attempted to loosen it with bars, but were unable to do so. Deceased decided that this operation was too slow a process and, against the advice of his associates, climbed up into the chute to dislodge the rock. While he was climbing up, the rock became dislodged, killing him instantly.

Sept. 2, Hecla Mining Co.; Shoshone County. Lawrence Webb, age 24, single, miner. Timbermen were putting in set of timbers in the face of a stope where deceased was working as miner. The shift boss had instructed deceased that morning to do no drilling until timbers were in, or until he came around again and further advised him, and sent him to the other end of the stope to shovel. During absence of shift boss the nipper delivered a jackhammer drill and told deceased he wanted to return it by noon. Thereupon deceased, contrary to his shift boss's orders, took the drill to his working face and started drilling. Although the back had been barred down a slab of ore about 30 inches long, 10 inches wide and 3 or 4 inches thick fell from the back and struck deceased on his back as he was bending over, killing him instantly.

Oct. 4, Mackay Metals; Custer County. Mike Smith Krekovich, age 60, single, lessee. While dumping a car of ore into the surface bin, deceased in some unknown manner fell into the bin. He dropped about 25 feet and was instantly killed.

Oct. 26, Dayrock Mining Co.; Shoshone County. Leslie E. Ellis, age 28, married, mining engineer. Deceased was getting onto the cage at the 200-ft. level, accompanied by the cager. Confusion of signals caused hoistman to raise cage at that instant, catching deceased between cage and wallplate at top of station; he then fell back to station floor and down shaft 250 feet. He had been instantly killed when crushed between cage and wallplate.

Oct. 30, Livingston Mines Corporation; Custer County. Louis Roche, age 63, single, miner. Deceased was shoveling near the top of a stope when a large amount of rock fell from the face and struck him, inflicting injuries from which he died a few hours later.

Nov. 19, Gust Erickson & Co., lessee, Morning mine; Shoshone County. Wm. B. Farmer, age 48, married, miner. Deceased and partner had completed a "false set" of timbers about 4 feet wide where they were drifting forward under an old filled raise on the fifth floor above the intermediate level over No. 5 tunnel of the Morning mine. The "false cap" had been placed horizontally and wedged into place at about 2½ feet ahead of the last regular set of timbers and enough below the elevation of the regular caps to be out of the way when putting in a regular 5-ft. set. A lagging was nailed horizontally to the last two regular set posts and a floor extended for overhead protection onto the "false cap." While the partner went back in the stope to procure more lagging for the purpose of covering an open space between the "false set" and the top of the muck pile ahead (which muck the two men were preparing to remove), the ground above caved and knocked the "false set" out. Deceased, standing under it, received a skull fracture and broken neck.

Nov. 21, Talache Mines, Inc.; Boise County. Arthur E. Johnson, age 32, married, miner. Deceased was working with his partner, drawing rock from the 707 chute on the 700-ft. level. The chute was hung up, and they were taking turns going up above the bulkhead at top of station and pounding on chute to loosen the muck so that it could be drawn out. There was a break in the chute two or three sets above the bulkhead. Deceased had just loosened the muck in the chute and called down to his partner and another employee that he was going up to the 600-ft. level and coming down the main shaft to the 700-ft. level. Deceased was not seen or heard from before quitting time, and his partner thought he had gone to the surface, but upon reaching the surface and finding that deceased had not come up out of the mine he immediately instigated a search. Deceased was found in the 707 raise about halfway between the 700 and 600-ft. levels. Evidently a divider in the 707 raise had broken about 50 feet above the 700-ft. level, and it is thought that when he was going up the ladder deceased's weight was sufficient to cause it to come loose, catching him and wedging his head and shoulders between the divider and the ladder.

Dec. 13, Cedar Creek Mining & Development Co.; Shoshone County. George E. Reese, age 56, single, mill foreman. Deceased had told a man working under him in the mill that he was going into No. 3 tunnel and down the shaft to observe conditions there. Nobody was in the mine at the time he entered. His associate, on completing his shift and returning to the bunkhouse, found that deceased was absent and aroused the other men, who entered the mine and found the body in the No. 2 level of the shaft. Deceased had evidently been asphyxiated by powder fumes which had not entirely cleared from the shaft at the time he entered.

MEN EMPLOYED AND WAGES

The year closed with practically all the producing mines in the State in operation, and maintaining a payroll which equalled that of previous years. As a whole, 1929, from a labor standpoint, was one of the best years ever experienced. There was a surplus of labor throughout the year and the turnover was exceedingly small, thus assuring the companies a constant working force without the necessity of breaking in new men. However, competent and experienced miners and timbermen were continually in demand, and some of the large companies had a little difficulty in meeting their requirements.

It is practically impossible to obtain complete and accurate statistics of the number of men employed in the mines; a great many are employed by prospectors and small companies that do not report to the inspector of mines and that do not maintain continuous work throughout the year; and records furnished by the companies reporting vary as to the number of days. The average payroll reported was 5000, and 1000 has been added as an estimate to cover lessees, prospectors and small companies that did not report, thus giving a total of 6000 for the year, which is known to be a conservative estimate.

The table printed below gives the different wage scales that were in force in the State during 1929. Column No. 1 gives the average wage throughout the State for the year, and column No. 2 gives the wage scale in effect in the Coeur d'Alene district from April 1, 1929, to December 31, 1929.

Under an agreement adopted on November 16, 1925, the wages in the Coeur d'Alene district were to be adjusted each month in accordance with a bonus rate based on the selling price of lead in New York. This scale was based on a wage for miners of $3.75 per day when lead is selling under 5½c per pound; the bonus to be added was as follows:

When the price of lead is 5c	and under 6c	$0.25 per day
When the price of lead is 6c	and under 6½c	.50 per day
When the price of lead is 6½c	and under 7c	.75 per day
When the price of lead is 7c	and under 7½c	1.00 per day
When the price of lead is 7½c	and under 8c	1.25 per day
When the price of lead is 8c	and under 8½c	1.50 per day
When the price of lead is 8½c	and under 9c	1.75 per day
When the price of lead is 9c	and under 9½c	2.00 per day
When the price of lead is 9½c	and under 10c	2.25 per day
When the price of lead is 10c	and under 10½c	2.50 per day
When the price of lead is 10½c	and under 11c	2.75 per day

After March 1, 1927, the price of lead declined so rapidly that if the bonus scale had been adhered to the wages would have been cut to a point entirely out of proportion to wages in other parts of the State and too low under existing high living costs. So the signatories to the bonus scale waived their agreement and maintained the wages set forth in column No. 1, below.

Early in 1929 the copper-producing companies in adjoining states advanced their wage scales above those paid in the Coeur d'Alene district. In order to be on a parity with them, the bonus scale was again waived, and on April 1, 1929, the scale was advanced 50 cents per day. The wage scale maintained throughout the balance of the year is as set forth in column No. 2:

	No. 1	No. 2
Miners	$5.00	$5.50
Shovelers	4.50	5.00
Timbermen	5.50	6.00
Timber helpers	4.75	5.00
Machinists	6.00	6.25
Machinists' helpers	5.00	5.50
Carmen	4.50	5.00
Motormen	5.00	5.50
Trainmen	4.50	5.00
Main hoistmen	5.75	6.25
Small hoistmen	5.25	5.75
Nippermen	4.50	5.25
Pump and compressormen	5.00	5.75
Surface laborers	4.50	5.00
Ore sorters	4.25	4.75
Cagers	5.25	5.75
Pipe and trackmen	5.25	5.75
Shift bosses	6.00	6.75
Blacksmiths	6.00	6.50
Blacksmith helpers	5.00	5.50
Electricians	5.50	5.75
Millmen	5.00	5.50
Mill repairmen	6.00	6.25
Mill swampers	4.50	5.00
Carpenters	6.00	6.50

The cost of board and room at company boarding houses, hotels, and at private homes averages from $1.25 to $1.50 per day. Many companies have built and are maintaining houses which are rented to their married employees, and some of the largest companies assist their employees in the construction of homes.

MINERAL RESOURCES

Idaho contains an area of 83,888 square miles; its maximum width at the southern end is approximately 312 miles, and its length from the southwest corner to the northwest corner is about 486 miles. The State is divided into 44 counties, 36 of which can be classed as having minerals of commercial importance. In 22 of these counties there are producing mines.

In the past practically all mining has been confined to the five principal metals: Lead, silver, gold, zinc, and copper, which are widely distributed throughout the State (see map, page 6). In addition to these a great variety of uncommon metals and minerals, many of which have been successfully exploited during the past few years, occur in sufficient extent to be of commercial importance.

This great diversity of mineral wealth, consisting of practically all the metals used in modern arts and many of the uncommon minerals for which a demand is continually being developed, establishes Idaho as one of the principal mining States in the Union. It also makes mining the second most important industry in the State.

The importance of Idaho's mineral wealth is well shown by statistical facts based on the production and exploitation of the five principal metals, lead, silver, gold, zinc, and copper:

Total metal production since 1860, over $1,100,000,000.
Average annual production for past 25 years, over $25,500,000.
Average annual mine payroll, over $9,000,000.
Average annual mine dividends from lead-silver mines, over $5,000,000.
Average annual expenditure on new mine development and prospecting, over $4,000,000.

METALS

Lead

Lead is the most important metal found in Idaho, and excepting in the years 1926 and 1927, this State has always ranked second in the United States in the production of lead, Missouri ranking first, and Utah third. During the two years aforementioned Utah held second place, although the production of the two States was almost on a parity. Idaho produces over one-fourth of the total amount of lead mined in the United States. Lead is widely distributed throughout the State, and occurs as galena (lead sulphide) and as the oxide and carbonate; silver is always associated with it, and occasionally zinc, gold, and copper.

The largest lead mine in the United States is in Idaho—the Bunker Hill & Sullivan M. & C. Co. at Kellogg. This is one of the few companies in the world that mine, mill, smelt, refine, manufacture, and market lead and lead products. Other important lead-producing mines in Idaho and their respective ranks in the United States are: Federal Mining and Smelting Co., third; Hecla Mining Co., fifth.

The principal lead mines in the State are those in Shoshone County, which produce 85 per cent of the State total. Blaine, Boundary, Bonner, Custer, Lemhi, Boise, Butte, Valley, and Camas counties are the other important lead-producing counties.

Silver

Idaho ranks third in the United States in the production of silver, the first three States in order of rank being Utah, Montana, Idaho. Idaho produces one-eighth of all the silver mined in the United States.

Silver is found associated with all of the lead, copper, zinc, and antimony ores of the State, and occasionally in associations in which it is the principal metal. It is one of the most widely distributed metals, and its occurrence is such that the mining of silver can hardly be separated from that of the other metals. Accordingly, the production of silver fluctuates with and parallels that of lead.

Shoshone County produces more silver than any other county in the State; the other important silver-producing counties are: Lemhi, Custer, Bonner, Boundary, Blaine, Butte, Owyhee, Boise, Camas, Valley, Washington, Idaho, Elmore, Adams, and Cassia.

Zinc

Zinc is found associated with lead in many of the lead mines of Idaho, although there are numerous deposits in Shoshone and Blaine counties in which it is the principal metal. In Shoshone County it occurs as sphalerite (zinc sulphide), and in Blaine County as sphalerite and smithsonite (zinc carbonate).

Selective flotation revolutionized the art of ore-dressing, and it is now possible to treat mixed lead-zinc ores which could not be separated by gravity concentration methods. As a consequence, the zinc content which was formerly lost is recovered and many mines which at one time could not be profitably operated are now being reopened in Blaine, Camas, and Shoshone counties. As a result of these modern ore-dressing methods, Idaho is one of the largest zinc-producing States in the Union.

The principal zinc-producing counties, in the order of prominence, are Shoshone, Blaine, Camas, Custer, Lemhi, Bonner, Boise, Boundary, and Butte.

Gold

Gold is found in practically all of the counties in the State, and is one of the most widely distributed metals. Prior to the World War Idaho was an important producer of this metal, but during the war period many of the mines of which the principal product was gold were closed down and have not been reopened, so at the present time the State ranks only tenth in the United States in gold production.

Gold occurs associated with almost all the lead, zinc, copper, and silver ores, and very commonly in a free-milling condition. A large amount of gold is obtained from placer deposits; at one time Idaho was among the principal placer-mining States in the Union. The greater part of the placer ground which could be hydraulicked has been exhausted, but many acres suitable for dredging still remain, and the gold lode-deposits offer greater opportunities than those of almost any other State.

The most important counties in which gold occurs are Boise, Idaho, Lemhi, Owyhee, Elmore, Shoshone, Custer, Blaine, Camas, Clearwater, Gem, and Valley.

Copper

Idaho is an important producer of copper and holds a high position among the ranking States of the Union. The many copper mines which are now under development and the numerous discovered but undeveloped veins indicate that the production of this metal will be greatly increased; the State will then be elevated to a rank higher than that of tenth, which it now holds.

Gold and silver are found associated with practically all the copper ores; and in some countics, notably in Custer and Bonner, the silver content is more valuable than the copper.

Custer, Lemhi, and Shoshone are the most important copper-producing counties; Adams and Washington counties may eventually become large producers. Bonner, Idaho, Blaine, Butte, Clearwater, Latah, and Lewis counties also contain copper mines of importance.

Antimony

Deposits of antimony, principally the sulphide (stibnite), are found in Shoshone, Valley, Boise, Blaine, Idaho, Owyhee, and Custer counties. Those in the Coeur d'Alene district of Shoshone County have been extensively developed; a number of mills for the concentration of the ore have been constructed; and in the past a large tonnage has been produced and marketed. The deposits in Blaine, Valley, and Owyhee counties contain a high-grade ore, most of which can be shipped without preliminary treatment. During the war, when antimony commanded a high price, a large tonnage was produced and shipped from the mines in Valley County.

Antimony occurs as an accessory mineral in many lead-zinc ore bodies, also in stibnite-bearing veins in which it is the dominating metallic mineral. All of the antimony ores carry more or less silver, and many of them, particularly those of Blaine County, are more valuable for this mineral than for the antimony.

In all the above-mentioned counties there are many deposits containing a large available tonnage of commercial ore, which can be readily marketed when freight and market conditions will permit it to be produced at a profit.

Arsenic

Deposits of arsenic, principally the sulphide (arsenopyrite), occur in Blaine, Gem, and Boise counties. These deposits, although not fully developed, show a large available tonnage containing sufficient arsenic to be valuable for this metal, which can be readily marketed when the demand for it will permit profitable production. Arsenic occurs also as arsenopyrite in Ada, Elmore, and Kootenai counties, but the deposits in these counties have not been sufficiently developed to ascertain the possible tonnage.

Bismuth

Bismuth, occurring as a sulphide, has been found in Blaine County unassociated with other metals, as well as in association with many of the lead ores. It also occurs in the gold ores of the Gold Hill, Belshazzar, and Buckskin mines, Boise County, in association with lead, probably galenobismuthite or similar lead-bismuth minerals.

Cobalt

Cobalt is found in Lemhi County. During the World War, when this metal commanded a high price, the deposits were actively developed; a small mill was constructed, and concentrate with a high cobalt content was produced. These deposits are described by Frank L. Hess under "Cobalt" in U. S. Geological Survey: Mineral Resources of the United States, part I, 1917.

This metal is reported to have been found also in Kootenai and Latah counties.

Manganese

Manganese occurs in Bannock, Lemhi, Owyhee, Shoshone, Butte, and Washington counties. Some of the deposits are high in manganese content and others in manganese-iron. A substantial tonnage has been produced and marketed from the mines in Bannock County, and the deposits in Lemhi County constitute a large potential resource.

Describing the Bannock County deposits in "Manganese and Manganiferous Ores in 1926", U. S. Bureau of Mines: Mineral Resources of the United States, J. W. Furness said: "D. F. Hewett, of the United States Geological Survey, reports that the Idaho Manganese Co. has been exploiting since April, 1924, a manganese deposit on the McGregor ranch, 1 mile east of Cleveland, Bannock County, Idaho. The shipments in 1926 were 830 tons and during 1927 will probably be larger. The ore consists of nodules of the several oxides embedded in brown wad and forms a distinct bed in Pleistocene (Ice Age) sediments. In the explored area the bed will probably yield 3,000 tons per acre; the extent of the bed is assuredly several acres and may be more. Most of the shipments range from 42 to 48 per cent manganese. The ore is shipped by auto truck to Grace, 14 miles north, thence by rail to the Columbia Steel Co., Ironton, Utah."

Molybdenum

Molybdenum, occurring as the sulphide disseminated in intrusive rocks and as a molybdate of lead in fissure veins in limestone, is found in Elmore, Boundary, Custer, Idaho, and Lemhi counties.

Nickel

Nickel is found in Lemhi County. During the late war considerable development work was done on the veins in which it occurs. These deposits are described by Frank L. Hess under "Cobalt" in U. S. Geological Survey: Mineral Resources of the United States, Part I, 1917.

Quicksilver

Cinnabar, the sulphide of mercury, has been found in the placer deposits of Custer and Valley counties and in lode-deposits in Valley, Blaine, and Cassia counties. The quicksilver lode-deposits of Valley County are being extensively developed, and a little mercury has been produced from an experimental plant. The other deposits have never been opened.

Tin

Tin has been found in the placer mines in the Gravel Range mining district of Lemhi County. Its occurrence is described by Clyde P. Ross in Idaho Bureau of Mines and Geology Pamphlet No. 25, "Ore Deposits in Tertiary Lava in the Salmon River Mountains, Idaho". Mr. Ross includes in this a list of all published references relating to his subject.

Tungsten

Tungsten, in the form of scheelite and wolframite, occurs in commercial value in Shoshone, Idaho, Camas, Lemhi, Boundary, Bonner, Blaine, Valley, and Butte counties. The deposits in Shoshone County have been extensively exploited, and during the war period of high prices a large tonnage was produced and marketed; at the same time a small amount was obtained from Boundary and Camas counties. Sufficient work has been done on all these deposits to indicate that tungsten is one of the State's substantial mineral resources.

NON-METALLIC MINERALS

Asbestos

Commercial asbestos occurs in two forms: The chrysotile variety, which is adapted to spinning; and the amphibole variety, which is not adapted to spinning but is used extensively in shingles, insulation materials, paper stock, cements, and paints.

Amphibole asbestos occurs extensively in Idaho County, near Kamiah. There is a large demonstrated tonnage, but the demand is small, on account of markets and freight rates. Deposits containing chrysotile have been reported in Fremont, Teton, and Idaho counties.

Barytes

Barytes (barium sulphate) is used in the rubber, paper, linoleum, ink, and paint manufacturing industries. Its principal use is in the manufacture of lithopone, a white pigment consisting of about 70 per cent barium sulphate and 30 per cent zinc sulphide.

Some of the largest deposits of high-grade barytes found west of the Mississippi River occur in the Deer Creek and Muldoon sections of Blaine County. The deposits on Deer Creek vary in width from 50 to 100 feet, and one outcrop is over 1000 feet long; this was described by Arthur Lakes in the Mining Reporter for August 16, 1906, under the title, "A New and Large Deposit of Barite in Idaho", as follows:

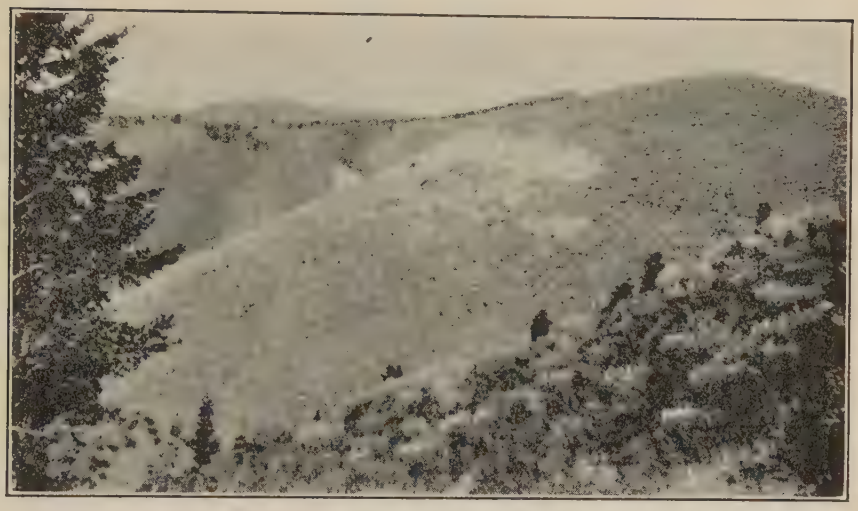
"In visiting some mining prospects in the Wood River region of Idaho I came across an unusually large massive deposit of the mineral called barite.

"It forms a steep cliff on the crest of a hill and descends as a vein down the gulch. The thickness is apparently from 50 to over 100 feet. Its course passes very near some silver-lead prospects and not far from it on one side is a huge outcrop of iron oxide.

"The material is of a dull white color and resembles at a distance a vein of calcspar or a vein of white feldspar and quartz. It has not been opened up but there must be thousands of tons in sight."

Bentonite

Bentonite, a plastic clay, is valuable for its high absorbent qualities; it has the capacity for absorbing three times its weight or about seven times its volume of water. It is used in beauty clays; for refining oil; as a filler in paper and soaps; as an adulterant in drugs and candies; and as a packing for horses' hoofs.



Deer Creek Barytes Deposit, Viewed from a Distance of 2000 Feet



Close-up View of Deer Creek Barytes Deposit

Bentonite occurs in commercial extent in Clark and Custer counties, and has been reported found in Cassia and Oneida counties. The deposits in Clark and Custer counties are described by R. V. D. Kirkham in Pamphlet No. 19 Idaho Bureau of Mines and Geology, "A Geologic Reconnaissance of Clark and Jefferson and Parts of Butte, Custer, Fremont, Lemhi, and Madison counties, Idaho": "A commercial grade of bentonite, a peculiar type of clay with extraordinary absorptive qualities, was found at two localities in the area. One is near the railway in the vicinity of Mackay, the other is more remote and lies west of Dubois."

Building Stone

Sandstone exceptionally adapted to building purposes is found in Ada, Bear Lake, and Cassia counties. One of the principal enterprises in Ada County is that of the Boise Stone Company in quarrying and converting sandstone to building purposes. This enterprise is fully described, with illustrations, in the Twenty-sixth Annual Report of the Mining Industry of Idaho for the Year 1924. The most notable building in Idaho, the State Capitol, is constructed of this stone.

The sandstones in Bear Lake County are described in U. S. Geological Survey Professional Paper No. 152, "Geography, Geology, and Mineral Resources of Part of Southeastern Idaho", by George Rogers Mansfield; pages 336-338.

Clay

"The different kinds of clay have so many uses that it is probably impossible to list them all, but the following rough classification will serve to point out the great variety of products that contain clay: Structural products: Common brick, tile, etc. Refractories: Fire clay brick and special refractories. Pottery: Tableware, kitchenware, sanitary ware, etc." From U. S. Bureau of Mines Information Circular No. 6155, Clay, by Paul M. Tyler. This publication contains complete information on the occurrence, use, methods of testing, classification and preparation of various kinds of clays.

Clay suitable for structural purposes is found in almost every county in the State, the better grades occurring in Benewah, Cassia, Kootenai, Latah, Lewis, Idaho, Power, and Washington counties.

Clay suitable for refractories and pottery is found in Latah County. The refractory clay is high-grade. One deposit is being exploited, and the manufactured articles are in great demand throughout the Pacific Northwest states.

Coal

Bituminous coal of commercial importance occurs in Teton, Bonneville, Fremont, and Clark counties. No attempt has been made to exploit any of the deposits commercially except those of the Teton Coal Company in Horseshoe Basin, Teton County. In discussing the Horseshoe Basin coal in Pamphlet No. 10, Idaho Bureau of Mines and Geology, "The Horseshoe Basin Area of the Teton Coal Field in Southeastern Idaho", George Watkins Evans said:

"The chemical analysis of this coal indicates that the coal in this field is of as good quality as any mined in Utah or Wyoming. The principal question is whether or not this field can produce a sufficient percentage of lump coal to compete with the larger sizes from Utah and Wyoming.

"From the limited information at hand, it is impossible to make a reliable estimate of the minable tonnage in this field. In the first place, we do not know exactly the total area of the coal bearing strata, nor do we know the number of workable coal beds contained within this field. Any tonnage estimate made at this time must be based upon arbitrary figures and the quantity might be either much more or much less than the figures given.

"If we assume that the Horseshoe bed and the Brown Bear bed are two separate and distinct beds and that the Horseshoe bed will contain 9 feet of coal and that this bed can be mined for a distance of one-half mile on the dip, and that the bed will continue of fairly uniform character for a distance of 2 miles along the strike, there would be within the Horseshoe bed approximately 5,000,000 tons of coal, provided it will average 6 feet of minable coal and if we allow 1300 tons per foot acre. The Brown Bear bed has an average thickness of about 4 feet and on the same basis would contain a little over 3,000,000 tons of coal. The Boise bed, allowing an average thickness of 3½ feet of minable coal, contains nearly 3,000,000 tons—in all approximately 11,000,000 tons of coal.

"It is not improbable that with future investigations it will be found that the total tonnage of coal in this field is very much greater than the amount of tons suggested. On the other hand, it might be found that the coal contained within these beds is very friable and will not produce any considerable quantity of the larger sizes, and furthermore, it is probable that the market tributary to this field will be so exacting that only the larger sizes can be successfully marketed."

The Teton Coal Company has recently completed a 3600-foot crosscut with a 600-foot connecting raise to the surface, and a tipple for grading the coal. The tunnel intersected three coal beds, two of which were not included in the above estimate; as yet the tunnel has not been completed to the Horseshoe and Boise beds, so it appears that the total tonnage, when this field is fully developed, may be in excess of the estimate.

Lignite is found in Cassia, Boise, Owyhee, Washington, Idaho, Lemhi, and Clearwater counties.

Diatomaceous Earth

Diatomaceous earth is more commonly known as infusorial earth, and is sometimes referred to by its German name of kieselguhr. It is composed of the siliceous remains of minute aquatic plants known as diatoms, which are of such proportions that they must be identified chiefly by the aid of the microscope.

The principal uses of diatomaceous earth are: Sawed brick for refractory and insulation purposes; filter material at sugar factories; light-weight filler in concrete; in polishing powders; absorbent in dynamite, and in thermal insulator compounds.

Extensive beds of this mineral, in which it can be measured by the acre, are found in Owyhee, Elmore, Camas, Payette, Washington, and Idaho counties. A small tonnage has been obtained from Elmore County for use in Idaho sugar factories.

Feldspar

Common feldspars are crystalline compounds of silica, alumina, and one or more of the bases: potash, soda, and lime. There are two principal classes of feldspar—the one including the potash and potash-soda varieties; the other including the soda, soda-lime, and lime varieties. Pure potash feldspars are orthoclase and microcline. The principal use of feldspar is in the manufacture of pottery, chinaware, porcelain, enamel-ware, and enamel brick and tile.

Deposits of high-grade feldspar, occurring as orthoclase, are found in Latah and Adams counties.

Garnet

Garnet is a common accessory mineral in a large variety of rocks, occurring abundantly in contact metamorphic zones and in metamorphosed crystalline limestones. Deposits of garnet possessing the necessary qualifications for ornamental or industrial use and so situated with regard to transportation and markets that they can be exploited commercially are relatively small and occur in only a few areas throughout the United States.

The principal uses of garnet are: As settings in jewelry; jewel bearings in watches; and as an abrasive. Abrasive garnet is utilized either in the form of a manufactured paper similar to sand-paper, or as loose grain or powder for grinding and polishing.

Extensive deposits of garnet adapted to abrasive purposes occur in Adams, Lemhi, Custer, and Cassia counties.

Graphite

Graphite is a soft, black, greasy form of carbon, sometimes referred to in trade as "plumbago" and "black lead". It occurs in nature in two forms, crystalline and amorphous, each having its own peculiar uses.

The physical properties of graphite—infusibility, chemical inertness, high conductivity, extreme softness, and low specific gravity—fit it for a large number of uses: The manufacture of crucibles and other refractory products; lubricants; "lead" pencils; paints; stove polish; foundry facings; and various types of electrical appliances.

Graphite of commercial importance is found in Blaine County, but, owing to the fact that at the ordinary price of graphite it is possible to mine only the most favorably situated deposits, the known deposits in Idaho have never received much attention.

Gypsum

Gypsum is a natural hydrated sulphate of lime. It is a soft, white, chalk-like material, found widely distributed in single crystals and in thick beds. The natural product is generally very pure.

The principal uses of gypsum are as structural material—wall plaster, gypsum boards, blocks and tile—and as an ingredient in Portland cement and plaster of Paris.

Extensive deposits of high-grade gypsum are found in Lemhi, Bear Lake, and Washington counties. These deposits have never been developed, as the low price of the crude product limits production to those States located near the centers of population.

Limestone

Limestone is mined in Bannock, Butte, Boise, Clearwater, Teton, and Bonner counties; Blaine and Bear Lake counties also contain deposits of importance. The limestone mined in Bonner County is shipped to Spokane, Washington, where it is manufactured into Portland cement; the limestone mined in Butte and Teton counties is shipped to the sugar factories of Idaho and Utah, where it is used in the refining of sugar; the limestone mined in Bannock County is manufactured into cement, the plant being located adjacent to the quarry; the limestone mined in Boise and Clearwater counties is sold to the agricultural and poultry industries.

There are unlimited deposits which are suitable to the foregoing industries.

Marble

Marble is dense crystalline calcium carbonate, formed from limestone by the pressure of overlying sediments and the action of underground water. The value depends on the color, which may be white, gray, red, black, or veined, and the grain and structure. Its principal use is for building and monumental purposes.

Marble suitable to commercial purposes occurs in Nez Perce, Butte, and Cassia counties. The deposits in Nez Perce and Butte counties have been slightly exploited.

Mica

The principal physical properties which give value to mica are: Its cleavage, transparency, resistance to decomposition, and non-conduction of electricity and heat. The important uses of mica are: Short mica, in the electrical industries and as glazing for stoves, screens, goggles, and lantern projection; ground mica, in fancy paints, wallpaper, tiles, concrete, rubber goods, roofing materials, lubricants, and insulating compounds.

"Mica deposits of probable value have been found in about half the States of the United States. The principal producing States have been North Carolina, New Hampshire, South Dakota, Idaho, New Mexico, Colorado, Virginia, South Carolina, Alabama, and Georgia."—Schaller, W. T., Mica: U. S. Geological Survey Mineral Resources, pt. 2, p. 280; 1915. The production which gave Idaho this prominent rank was from the mica mines in Latah County.

Deposits of commercial importance occur in Adams and Idaho counties also, although they have never been prospected or developed in proportion to the possibilities which they offer.

Mineral Waters

Mineral springs of various types occur at a great many places throughout the State, the principal types being calcareous, chalybeate, sulphurated, and saline. The temperatures of the different types vary from "cold" to "hot", with some of the latter exceeding the boiling point. Hot springs are the more numerous, and at many of them sanitariums and bathing resorts have been erected.

The chalybeate springs of Caribou County are particularly efficacious from a therapeutic standpoint, although they have never been exploited.

Monazite

The mineral monazite consists chiefly of the phosphate of cerium and variable amounts of thoria, the value depending primarily upon the thoria content. It is a resinous golden-yellow mineral occurring as a placer sand in practically all of the gold placer mines in the State; the quantity varies, and in some of the deposits it is not sufficient to be of commercial importance. The placer deposits of Ada, Idaho, Lemhi, and Owyhee counties contain an appreciable amount of this mineral, and those of Boise and Clearwater counties contain sufficient to be of commercial importance.

The principal use of thorium is in the manufacture of incandescent mantles for gas lighting. Practically all of the monazite used in the United States is imported from Brazil and India.

Nitrates

The occurrence of nitrate in Camas, Elmore, and Owyhee counties has been reported.

Oil and Gas

The same formations which are oil-producing in Wyoming are present in structures highly favorable to the accumulation of oil and gas in Caribou, Bonneville, Teton, Bear Lake, and Bingham counties. A small amount of drilling has been done in Caribou and Teton counties, but the wells were never completed to a sufficient depth to determine the possibilities for the occurrence of oil.

Gas has been developed in Payette and Washington counties.

Phosphate Rock

The greatest potential mineral resource in Idaho is the immense phosphate rock deposits in Bear Lake, Caribou, Bannock, Bingham, and Bonneville counties. Conservative estimates by members of the U. S. Geological Survey accredit Idaho with over 85 per cent of the total phosphate resources of the United States in 268,299 acres out of a total of 396,612 acres which have been withdrawn from public entry. These deposits are fully described with maps, illustrations and analyses by G. R. Mansfield in U. S. Geological Survey Professional Paper No. 152, "Geography, Geology, and Mineral Resources of Part of Southeastern Idaho", from which the following is quoted:

"In Utah, Idaho, Wyoming, and Montana the great bulk of the phosphate rock is on public land, though some has passed into private ownership. The public lands are withdrawn from entry pending their examination and classification. No estimates of the acreage of phosphate land in private ownership are available, but the acreage of the outstanding withdrawals of public land in the States named is shown in Table 38.

TABLE 38—**Outstanding phosphate withdrawals, July 31, 1927**

	Acres
Utah	301,945
Idaho	**396,612**
Wyoming	996,539
Montana	279,944
Total	1,966,390

"In addition to the land embraced in the outstanding phosphate withdrawals, 268,299 acres in Idaho, 25,293 acres in Wyoming, 3,833 acres in Montana, and 160 acres in Utah—297,585 acres in all—have been examined in detail and formally classified as phosphate land. * * *

"Under the act of July 17, 1914, agricultural entries may be made upon withdrawn phosphate lands, but the mineral rights are reserved to the United States."

TABLE 74a—Estimate of phosphate rock in the United States available December 31, 1925, in long tons

FIELD	Estimated quantity available	FIELD	Estimated quantity available
Eastern field:		Western field:	
Arkansas	20,000,000	**Idaho**	**4,997,855,000**
Florida	291,000,000	Montana	391,323,000
Kentucky	878,000	Utah	326,745,000
South Carolina	8,788,000	Wyoming	115,754,000
Tennessee	83,500,000		5,831,677,000
	404,166,000	Less approximate quantity mined since 1906	350,000
			5,831,327,000
			404,166,000
			6,235,493,000

Pyrite

Pyrite of commercial importance is found in Washington County. The development work which has been done on these deposits indicates an immense available tonnage.

Rutile

The occurrence of rutile in Clearwater County has been reported. Rutile, the natural titanium oxide, is used in paints; arc-light electrodes; dyes; and in the manufacture of leather.

Salt

The pioneers evaporated the brine from the salt springs of Caribou County, and this salt was transported to all of the northwestern States before the building of the railroad. The salt obtained from these springs is above the average of the commercial salts of the United States in purity and compares favorably with some of the best salt produced. The salt springs and deposits are described by W. C. Phalen, who estimates 5,000,000 tons in sight, in U. S. Geological Survey Bulletin 669, "Salt Resources of the United States":

"Although the salt bodies or old alkali flats are thus meager in extent, especially in comparison with the other prominent salt-producing areas of the United States, the conservative estimate of 5,000,000 tons for the Crow Creek rock-salt body and the possibility of a larger salt body near the Tygee and Stump Creek forks indicate that the amount of salt apparently in sight in some of the present areas would be sufficient (if proper railroad connections existed) to yield returns on large workings for a long time. It also appears quite probable that all the areas, including the smaller brine springs, contain sufficient salt to return the sums that may be advisedly invested in their development."

Sulphur

Sulphur occurring in extensive deposits and as sulphur springs is found in Caribou County. During the World War a little attempt was made toward the commercial development of these deposits.

Talc

Talc suitable to the electrical and powdered-talc industries occurs in Idaho County in sufficient extent to be of commercial importance.

ANNUAL REPORTS

The first report submitted by the present inspector, in 1921, was largely an experiment. It introduced much miscellaneous matter never previously printed in such a report and presented detailed information concerning Idaho mining companies in the form of a directory. It was, in fact, a handbook rather than a formal report. It received such favorable press comment, notably by the Engineering and Mining Journal, the foremost mining magazine of the United States, that the same plan was followed in subsequent reports. As these proved equally popular with the mining public of Idaho and other states, the 1929 report is offered in the same form.

It is a cause for great satisfaction that it has been possible to increase the size of the report each year, without adding greatly to the expense. The 1921 issue consisted of but 150 pages; that of 1922 of 200 pages, that of 1923 of 221 pages, that of 1924 of 249 pages, that of 1925 of 270 pages, with five insert diagrams of mill flow sheets, that of 1926 of 269 pages, that of 1927 of 280 pages, and that of 1928 of 276 pages. As the 1923, 1924, 1925, 1926, 1927, and 1928 editions were printed more compactly, they included much more additional information than their increased bulk would indicate. The increase in size has been made possible by the growing cooperation of mining companies in the matter of filing full reports concerning their organization, property, plant equipment, and development campaigns. The reports for the years 1923, 1924, 1925, 1926, 1927, 1928, and 1929 have also been rendered more interesting by the inclusion of many pictures of various Idaho mining plants.

Corporations that have forfeited their charters, and that have failed to file their reports as required by law, have been considered as legally dead; therefore no mention is made of them.

Idaho is the only state in the Union which is presenting the data and information relative to its mineral resources in this form. The merit and popularity of the report are proved by the continually increasing demand for copies of it, as well as by the efforts those interested in mining in other states have made toward having their state governments publish a similar report. Less than 1000 copies of the 1921 report were distributed, while 3000 copies of the 1928 report were not sufficient to meet the demand.

The list of prospects contained in this report was corrected and brought down to date in the thirtieth annual report, and has not since been changed.

Many of these prospects are worthy of more prominent mention, but, as the owners failed to submit data, it is impossible to give further information than the owner's name and address, location of his mine and its name. If the small mine-owner could realize that it would be beneficial to him if he furnished detailed information to the inspector, it would greatly assist in displaying the mining possibilities of Idaho and result in his property receiving more attention. The list published in the twenty-third annual report was the first of its kind ever compiled in Idaho and proved that the practice is worthy of continuation, as it has been a guide to those looking for mines. These lists have found extensive use and in a number of cases resulted in the prospect being examined and a sale made.

Unincorporated mines have been included in the body of this report on the same basis as the reporting mining companies, whenever their owners submitted the data. This policy will be continued in the future. The necessary form on which the data can be submitted is mailed on request to all those interested in having their properties receive a more prominent mention.

NEWSPAPERS

As pointed out in previous years, the visits which the inspector makes to the numerous mining counties are necessarily so short that they are inadequate to enable him to keep directly in touch with all mining activities, so that it is always necessary that he supplement his personal information by that gleaned from the press. Most of the publishers located in mining communities have been very willing to furnish gratuitous subscriptions of

their newspapers to the office of the inspector. This courtesy is greatly appreciated, and has been of much assistance in enabling the inspector to keep abreast of the mining news. Accordingly, the State of Idaho, through the mine inspector, extends its thanks to the following:

Arco Advertiser	Arco
Idaho County Free Press	Grangeville
Kellogg-Wardner News	Kellogg
Lemhi County Recorder Herald	Salmon
The Mackay Miner	Mackay
Mining Truth	Spokane
Mullan News	Mullan
Pend d'Oreille Review	Sandpoint
Priest River Times	Priest River
The Salt Lake Mining Review	Salt Lake City
The Times-Register	Idaho Falls
The Wallace Miner	Wallace
Wallace Press-Times	Wallace

MINERAL MARKET INFORMATION

As there has continued to be a demand for possible markets for uncommon minerals and metals, the lists prepared in 1921, which include the names and addresses of the purchasers or users, have been revised and brought up to date as nearly as it was possible to do so, through the courtesy and cooperation of Mr. Frank J. Katz, Chief Engineer, Division of Mineral Statistics, U. S. Bureau of Mines.

Aluminium	Fluorspar	Pumice
Antimony	Fullers Earth	Radium
Arsenic	Graphite	Silica Sand
Asbestos	Gypsum	Sodium
Barytes	Magnesium	Strontium
Bauxite	Magnesite	Talc
Bismuth	Manganese	Tin
Cadmium	Mica	Titanium
Chromium	Molybdenum	Tripoli
Cobalt	Monazite	Tungsten
Diatomaceous Earth	Nickel	Uranium
Feldspar	Platinum	Vanadium

LIBRARY

The library, which was started by the present mine inspector during 1921, and which now consists of over 3,500 volumes, is believed to be the largest library of its kind in the State. It contains virtually every publication of the U. S. Geological Survey and U. S. Bureau of Mines, most of the U. S. Mint Reports, numerous volumes published by the geological surveys of other states, and many volumes of journals dealing with mining and geology.

Except a few articles published in old issues of the various journals, everything of importance dealing with the mining industry of Idaho, including geology, mineralogy and mineral resources, is contained in the library. Whenever requests are made for any of the missing articles, photographic copies are procured from the publishers or from some large research library.

The following magazines are regularly received: Engineering and Mining Journal; Mining Review; Mining Truth; The Mining Congress Journal; Mining and Metallurgy; The Mining Journal; Rock Products; Compressed Air Magazine; The Explosive Engineer; Economic Geology; and Asbestos. Complete files of these magazines are being preserved for reference use. Although most of them have been received only since 1921, the file of the Engineering and Mining Journal is virtually complete for the past 20 years, the present mine inspector having donated to the State his personal files of this journal for the years 1911 to 1920, inclusive.

The library is equipped with the U. S. Geological Survey Finding List of States, Areas and Subjects, which makes it possible to locate quickly and completely all publications of the U. S. Geological Survey concerning the geology and mineral resources of any state of the United States or concerning any particular mineral.

Visitors are always welcome to consult the books of the library or to read the magazines. The office is open from 9 a. m. to noon and from 1 p. m. to 5 p. m. In the absence of the inspector, the secretary will be glad to assist visitors in finding desired information.

In order to accommodate readers who find it inconvenient to consult books in the library at the inspector's office, the practice of lending books for a period of not over two weeks has been established, and they are mailed out to all responsible persons within the State upon request. A few rare volumes, now out of print, and of which the library contains no duplicates, and books frequently called for at the office, cannot be mailed out. Individuals not personally acquainted with the inspector, when writing in for books, should accompany their requests by letters of introduction or recommendation from some reliable person in their community personally known to the office, or by a letter from the nearest public library.

MINING LAWS

In May, 1929, the inspector caused to be published a new edition of the Idaho mining laws, for which a special appropriation was passed by the 1929 Legislature. This pamphlet contains all amendments and new laws relative to mining passed by that session of the Legislature, thus making the edition entirely up to date. It also contains extracts from the United States mining laws, and from the Idaho corporation and reclamation laws. This pamphlet is for free distribution and will be mailed on request to anyone interested.

BIBLIOGRAPHIES

Much information concerning the geology, mineralogy and mineral resources of Idaho has been collected and published by the U. S. Geological Survey, the U. S. Bureau of Mines, and the Idaho Bureau of Mines and Geology. Much is also contained in the various reports of the inspector of mines and in journals dealing with mining and geology. In order to make this information readily available to the public, in 1921 the inspector indexed this material according to counties and subjects and published it in his report. The indexing has been kept up to date, and so far as is known, each county bibliography contains references to all material of any importance that has ever been published concerning that county. Publications relating to specific minerals found in the State are listed also under the "General Bibliography" in the back of the report. The usefulness of the bibliographies has been further increased by including publishers' addresses and information as to whether each particular reference can be procured or not. Symbols have been added as a guide to facilitate explaining this information. Practically all of the publications listed are found in the inspector's library, and arrangements have been made so that copies of those not on file can be procured when requested. However, **these publications may be consulted in all large libraries.**

NAMES, ADDRESSES, ABBREVIATIONS AND SYMBOLS USED IN BIBLIOGRAPHIES

Am. Geology.....American Geology†

Am. Jour. Sci.....American Journal of Science
Tuttle, Morehouse & Taylor Co., 123 Temple St., New Haven, Conn.

Am. Mineralogist.....American Mineralogist
Princeton, N. J.

California Jour. Tech.....California Journal of Technology
University of California, Berkeley, Calif.

Canada Geol. Survey Ann. Rept.....Canada Geological Survey Annual Report
Ottawa, Canada.

Colorado Sci. Soc. Proc.....Colorado Scientific Society Proceedings†
Columbia School of Mines Quart.....Columbia School of Mines Quarterly
Columbia University, New York City.
Compressed Air Mag.....Compressed Air Magazine
Bowling Green Bldg., 11 Broadway, New York City.
Econ. Geology .....Economic Geology
University of Illinois, Urbana, Ill.
Eng. and Min. Jour.....Engineering and Mining Journal
Tenth Ave. & 36th St., New York City.
Franklin Inst. Jour.....Franklin Institute Journal
15 South 7th St., Philadelphia, Pa.
Geol. Soc. America.....Geological Society of America
Museum of Natural History, Columbus Ave. & 77th St., New York City.
Idaho Bureau of Mines and Geology, Moscow, Idaho.
Jour. Canadian Min. Inst.....Journal of Canadian Mining Institute
Drummond Bldg., Montreal, Quebec, Canada.
Jour. Geology.....Journal of Geology
University of Chicago Press, Chicago, Ill.
Min. Con. Journal.....Mining Congress Journal
American Mining Congress, 841 Munsey Bldg., Washington, D. C.
Min. and Eng. World.....Mining and Engineering World†
Mining and Metallurgy
American Institute of Mining and Metallurgical Engineers, Inc.,
29 West 39th St., New York City.
Mines and Minerals.....Mines and Minerals†
Mining Magazine.....Mining Magazine†
Min. and Sci. Press.....Mining and Scientific Press†
Min. Reporter.....Mining Reporter†
Min. World.....Mining World†
Nat. Geog. Mag.....National Geographic Magazine
National Geographic Magazine Society, Hubbard Memorial Hall,
Washington, D. C.
No. ..... Number
Northwest Min. News.....Northwest Mining News†
Pacific Miner.....Pacific Miner†
p., pp.....page, pages
pt. ..... part
Proc. Int. Min. Cong.....Proceedings International Mining Congress
International Mining Congress, Washington, D. C.
Salt Lake Min. Review.....Mining Review
Walker Bank Bldg., Salt Lake City, Utah.
Sci. Amer. Suppl.....Scientific American Supplement
New York City.
ser. ..... series
sess. ..... session
Trans. Am. Inst. Min. Eng.....
Transactions American Institute of Mining and Metallurgical Engineers
29 West 39th St., New York City.
Trans. New York Acad. Sci.....Transactions New York Academy of Science
New York Academy of Science, New York City.
U. S. Bureau of Mines Bull.....U. S. Bureau of Mines Bulletin¶
U. S. Geol. and Geog. Survey.....U. S. Geological and Geographical Survey†¶
U. S. Geol. Survey Ann. Rept.....U. S. Geological Survey Annual Report†¶
U. S. Geol. Survey Bull.....U. S. Geological Survey Bulletin¶
U. S. Geol. Survey Geol. Atlas.....U. S. Geological Survey Geologic Atlas¶
U. S. Geol. Survey Mon.....U. S. Geological Survey Monograph¶
U. S. Geol. Survey Prof. Paper....U. S. Geological Survey Professional Paper¶
U. S. Nat. Mus. Proc.....U. S. National Museum Proceedings¶
Univ. of Idaho.....University of Idaho, Moscow, Idaho
vol. ..... volume
Washington Acad. Sci. Jour.....Washington Academy of Science Journal
211 Church St., Easton, Pa.

SYMBOLS

*.....Available in libraries only. Publication out of print.

**.....Can be procured from publisher.

§.....Not available for general distribution; may possibly be procured from publisher.

‡.....Can be purchased from Superintendent of Documents, Government Printing Office, Washington, D. C.

†.....Publication suspended.

¶.....Address: Washington, D. C.

SPECIAL ARTICLES APPEARING IN ANNUAL REPORTS SINCE 1921

Anaconda Copper Mining Co.'s Phosphate Mine:..... 25th, 1923, p. 26*

Building Stone (Idaho):..... 26th, 1924, p. 17*

Bunker Hill Hoist:..... 26th, 1924, p. 32*

Burke Fire:..... 25th, 1923, p. 14*

Electricity in Coeur d'Alene District:..... 30th, 1928, p. 31*

Foreword

- Annual Reports:..... 23d, 1921, p, 3
- Idaho Laws Relative to Reports to Inspector of Mines: 24th, 1922, p. 5
- Delinquent Mining Companies:..... 25th, 1923, p. 5
- Mining Promotions—Investments:..... 26th, 1924, p. 5
  29th, 1927, p. 7
- Fake Promotions and Dishonorable Promoters:..... 27th, 1925, p. 5
- Idaho Copper Corporation v. Stewart Campbell, Libel: 28th, 1926, p. 5
  30th, 1928, p. 7

Forest Reserves, Ownership of Timber on Unpatented Mining Claims in:..... 30th, 1928, p. 28

Milling Practice in Idaho

- Milling in the Coeur d'Alene:..... 27th, 1925, p. 16*
- Bunker Hill & Sullivan M. & C. Co., South Mill:..... 27th, 1925, p. 18*
- Hecla Mining Co. Mill:..... 27th, 1925, p. 21*
- Tamarack & Custer Cons. Mining Co. Mill:..... 27th, 1925, p. 25*
- Gold Hunter Mines, Inc., Mill:..... 27th, 1925, p. 29*
- Federal M. & S. Co. Morning Mill:..... 27th, 1925, p. 32*
- Federal M. & S. Co. Page Mill..... 28th, 1926, p. 16*
- Constitution M. & M. Co. Mill:..... 27th, 1925, p. 34*
- Callahan Zinc-Lead Co. Galena Mill:..... 28th, 1926, p. 20*
- Idawa Gold Mining Co. Belshazzar Mill:..... 29th, 1927, p. 38*

Mine Rescue and First Aid in the Coeur d'Alene:..... 25th, 1923, p. 18*
26th, 1924, p. 36*
27th, 1925, p. 37*
28th, 1926, p. 22*
29th, 1927, p. 40*
30th, 1928, p. 35*

Phosphate:..... 25th, 1923, p. 25

Platinum, Predatory Assayers:..... 27th, 1925, p. 6
28th, 1926, p. 7

State Mineral Exhibit:..... 26th, 1924, p. 11*

Sullivan Electrolytic Zinc Plant:..... 29th, 1927, p. 33*

*Illustrated.

ADA COUNTY

Ada is one of the southwestern counties, adjoining and lying north and east of Owyhee and Canyon counties, and south of Boise County. It contains 1154 square miles and was accredited with a population of 35,213 in the 1920 census. Boise, the largest city in the State, is the State capital and county seat. The county is noted for its excellent irrigated farms, and its livestock, farming, and fruit-raising industries.

The State highway, Oregon Trail, extending from the southeast corner of the county to Boise, thence west to Nampa, and the excellent county highways and roads, give this county some of the best roads in the State as well as easy access to the mineralized areas.

Ada is not recognized as a mining county, yet its small mountainous area was once the scene of many active mining operations; and Boise was established as the principal distributing point for miners' supplies when the rich placer diggings of Boise County and adjacent areas were worked in the early days.

The early day mining was based on free gold operations and, as the sulphide zone was encountered at a shallow depth, the mines were soon closed and have remained dormant for many years. The principal ores are lead and zinc, carrying high values in silver and gold, occurring in fissure veins and as replacement deposits in granite. The ore occurrences are well defined and offer good opportunities to prospectors and small operators in search for these metals.

The chief mineral resources are building stone, gold, lead, silver, zinc, and arsenic. Building stone and its accompanying enterprise were fully described in the 26th annual report, for the year 1924.

During 1929 the mines and prospects in this county witnessed but little increase in attention and development over that of the previous year, in addition to which there was a decided activity coupled with publicity in the promotion of oil development enterprises.

The Boise Stone Company was active throughout the year and reports that a large quantity of stone was quarried and cut.

BERGDAHL OIL CO.

Office: 260-261 Sonna Bldg., Boise. **Officers:** A. F. Bergdahl, Pres.-Mgr.; C. M. Godfrey, Sec., both of Boise. **Inc.:** July 16, 1927. **Capital:** 1,000,000 shares; par value $1; 254,000 shares issued. **Property:** Leases on 2760 acres of patented land in Ada and Gem counties. **Development:** 2½-in. well 175 ft. deep. **Plant:** Small water well drilling equipment operated under contract. **Mineral sought:** Oil and gas. **Men employed:** None. **Remarks:** Active publicity campaign for purpose of selling stock maintained throughout the year.

GOLD KING-DELHI MINES CORPORATION

Office: 326 Noble Bldg., Boise. **Officers:** J. H. Richards, Pres.; S. T. Schreiber, Sec.-Mgr., both of Boise. **Inc.:** July 13, 1929. **Capital:** 300,000 shares; par value $1; shares issued, unknown. **Property:** Gold King-Delhi groups; 3 patented, 7 unpatented claims, part of which are held under lease and option; Shaw Mountain dist.; Boise. **Development:** By 2 tunnels: No. 1, 150 ft. long; No. 2, 250 ft. long. **Ore:** Gold. **Men employed:** Average, 2. **Remarks:** Two short tunnels were driven during the year.

PIONEER IDAHO OIL CO.

Office: 322 Eastman Bldg., Boise. **Officers:** J. E. Nottingham, Pres.-Mgr.; P. M. Davis, Sec., both of Boise. **Inc.:** Apr. 4, 1927. **Capital:** 600,000 shares; par value $1; 9887 shares issued.

RED ROSE GOLD MINES CO.

Office: 605 Eastman Bldg., Boise. **Officers:** J. J. Oberbillig, Pres.-Mgr., Boise. **Inc.:** Jan. 27, 1921. **Capital:** 500,000 shares; par value 5c; all shares issued. **Property:** Red Rose group; 12 patented claims, Black Hornet dist.; Boise. **Development:** By 3 tunnels, the principal one of which is 685 ft. in length; total development, 1400 ft. **Ore:** Gold-silver. **Remarks:** Idle throughout the year.

RELIANCE GOLD MINES CO.

Office: 605 Eastman Bldg., Boise. **Officers:** J. J. Oberbillig, Pres.-Mgr., Boise; Louis A. Dumond, Sec., Chicago, Ill. **Inc.:** Feb. 4, 1924. **Capital:** 1,000,000 shares; par value 10c; 350,000 shares issued. **Property:** Star group; 8 unpatented claims, Black Hornet dist.; Boise. **Development:** Principally by one tunnel which is 1350 ft. long. **Ore:** Gold-silver-arsenic. **Remarks:** Annual labor only.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Big Foot Bar	Unorganized	Archie T. Winter	Mt. Home
Blue Grouse Ext.	Black Hornet	Goodwin & Thacker	Boise
Blue Grouse et al.	Black Hornet	A. G. Adelmann	622 Idaho St., Boise
Delhi	Black Hornet	S. T. Schreiber	Boise
Five Mile Gr.	Shaw Mountain	J. M. Roberts	110 E. Ban. St., Boise
Gold Eagle Gr.	Black Hornet	C. C. Anderson	Boise
Hidden Treasure	Black Hornet	W. P. Richards	Boise
Maynard Bros.	Highland	H. T. Maynard	Boise
Monitor Placer	Highland	W. E. Johnston	Boise
Sorrel Horse et al.	Black Hornet	N. R. C. Adelmann	221 Jeff. St., Boise
White Mineral	Black Hornet	H. J. Leppert	506 S. 3d St., Boise

BIBLIOGRAPHY

See pages 71-72-73 for publisher's address, meaning of reference marks, and abbreviations.

A geological reconnaissance across Idaho, by G. H. Eldridge: U. S. Geol. Survey, Sixteenth Ann. Rept., pt. 2, pp. 217-276, **1894-1895.***

Description of the Boise quadrangle, by Waldemar Lindgren: U. S. Geol. Survey Geol. Atlas, Folio No. 45, **1898.***

Mining districts of the Idaho Basin and the Boise Ridge, Idaho, by Waldemar Lindgren: U. S. Geol. Survey Eighteenth Ann. Rept., pt. 3, pp. 625-736, **1898.***

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey Twentieth Ann. Rept., pt. 3, pp. 75-256, **1900.***

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Preliminary report on artesian basins in southwestern Idaho and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Water Supply Paper 78, **1903.**‡

Notes on the geology of southwestern Idaho and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Bull. 217, **1903.**‡

Description of the Nampa quadrangle, by Waldemar Lindgren and N. F. Drake, U. S. Geol. Atlas, Folio No. 103, **1904.***

Description of the Silver City quadrangle, by Waldemar Lindgren and N. F. Drake, U. S. Geol. Survey Geol. Atlas, Folio No. 104, **1904.***

Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 60, art. 3, pp. 1-33, **1921.**‡

A preliminary reconnaissance of the gas and oil possibilities of southwestern and south-central Idaho, by J. P. Buwalda: Idaho Bureau of Mines and Geology Pamphlet 5, **1923.***

Idaho building stone: Twenty-sixth Ann. Rept., Mining Industry of Idaho, **1924.***

ADAMS COUNTY

Adams is one of the southwestern counties, adjoining and lying south of Idaho County, north of Washington County, and west of Valley County. The Snake River, which flows north, forms the entire western boundary. The county contains 1366 square miles and was accredited with a population of 2,966 in the 1920 census, or 2.2 inhabitants to the square mile. The larger part of the population is located in Weiser River and Little Salmon River valleys. The headwaters of the Weiser River, which flows south, and those of the Little Salmon River, which flows north, are located in this county. It is primarily an agricultural county and is noted for its high-quality apples and livestock industry.

The North and South Panoramic Highway extends from the southern to the northern boundaries and is situated in about the geographical center. Branch roads leading to all of the outlying settlements are maintained by the county and U. S. Forest Service. These are kept in good repair and are open to travel during the larger part of the year. In 1925 the Legislatures of Oregon and Idaho each appropriated $25,000 for the construction of a joint State wagon bridge across the Snake River at Ballard's Landing, about three miles north of Homestead, Oregon. It has proved to be an important connecting link between the Oregon highway at Baker and the Idaho highway at Council, which is the county seat and largest settlement of Adams County.

The county is served by two railroads: the Pacific and Idaho Northern, which extends from Weiser to New Meadows, and the Oregon Short Line branch from Huntington to Homestead, Oregon.

Over 90 per cent of the county is mountainous. The mountains are rough and rugged and the bold relief that many of them show on the skyline presents scenic views that are unsurpassed in grandeur, the principal one of which is the Seven Devils, seven serrated peaks which reach high into the skyline, and from which the Seven Devils mining district is named.

During the eighties and early nineties this district was an active mining center. Many mines were in operation, a railroad was projected into it and partly constructed, a smelter was in operation, and three towns of fair sized populations were established. The boom died down in the panic of 1893 and since then no large operations or shipments of any consequence have taken place. The latent mineral resources are practically undeveloped and unprospected. The bold relief permits cheap development work by tunnels and drifts and, as the mineral resources are diverse and varied, the county offers many excellent opportunities to prospectors and development companies. The ores of the Seven Devils district are principally copper carrying silver and gold, with an occasional deposit of lead-zinc ore. The ores of the Indian Creek section are those of silver-copper and lead-zinc-silver. In addition to the five principal metals—copper, silver, gold, lead, zinc—deposits of mica, feldspar, and garnet, of commercial importance, occur in this county. The mica deposits of Council Mountain have received a little attention, although they have never been prospected or developed in proportion to the possibilities which they offer. When the mineral resources of Adams County are properly exploited and developed this county may be recognized as one of the principal mining counties in the State.

This county witnessed but little mining activity during the year, and no new enterprises were started. The Idaho Copper Company, whose properties were placed under receivership in November, 1927, continued in receivership until October, 1929, and no development work of any kind was performed. A few prospectors in various parts of the county performed a small amount of new work. The mica deposits in the Council Mountain district received more attention than in previous years, and the work done during the year greatly enhanced the possibility of these deposits being of commercial importance.

AMERICAN MINING CO., LTD.

Office: 630 Monroe Ave., Helena, Mont. **Officers:** Amelia H. Kleinschmidt, Pres., Helena, Mont. **Inc.:** Sept. 11, 1911. **Capital:** 50,000 shares; par value $1; none issued. **Property:** Peacock and White Monument groups; 10 patented claims, Seven Devils dist.; Cuprum. **Ore:** Copper, silver. **Remarks:** Idle.

IDAHO COPPER CO.

Office: 112 N. 6th St., Boise. **Officers:** O. H. Griggs, Pres.; Cooley Butler, Mgr., both of 745 Rowan Bldg., Los Angeles, Calif.; Carey H. Nixon, Sec., Boise. **Inc.:** Jan. 10, 1920, as Idaho Copper Co., Ltd. Name changed May 24, 1926. **Capital:** On Feb. 9, 1925, the capital was increased from 50,000 shares, par value $10, to 10,000,000 shares, par value $1; 9,664,755 shares issued. **Property:** Red Ledge group; 31 patented, 22 unpatented claims, Seven Devils dist.; R. R. and P. O., Homestead, Ore., 18 miles. **Development:** 3 tunnels on Deep Creek: No. 1, 950 ft. long; No. 2, 2400 ft. long; No. 3, 100 ft. long; tunnel No. 4 at Eagle Bar, 700 ft. long. In addition to the tunnels, approximately 10,000 ft. of diamond drilling has been done on the property. **Plant:** 600-cu. ft. I. R. compressor, driven by 120 h. p. Diesel engine; complete mining equipment and camp at No. 4 tunnel. **Ore:** Copper. **Men employed:** None. **Remarks:** On Nov. 4, 1927, all mining operations were suspended, and on Nov. 25, 1927, the company was placed in receivership. The complaint for receivership was filed by the Boise Association of Credit Men, and alleged disagreements between the Cooley Butler faction (originally Idaho Copper Co., Ltd.) and the George Graham Rice faction (originally Idaho Copper Corporation). The receivership was lifted in October, 1929, and the company given permission to mortgage the property for $125,000. Idle throughout the year.

IDAHO COPPER CORPORATION

Office: 112 N. 6th St., Boise. **Officers:** O. H. Griggs, Pres.; Cooley Butler, Mgr., both of 745 Rowan Bldg., Los Angeles, Calif.; Carey H. Nixon, Sec., Boise. **Inc.:** Incorporated in Delaware, Oct., 1924; filed in Idaho, April 4, 1925. **Capital:** 2,500,000 shares; par value $1; all shares issued. **Property:** South Peacock group; 3 patented, 5 unpatented claims; Seven Devils dist.; Cuprum. **Development:** 1 vertical shaft, 325 ft. deep; completed in 1901 by prior owners. Total development, approximately 1300 ft. **Plant:** Partly installed steam-driven hoist and compressor. **Ore:** Copper. **Men employed:** None. **Remarks:** On Nov. 4, 1927, all mining operations were suspended, and on Nov. 25, 1927, the company was placed in receivership. The complaint for receivership was filed by the Boise Association of Credit Men, and alleged disagreements between the Cooley Butler faction (originally Idaho Copper Co., Ltd.) and the George Graham Rice faction (originally Idaho Copper Corporation). On Dec. 14, 1928, George Graham Rice and the corporation were convicted of using the mails to defraud in a scheme for the promotion of this stock. Rice was sentenced to four years in the Atlanta penitentiary and to pay a fine of $5000. The receivership was lifted in October, 1929. Property idle throughout the year.

IDAHO MINES CO., LTD.

Office: Weiser. **Officers:** S. H. Travis, Pres., Chehalis, Wn.; B. S. Varian, Sec., Boise. **Inc.:** Jan. 5, 1904. **Capital:** 5,000,000 shares; par value $1; 1,503,700 shares issued. **Property:** California group: 3 patented claims, Seven Devils dist.; Cuprum; R. R. Homestead, Ore., 30 miles. **Ore:** Copper. **Remarks:** Idle for many years.

INDIAN CREEK MINING & DEVELOPMENT CO.

Office: 610 Eastman Bldg., Boise. **Officers:** William J. Tait, Pres., Santa Paula, Calif.; George D. Reid, Sec.-Treas., Fillmore, Calif. **Inc.:** Oct. 22, 1909. **Capital:** 100,000 shares; par value $1; 82,553 shares issued. **Property:** 3 patented, 2 unpatented claims, Indian Creek, Seven Devils dist.; Cuprum. **Development:** Approximately 800 ft. of underground workings. **Ore:** Copper. **Remarks:** Idle for many years.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Alaska et al.	Seven Devils	Mrs. S. J. Stephens	Cuprum
Amadore et al.	Seven Devils	Mrs. Anna Dimick	San Antonio, Texas
American Flag et al.	Mountain View	Mary Z. Finney	Cleveland, Ohio
Andy O'Toole Gr.	Seven Devils	L. A. Aplington	Homestead, Ore.
Arkansaw	Seven Devils	E. C. Westervelt	11 Broadway, New York City
Azurite Gr.	Seven Devils	John Bottcher	Tacoma, Wash.
Bald Eagle	Seven Devils	Mrs. Mabel Sprouls	Cuprum
Big Indian et al.	Seven Devils	Loren Gogochea	Ontario, Ore.
Black Garnet	Seven Devils	Ellen Kleinschmidt	Berkeley, Calif.
Black Hawk Gr.	Seven Devils	E. C. Spicer	Homestead, Ore.
Black Horse Gr.	Unorganized	Jacob Stites	Portland, Ore.
Blue Bird Gr.	Seven Devils	Mose Fuchs	Baker, Ore.
Blue Bucket	Seven Devils	Irene Imhaus	Madison Park Apts. Portland, Ore.
Bryan et al.	Seven Devils	Mose Fuchs	Baker, Ore.
Camp Ground et al.	Seven Devils	Martin Bradley	Cuprum
Chameleon Gr.	Mountain View	Thos. G. Potter	Pollock
Chieftain et al.	Seven Devils	Jas. A. Stewart	Indian Valley
Cliff et al.	Seven Devils	Mrs. P. L. Gaarden	Bear
Copper Belt Gr.	Seven Devils	G. W. McCarty	Homestead, Ore.
Copper Bottom	Seven Devils	Frank Shelton	Cuprum
Copper Queen et al.	Unorganized	Lynn Snow	Newburg, Ore.
Decorah	Seven Devils	R. E. Wilson	Cambridge
Decorah	Seven Devils	Mary Steele	1516 S. Negley Ave., Pittsburg, Pa.
Deep Creek Gr.	Seven Devils	Frank Lauzon	Cuprum
Faye L.	Seven Devils	Anna Adams	Cuprum
Glenn G.	Unorganized	J. F. Glenn et al.	Fruitvale
Gold Coin Gr.	Seven Devils	Adams County	Council
Golden Star Gr.	Mountain View	Jas. H. Hawley	Boise
Grandview Gr.	Seven Devils	Frank Shelton	Cuprum
Grant Gr.	Seven Devils	J. A. Walsh	Helena, Mont.
Greenhorn Gr.	Seven Devils	Collins Lynes	Cuprum
Green Horn Gr.	Unorganized	R. A. Weddle et al.	Council
Hollister Gr.	Seven Devils	L. A. Darland	Cuprum
Idaho Standard	Seven Devils	Owen Hill	Homestead, Ore.
Iowa & Josie	Seven Devils	E. D. Ford	Weiser
Kinney	Seven Devils	Chas. Warner	Bear
Last Chance Pl.	Seven Devils	Walter James	Cuprum
Last Chance	Seven Devils	I. R. Smith	Boise
Little Bill et al.	Seven Devils	Joseph M. Healey	Homestead, Ore.
Lockwood et al.	Seven Devils	J. C. Barton	Weiser
Lola Group	Seven Devils	A. J. Cole	Oakland, Ky.
Mammoth Gr.	Seven Devils	Chas. Anderson	Cuprum
Margaret Gr.	Seven Devils	Frank E. Smith	Weiser
Mayflower Gr.	Seven Devils	Mrs. F. Hildebrand	Council
Mica Champion Gr.	Unorganized	M. P. Gifford	Council
Mineral Hill Gr.	Seven Devils	Frank Shelton	Cuprum
Minnie H.	Seven Devils	S. M. French	Weiser
Mohawk et al.	Seven Devils	G. W. McCarty	Baker, Ore.
Monarch Mica Gr.	Unorganized	Gillman Rinehart	Council
Moonlight	Seven Devils	J. A. Reynolds	Weiser
Newton Hill Gr.	Seven Devils	Chas. R. Sowder	Homestead, Ore.
North Alaska	Seven Devils	A. O. Huntley	Myrtle Creek, Ore.
North Hornet Gr.	Unorganized	W. E. Freehafer	Council
North Peacock	Seven Devils	Mrs. O. H. Martin	Council
Paducah	Seven Devils	J. M. Dennis	Ashland, Ore.
Peacock Gr.	Seven Devils	James Glass	Cuprum
Pres. Wilson et al.	Seven Devils	L. A. Darland	Cuprum

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Rabbit's Foot et al.	Unorganized	Chas. A. Theobold	Idaho Springs, Colo
Red Mountain	Seven Devils	Collis Lynes	Cuprum
River Queen Gr.	Seven Devils	Bernard Haas	Weiser
Ruby Bell	Mountain View	Mary Z. Finney	Cleveland, Ohio
Schley et al.	Seven Devils	Geo. A. Jones	Boise
Silver 1 & 2	Seven Devils	F. Alers	Cuprum
Star Gr.	Mountain View	Thos. G. Potter	Pollock
Virginius	Seven Devils	Andrew Wilmot	Kendrick
Virginius	Seven Devils	Adams County	Council
Walker	Seven Devils	Orrill Lewis	Council
Whale	Seven Devils	Adams County	Council
Wild Horse Gr.	Seven Devils	Mrs. C. R. Braasch	Homestead, Ore.

BIBLIOGRAPHY

See pages 71-72-73 for publisher's address, meaning of reference marks, and abbreviations.

The copper deposits of the Seven Devils, Idaho, by Waldemar Lindgren: Min. and Sci. Press, vol. 78, p. 125, **1899.***

Seven Devils district, by Charles Kirchhoff: U. S. Geol. Survey Twentieth Ann. Rept., pt. 6, pp. 183-184, **1899.**‡

Copper deposits of the Seven Devils, Idaho, by Waldemar Lindgren: The gold and silver veins of Silver City, De Lamar and other mining districts in Idaho: U. S. Geol. Survey Twentieth Ann. Rept., pt. 3, pp. 88, 249-253, **1900.***

Copper deposits of Snake River, by Waldemar Lindgren: The gold belt of the Blue Mountains of Oregon: U. S. Geol. Survey Twenty-second Ann. Rept., vol. 2, pp. 562, 580, 595, 632, 747-762, **1901.***

The copper mines of the United States in 1905, by W. H. Weed: U. S. Geol. Survey Bull. 285, pp. 108-109, **1906.***

The Seven Devils and the Snake River district, by G. D. Reid: Eng. and Min. Jour., vol. 84, p. 401, Aug. 31, **1907.**§

The occurrence of ore on the limestone side of garnet zones, by J. B. Umpleby: University of California publications, Bull. Department of Geology, vol. 10, No. 3, pp. 25-37, Oct. 14, **1916.****

The I. X. L. copper prospect, by R. N. Bell: Eng. and Min. Jour., vol. 108, p. 400, Sept. 6, **1919.**§

Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, pp. 32-37, **1919.****

The copper deposits of the Seven Devils and adjacent districts, by D. C. Livingston and F. B. Laney: Idaho Bureau of Mines and Geology Bull. 1, **1920.***

Diamond drilling in the Seven Devils Mountains, by F. A. Kennedy: Eng. and Min. Journal-Press, vol. 113, pp. 521-523, April 1, **1922.**§

A geologic reconnaissance of the Mineral and Cuddy Mountain mining district, Washington and Adams counties, Idaho, by D. C. Livingston: Idaho Bureau of Mines and Geology Pamphlet 13, **1925.****

BANNOCK COUNTY

Bannock County is one of the largest and most important of the southeastern counties. It is bounded on the north by Bingham County, on the east by Caribou and Bear Lake counties, on the south by Franklin and Oneida counties, and on the west by Power County. It has an area of 1837 square miles and was accredited with a population of 27,532 in the 1920 census. Pocatello, the second largest city in the State, is the county seat and principal division point of the Oregon Short Line Railroad.

The county is served by two State highways, the Oregon Trail, and Yellowstone Park. The former is the main east and west trunk line, and the latter is the main north and south trunk line of the State system.

The principal mineral resources are phosphate rock, limestone, manganese, copper, silver, gold, and building stone. The limestone is suitable for Portland cement and, as the deposits are extensively distributed and adjacent to transportation, they will eventually add a new and important industry. The phosphate rock covers a large area and constitutes an important latent resource. Considerable prospecting has been done on the copper veins which are found in the Portneuf Mountains south of Pocatello. In 1909 a mill was constructed at one mine; but other than the necessary annual labor no work of importance has been conducted for a number of years. Reports on the manganese deposits near Cleveland and Lava Hot Springs, which were discovered during 1924, indicate that the ore is high grade and that there is a large tonnage available.

One of the most important new enterprises to be started in the State during 1928 was that of the Idaho Portland Cement Co., near Inkom, about 12 miles south of Pocatello. This company acquired a large deposit of limestone, constructed a new railroad siding, and commenced installation of a 1500-barrel Portland cement plant. Construction was completed and the manufacture of cement started during 1929. This company's product is marketed under the trade name of "Eagle Brand".

Seven manganese mines near Cleveland and Lava Hot Springs were active throughout the greater part of the year, and a substantial tonnage of high-grade manganese ore was produced and marketed.

BANNOCK MANGANESE MINING CO., LTD.

Office: Box 502, Pocatello. **Officers:** Lewis E. Munk, Pres., Georgetown; L. E. Glennon, Sec.; Wm. Sharp, Mgr., both of Pocatello. **Inc.:** Dec. 17, 1928. **Capital:** 100,000 shares; par value $1; 75,000 shares issued. **Property:** Lava View group: 6 unpatented claims, Portneuf dist.; Lava Hot Springs. Held under lease and option. **Development:** By 2 tunnels: No. 1, 200 ft. long; No. 2, 80 ft. long. **Ore:** Manganese. **Men employed:** Average, 4. **Remarks:** A small amount of development work during the early months of the year.

FORT HALL MINING & MILLING CO., LTD.

Office: Pocatello. **Officers:** H. M. Palmer, Pres.-Mgr., Pocatello. **Inc.:** Sept. 5, 1902. **Capital:** 1,000,000 shares; par value $1; 260,000 shares issued. **Property:** Fort Hall group; 10 unpatented claims, Fort Hall dist.; Portneuf. **Development:** Principal tunnel 4000 ft. long; total development approximately 8000 ft. **Plant:** MINE: Steam-driven compressor, complete mining equipment. MILL: 50-ton concentrator built 1909. **Ore:** Copper. **Remarks:** Annual labor.

IDAHO PORTLAND CEMENT CO.

Office: Carlson Bldg., Pocatello. **Officers:** E. J. Simons. Pres.; A. J. Lindsay, Sec., both of Spokane, Wash.; J. B. Maxfield, Mgr., Pocatello. **Inc.:** July 20, 1928. **Capital:** 6000 shares common, no par value; 5000 shares preferred, par value $100; 5175 shares common, 3400 shares preferred issued. **Property:** 160 acres patented land, unorganized dist.; near Inkom. **Ore:** Limestone. **Remarks:** Producers of "Eagle Brand" cement. See page 30 for complete description of this enterprise.

LAVA MANGANESE MINING CO.

Office: Lava Hot Springs. **Officers:** R. S. Turner, Pres.; H. R. Turner, Sec., both of Pocatello. **Inc.:** Aug. 10, 1926. **Capital:** 10,000 shares; par value $10; 520 shares issued. **Property:** 3 unpatented claims, Portneuf dist.; Lava Hot Springs. **Development:** 1 tunnel, 450 ft. long. **Ore:** Manganese. **Remarks:** A small amount of work by lessees during the year.

NORTON GAS & OIL CO.

Office: Pocatello. **Officers:** E. C. Norton, Pres.; Fred P. Brandt, Sec., both of Pocatello. **Inc.:** May 7, 1928. **Capital:** 250,000 shares, par value $1; 200,000 shares issued. **Property:** Oil and gas leases on 640 acres; Arimo. **Development:** A 2460-ft. well, 12 and 8-in. casing. **Plant:** Standard drilling equipment. **Mineral sought:** Oil and gas. **Remarks:** No activity reported for the year.

BIBLIOGRAPHY

See pages 71-72-73 for publisher's address, meaning of reference marks, and abbreviations.

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

The copper mines of the United States in 1905, by W. H. Weed: U. S. Geol. Survey Bull. 285, pp. 108-109, **1906.***

Notes on the Fort Hall mining district, Idaho, by F. B. Weeks and V. C. Heikes: U. S. Geol. Survey Bull. 340, pp. 175-183, **1908.***

Guidebook of the western United States, by W. T. Lee and others: U. S. Geol. Survey Bull. 612, pp. 114-147, **1915.**‡

Geography, geology, and mineral resources of the Fort Hall Indian Reservation, Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 713, **1920.**‡

The Wasatch and Salt Lake formations of southeastern Idaho, by G. R. Mansfield: Am. Jour. Sci., vol. 49, pp. 399-406, June, **1920.**§

Triassic and Jurassic formations in southeastern Idaho and neighboring regions, by G. R. Mansfield: Am. Jour. Sci., vol. 50, pp. 53-64, July, **1920.**§

Geography, geology, and mineral resources of part of southeastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Prof. Paper 152, **1927.***

A manganese deposit of Pleistocene age in Bannock County, Idaho, by D. F. Hewett: U. S. Geol. Survey Bull. 795-H, pp. 211-221, **1928.****

Portland cement materials near Pocatello, Idaho, by A. L. Anderson: Idaho Bureau of Mines and Geology Pamphlet 28, **1928.****

Geography, geology, and mineral resources of the Portneuf quadrangle, Idaho, Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 803, **1929.**‡

BEAR LAKE COUNTY

Bear Lake is the extreme southeastern county of the State. It is bounded on the east by the State of Wyoming and on the south by the State of Utah. On the north and west it adjoins Caribou, Bannock, and Franklin counties. It has an area of 980 square miles and was accredited with a population of 8783 in the 1920 census. Montpelier, situated in the center of a rich agricultural valley, is the largest town; and Paris, located near the north end of Bear Lake, is the county seat.

The State highway, Oregon Trail, and the main line of the Oregon Short Line Railroad traverse the county east and west, thus giving it good transportation facilities.

The principal mineral resources are phosphate rock, gypsum, manganese, copper, lead, and silver. There are also excellent possibilities for petroleum. Estimates made by geologists of the U. S. Geological Survey credit the State with more than five billion tons of minable phosphate rock, over 85 per cent of the total known phosphate resources of the world. The largest and most accessible areas containing this rock are in Bear Lake County. Phosphate is a necessary soil constituent and it is through the existence of the Idaho

deposits that the future of American agriculture is assured. These deposits are practically untouched, as present freight, market, and price conditions are preventing profitable production. They are the greatest potential mineral resources within the State and when properly developed the mining enterprises will dwarf many of the now famous mining districts in the United States. These deposits are fully described, with analyses and tonnage estimates included, in the numerous publications referred to in the bibliography of this county. Four mines are properly equipped with the necessary surface and mining plants, all have a large available tonnage, and production can be started without delay whenever conditions will warrant it.

One of the most outstanding publications issued by the U. S. Geological Survey in recent years is Professional Paper 152, by G. R. Mansfield: "Geography, Geology, and Mineral Resources of Part of Southeastern Idaho." This appeared during 1927; it is profusely illustrated with pictures, maps, and diagrams, and describes in detail the subjects mentioned in its title, dealing especially with the immense areas of phosphate rock found in this county.

Many structures favorable to the accumulation of gas and petroleum in commercial quantities are found in this county. As the formation is similar to those in Wyoming which are producing oil, it is reasonable to expect that the probabilities should be at least equal on the Idaho side of the State line.

The San Francisco Chemical Co. was the only phosphate mine in this county which was active during the year. A substantial tonnage of phosphate rock was produced and shipped to San Francisco, California, where the company manufactures it into a high-grade fertilizer. The Sunset Mining Co. maintained development work, in addition to producing and shipping a substantial tonnage of high-grade lead ore during the year.

BLACKSTONE MINING & POWER CO.

Office: Hood River, Ore. **Officers:** E. B. Cloud, Pres.-Mgr., Hood River, Ore. **Inc.:** Jan. 28, 1907. **Capital:** 1,000,000 shares; par value $1; shares issued unknown. **Property:** Blackstone, 1 patented claim, unorganized dist.; St. Charles. **Remarks:** Idle for many years.

COPPER RESERVE MINING & REDUCTION CO.

Office: Care of Walker Brothers Bank, Salt Lake City, Utah. **Officers:** John M. Wallace, Acting Pres.; Wm. J. Fitzpatrick, Acting Sec., both of Salt Lake City. **Inc.:** Aug. 5, 1912. **Capital:** 500,000 shares; par value 10c; 400,000 shares issued. **Property:** Humming Bird group; 4 patented claims, Bear Lake dist.; Paris. **Remarks:** Inactive since 1917.

GOLD STAR MINING CO.

Office: Paris. **Officers:** L. W. Johnson, Pres.-Mgr.; Nancy Johnson, Sec., both of Provo, Utah. **Inc.:** May 9, 1928. **Capital:** 1,000,000 shares; par value 2c; 605,000 shares issued. **Property:** 9 unpatented claims, unorganized dist.; Paris. **Development:** By 3 short entries. **Ore:** Lead-copper. **Remarks:** A small sum was expended in development work during the summer months.

IDAHO AMERICAN PHOSPHATE CO.

Office: Nampa. **Officers:** Harry D. Jackson, Pres., Nampa; Mrs. V. S. Rodman, Sec., 808 Buyers Bldg., Portland, Ore. **Inc.:** February 5, 1929. **Capital:** 100,000 shares; par value $1; shares issued, unknown. **Property:** Tonnage-basis lease on 120 acres patented land; Paris. **Development:** None. **Ore:** Phosphate rock. **Remarks:** Active stock-selling campaign throughout the year.

KEYSTONE PHOSPHATE CO.

Office: Paris, Idaho. **Officers:** F. S. Irwin, Pres.-Mgr.; Harold F. Irwin, Sec., both of Nampa. **Inc.:** May 4, 1926. **Capital:** 75,000 shares; par value $10; 50,000 shares issued. **Property:** Sublease on 360 acres, government lease owned by Joseph Stucki, and sublease on 317 acres of patented land; Paris. **Development:** By 1 tunnel 960 ft. long. **Ore:** Phosphate rock. **Remarks:** Idle. Active attempt throughout the year on part of officers to sell stock.

LEADVILLE CONSOLIDATED MINING CO.

Office: 310 Eccles Bldg., Ogden, Utah. **Officers:** Frank Moore, Pres.; G. B. Roberts, Sec., both of Ogden, Utah. **Inc.:** Filed in Idaho Dec. 3, 1927. **Capital:** 1,000,000 shares; par value 10c; 336,424 shares issued. **Property:** Paris group; 6 unpatented claims, unorganized dist.; Paris. **Development:** By an 80-ft. shaft, at the bottom of which is 75 ft. of drifting. **Ore:** Lead-silver. **Remarks:** Idle.

SAN FRANCISCO CHEMICAL CO.

Office: 112 Market St., San Francisco, Calif. **Officers:** Wm. F. Kett, Pres., San Francisco, Calif.; Jos. J. Taylor, Mgr., Montpelier. **Inc.:** July 17, 1906. **Capital:** 2000 shares; par value $100; all shares issued. **Property:** Waterloo group; 10 patented claims; 505 acres; Montpelier. **Development:** 3 tunnels; total development, approximately 4000 ft. **Plant:** Gas-driven compressor and complete mining equipment. **Ore:** Phosphate rock. **Men employed:** Average, 15. **Remarks:** Production maintained for 3 months; a substantial tonnage of phosphate rock was produced and shipped to San Francisco, Calif., where it was converted into superphosphate in a plant owned by the company.

STOCKHOLDERS' SYNDICATE

Office: 1240 So. Main St., Los Angeles, Calif. **Officers:** F. W. Braun, Pres.; Roy V. Boswell, Sec., both of Los Angeles, Calif. **Inc.:** May 27, 1913. **Capital:** 500 shares, par value $100; all shares issued. **Property:** 16 patented claims; approximately 2400 acres; unorganized dist.; Georgetown; R. R., Georgetown, 8 miles. **Development:** 9 tunnels, 2 shafts, approximately 800 ft. **Ore:** Phosphate rock. **Remarks:** Idle. This company owns the property formerly owned by the Utah Fertilizer & Chemical Mfg. Co. A stock assessment of 50c was levied on Apr. 23, 1929.

SUNSET MINING CO.

Office: St. Charles. **Officers:** Emery Welling, Pres.; Wm. Clark, Sec.-Mgr., both of St. Charles. **Inc.:** A partnership. **Property:** Sunset group; 13 unpatented claims, unorganized district; St. Charles. **Development:** Principally by an inclined shaft 270 ft. long. Total development, approximately 1000 ft. **Plant:** Small gas-driven hoist. **Ore:** Lead. **Men employed:** Average, 5. **Remarks:** Active throughout the year. A substantial tonnage of ore was produced and marketed.

UTAH-IDAHO MINING & MILLING CO.

Office: Paris, Idaho. **Officers:** L. W. Johnson, Pres., Provo, Utah; H. H. Broomhead, Sec., Bloomington. **Inc.:** Aug. 23, 1926. **Capital:** 1,000,000 shares; par value 2c; 750,000 shares issued. **Property:** Old Boulder group, 18 unpatented claims, unorganized dist.; Paris. **Development:** By 3 tunnels: No. 1, 600 ft. long; No. 2, 150 ft. long; No. 3, 200 ft. long; and a vertical shaft 160 ft. deep. **Ore:** Copper. **Plant:** Small steam-driven compressor. **Remarks:** Annual labor only.

WASATCH MINING & DEVELOPMENT CO.

Office: Preston. **Officers:** G. A. Ransom, Pres.-Mgr., Paris; Chas. Ransom, Sec., Cleveland. **Inc.:** Feb. 6, 1928. **Capital:** 500,000 shares; par value 10c; 282,000 shares issued. **Property:** Midway group; 8 unpatented claims held under lease and option; unorganized dist.; Bloomington. **Development:** By 2 tunnels: No. 1, 40 ft. long; No. 2, 95 ft. long. **Men employed:** Average, 3. **Remarks:** Small amount of work by principal stockholders during the year.

BIBLIOGRAPHY

See pages 71-72-73 for publisher's address, meaning of reference marks, and abbreviations.

Fifth and Eleventh Ann. Repts. U. S. Geol. and Geog. Surveys of the Territories, by F. V. Hayden, **1872** and **1879.***

Report on work in the Great Basin, by G. K. Gilbert: U. S. Geol. Survey Second Ann. Rept. 1880-1881, pp. 169-200, **1882.***

Lake Bonneville, by G. K. Gilbert: U. S. Geol. Survey Mon. 1, **1890.***

Phosphate deposits in western United States, by F. B. Weeks and W. F. Ferrier: U. S. Geol. Survey Bull. 315, pp. 449-462, **1907.***
Phosphate rock in Utah, Idaho, and Wyoming, by C. C. Jones: Eng. and Min. Jour., vol. 83, pp. 953-955; May 18, **1907.**§
Phosphate deposits in the western United States, by F. B. Weeks: U. S. Geol. Survey Bull. 340, pp. 441-447, **1908.***
Geology of the copper deposits near Montpelier, Bear Lake County, Idaho, by H. S. Gale: U. S. Geol. Survey Bull. 430, pp. 112-121, **1909.***
Preliminary report on the phosphate deposits in southeastern Idaho and adjacent parts of Wyoming and Utah, by H. S. Gale and R. W. Richards: U. S. Geol. Survey Bull. 430, pp. 457-531, **1909.***
Gems and precious stones, by D. B. Sterrett: U. S. Geol. Survey Mineral Resources **1909,** pt. 2, p. 804.*
Notes on lead and copper deposits in the Bear River Range, Idaho and Utah, by R. W. Richards: U. S. Geol. Survey Bull. 470, pp. 177-187, **1910.***
Preliminary report on a portion of the Idaho phosphate reserve, by R. W. Richards and G. R. Mansfield, U. S. Geol. Survey Bull. 470, pp. 371-439, **1910.***
A geological reconnaissance in southeastern Idaho, by A. R. Schultz and R. W. Richards: U. S. Geol. Survey Bull. 530, pp. 267-284, **1911.***
Discovery and opening of a new phosphate field in the United States, by C. C. Jones: Trans. Am. Inst. Min. Eng., vol. 47, pp. 192-216, August, **1913.**§
Geology of the phosphate deposits northeast of Georgetown, Idaho, by R. W. Richards and G. R. Mansfield: U. S. Geol. Survey Bull. 577, **1914.**‡
Revision of the Beckwith and Bear River formations of southeastern Idaho by G. R. Mansfield and P. V. Roundy: U. S. Geol. Survey Prof. Paper 98, pp. 75-84, **1916.***
Phosphate deposits in Idaho, by R. N. Bell: Eng. and Min. Jour., vol. 104, pp. 293-294, Aug. 18, **1917.**§
Oil shale in western Montana, southeastern Idaho and adjacent parts of Wyoming and Utah, by D. D. Condit: U. S. Geol. Survey Bull. 711, pp. 15-40, **1920.**‡
Gypsum deposits of the United States, by R. W. Stone and others: U. S. Geol. Survey Bull. 697, pp. 99-100, **1920.**‡
The Wasatch and Salt Lake formations of southeastern Idaho, by G. R. Mansfield: Am. Jour. Sci., vol. 49, pp. 399-406, June, **1920.**§
Triassic and Jurassic formations in southeastern Idaho and neighboring regions, by G. R. Mansfield: Am. Jour. Sci., vol. 50, pp. 53-64, July, **1920.**§
Types of Rocky Mountain structure in southeastern Idaho, by G. R. Mansfield: Jour. Geology, vol. 29, No. 5, pp. 444-468, July-August, **1921.**§
Notes on the geology of eastern Bear Lake County, Idaho, with reference to oil possibilities, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 7, **1923.****
Geography, geology, and mineral resources of part of southeastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Prof. Paper 152, **1927.****
The Idaho phosphate field, by G. R. Mansfield: Mining and Metallurgy, vol. 9, pp. 19-20, January, **1928.**§

BENEWAH COUNTY

Benewah is one of the northern counties. It is bounded on the west by the State of Washington, on the north by Kootenai County, and on the east and south by Shoshone and Latah counties. It has an area of 786 square miles and was accredited with a population of 6997 in the 1920 census. St. Maries, the county seat, is the largest town in the county. Except a small area along the St. Joe and St. Maries Rivers, and the section adjacent to the town of Plummer, which is devoted to agriculture, the entire county is mountainous and heavily timbered. The county is noted for its timber and lumbering industries.

The county is served by lake-boat transportation from Coeur d'Alene to St. Maries, and by two railroads: The Tekoa, Wn.-Wallace, Idaho, branch of the O. W. R. & N. (Union Pacific System), and the main line of the Chicago, Milwaukee & St. Paul Railroad, with its branch line extending from St. Maries to Elk River (Clearwater County).

The principal mineral resources are gold, copper, silver, lead, zinc, iron, and clay. The deposits containing the principal metals have received a small amount of attention; and many of the clays are exceptionally adapted to the ceramic industry. The St. Joe district, which lies east of St. Maries, and the Hoodoo and Camas Cove districts, in the southeastern corner, are the principal mining districts.

During 1929 three mining companies performed a small amount of development work, part of which consisted of diamond drilling by the Rainbow M. & M. Co., which also erected new camp buildings and constructed three miles of road. This, with a slight increase in the number of prospectors, gave the county a little more than its usual mining activity.

BUTTE MINING CO.

Office: St. Maries, Idaho. **Officers:** John Martindes, Pres.-Mgr.; George E. Mitchell, Sec., both of St. Maries. **Inc.:** March 27, 1916. **Capital:** 500,000 shares; par value 50c; 409,736 shares issued. **Property:** 6 unpatented claims, St. Joe dist.; St. Maries. **Development:** 1 tunnel, 240 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Annual labor only, the funds for which were derived from a stock assessment of 2½ mills, levied on Apr. 23, 1929.

RAINBOW MINING & MILLING CO., LTD.

Office: 303 Mohawk Bldg., Spokane, Wash. **Officers:** Geo. Austin, Pres.-Mgr.; E. W. LaMon, Sec., both of Spokane, Wash. **Inc.:** June 20, 1907. **Capital:** 2,000,000 shares; par value 25c; shares issued, unknown. **Property:** 15 unpatented claims, St. Joe dist.; Medimont. **Development:** By 2 short tunnels. **Ore:** Lead-silver. **Remarks:** In addition to a small amount of diamond drilling done during the summer months, camp buildings were erected, 3 miles of road constructed, and a small gas-driven compressor installed. Stock assessments were levied during the year as follows: 6 mills, Mar. 12; 6 mills, June 21; 6 mills, Sept. 23; 6 mills, Dec. 26.

ROUND TOP MINING CO.

Office: St. Maries. **Officers:** Fulton Cook, Pres.-Mgr.; W. F. Sargent, Sec., both of St. Maries. **Inc.:** Jan. 21, 1926. **Capital:** 1,000,000 shares; par value 10c; 229,623 shares issued. **Property:** Roundtop group; 12 unpatented claims, St. Joe dist.; St. Maries. **Development:** By 1 tunnel 175 ft. long. **Plant:** Small gas-driven compressor. **Men employed:** Average, 3. **Remarks:** Active throughout the summer months.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Alice Group	Camas Cove	S. R. Walker	St. Maries
Alice Gr.	Grass Mountain	Thos. Egan	St. Maries
Aurora	St. Joe	E. F. Montandon	St. Maries
Bonanza et al.	St. Joe	James M. Warren	St. Maries
Cabin et al.	St. Joe	Fulton Cook	St. Maries
Cedar Creek	Camas Cove	W. I. Hupp et al.	St. Maries
Connelly Bros.	Camas Cove	Connelly Bros.	Tyson
Copperhead	Camas Cove	Bert Whitehead	St. Maries
Donson-Woodard	St. Joe	L. B. Dunson	St. Maries
Flying Stone	Unorganized	William F. Schultz	Plummer
Gladiator Gr.	St. Joe	O. E. Hailey et al.	St. Maries
McLean Placer	Camas Cove	C. A. McLean	Santa
Red Boy	Camas Cove	J. E. Hemmerway	St. Maries
Seledoria	Camas Cove	Sadie Caverni	Clarkia
Tom et al.	Unorganized	William Russell	Chatcolet

BIBLIOGRAPHY

See pages 71-72-73 for publisher's address, meaning of reference marks, and abbreviations.

A geological reconnaissance in northern Idaho and northwestern Montana, by F. C. Calkins, with notes on the economic geology by D. F. MacDonald: U. S. Geol. Survey Bull. 384, **1909.***

Preliminary report on the clays of Idaho, by F. H. Skeels: Idaho Bureau of Mines and Geology Bull. 2, **1920.****

Coeur d'Alene Lake, Idaho, and the overflow lands, by R. W. Davenport: U. S. Geol. Survey Water-Supply Paper 500 A, **1921.***

Ground water for municipal supply at St. Maries, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 17, **1926.****

Some Miocene and Pleistocene drainage changes in northern Idaho, by A. L. Anderson: Idaho Bureau of Mines and Geology Pamphlet 18, **1927.****

A geological reconnoissance in the St. Maries region, Idaho, by A. L. Anderson: Idaho Bureau of Mines and Geology Pamphlet 30, **1928.****

BINGHAM COUNTY

Bingham, a southeastern county, is primarily an agricultural community. It occupies a large part of the Snake River Valley and is bounded by Butte, Blaine, Power, Bannock, Caribou, Bonneville, and Jefferson counties. It has an area of 2184 square miles and was accredited with a population of 18,310 in the census of 1920.

The extensive phosphate beds of southeastern Idaho are exposed in the Blackfoot Mountains which cover the eastern part of the county. Coal also has been found in these mountains, notably along Willow Creek, a small stream which flows in a northerly direction through the east end of the county. The coal beds have received a little attention from prospectors but no coal of commercial importance has been discovered. Structures that appear likely for the presence of petroleum are present also. The fine gold in the placer deposits along Snake River is the only metal resource of the county. In the past these deposits have received the attention of placer miners, but nothing of importance was reported during the year.

MARY LEE GOLD MINING CO.

Office: Gallipolis, Ohio. **Officers:** Harold Wolfe, Pres.; J. V. Lee, Sec.-Treas., both of Gallipolis, Ohio. **Inc.:** Jan. 29, 1919. **Capital:** 1,000,000 shares; par value $1; 500,000 shares issued. **Property:** 47½ acres unpatented land. **Ore:** Placer gold.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Eagle Bend Pl.	Snake River	Alma Clough	Pingree
Eldorado Placer	Snake River	Robert Wheeler	Sterling
Oborn & Coler Pl.	Snake River	John Oborn	Blackfoot
Parsons Placer	Snake River	W. G. Parsons	Aberdeen
Snake River Pl.	Snake River	G. E. Campbell	Blackfoot
Woodruff Bend Pl.	Snake River	James G. Walsh	Blackfoot

BIBLIOGRAPHY

See pages 71-72-73 for publisher's address, meaning of reference marks, and abbreviations.

Fifth, Sixth and Eleventh Ann. Repts. U. S. Geol. and Geog. Survey of the Territories, by F. V. Hayden, **1871, 1873 and 1879.***

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Notes on the Fort Hall mining district, Idaho, by F. B. Weeks and V. C. Heikes: U. S. Geol. Survey Bull. 340, pp. 175-183, **1908.***

A geological reconnaissance in southeastern Idaho, by A. R. Schultz and R. W. Richards: U. S. Geol. Survey Bull. 530, pp. 267-284, **1911.***

Guidebook of the western United States by W. T. Lee and others: U. S. Geol. Survey Bull. 612, pp. 114-147, **1915.**‡

Geology and ore deposits of the Mackay region, Idaho, by J. B. Umpleby: U. S. Geol. Survey Prof. Paper 97, **1917.**‡
Coal in eastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 716f, **1920.**‡
Geography, geology, and mineral resources of the Fort Hall Indian Reservation, Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 713, **1920.**‡
Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 60, art. 3, pp. 1-33, **1921.**‡
Geology and oil possibilities of Bingham, Bonneville, and Caribou counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Bull. 8, **1924.****
Geography, geology, and mineral resources of part of southeastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Prof. Paper 152, **1927.****

BLAINE COUNTY

Blaine County is bounded on the west by Camas County, on the north by Custer County, and on the east and south, in its greater extent, by Butte and Lincoln counties. Its principal area comprises the drainage basin of Big and Little Wood rivers, which flow in a southerly direction. Its total area is 2797 square miles. The 1920 census accredited the county with a population of 4473, or 1.6 persons to the square mile. In location it is one of the south-central counties and comprises part of the region known as "Central Idaho's Mineral Empire." The county is primarily recognized as a mining county, but it is also noted for its agricultural and stock raising industries; particularly sheep, as it is one of the largest sheep shipping points in the United States.

The county is served by the Wood River branch of the Oregon Short Line Railroad, which extends from Shoshone to Ketchum; by the Sawtooth Park State highway, and a well-kept system of county roads which extend into all of the various mining districts and sections. All roads are kept in good repair and are open to travel during the larger part of the year. Hailey is the largest town and county seat.

The first discovery of lead-silver ore in the State was made in Blaine County, which was then called Alturas County. The first ore was marketed in 1880 and since then this county has been a consistent producer of these metals. Most of the ores are of such high grade that they can be shipped direct to the smelter without preliminary treatment, thus assuring immediate returns from all discoveries. This fact and the possibilities of discovering and opening new ore bodies will continue to hold Blaine County, particularly the Wood River district, in popular esteem as a favorite section of the State for prospectors, development companies, and those seeking a worthy field for mining enterprises.

The high-grade ores of lead and silver are widely distributed throughout the county, as well as those of gold, zinc, and copper. In addition to the five principal metals—lead, silver, zinc, gold, and copper—deposits of arsenic, antimony, bismuth, quicksilver, graphite, barytes and limestone are found in this county. These minerals occur in sufficient extent to be of commercial importance, and many of the deposits offer an excellent opportunity to development companies or to those in search of these minerals or metals. The barytes deposits are the largest that have ever been found west of the Mississippi River. One large deposit on Deer Creek has been purchased by the Bunker Hill & Sullivan Mining & Concentrating Co.

The principal operation in this county throughout the year was that of the Hailey Triumph Mines Co. at the Triumph mine, which adjoins the North Star of the Federal Mining & Smelting Co. A large tonnage of mixed ore was produced and sent to a milling plant in Utah for reduction. The principal development work consisted of extending the inclined winze 400 feet, which was equal to a vertical depth of 200 feet below the bottom of the shaft. This work was successful in opening a substantial tonnage of ore. A large new

bunk and boarding house and a number of new homes were erected. In addition to the foregoing, a four-mile aerial tramway connecting the mine with the railroad was constructed. Articles of incorporation for a Hailey Tramway Co. were filed on August 23, 1929. As no report was filed for this company, it is presumed that the two companies are operated independently of each other. This mine was formerly operated by the Triumph Development Co., of which Geo. W. Snyder, Felt Bldg., Salt Lake City, Utah, was secretary.

The Homestake Mines Corporation, near Ketchum, was active for eight months in developing its property. The Liberty Gem Mines, Inc., which was organized in 1927 to develop the new discovery made by the Mathewses in the early part of that year, maintained active development work throughout 1929 and late in the year installed an additional gas-driven compressor. The Crooked River Mining Co., operating in the Muldoon district, actively developed its property by contract throughout the year. The United Mines Co. of Idaho, Inc., which is also operating in this district, in addition to performing a small amount of development work, installed a short one-bucket aerial tramway and a small jig concentrating mill during the year. The Pandora Mining Co., with property in the Lava Creek district near the Butte County line, which acquired and equipped its property in 1928, constructed a four-mile road in cooperation with Butte County, shipped a small tonnage of ore, and maintained work throughout 1929. Lessees produced and marketed a substantial tonnage of ore from the Independence and North Star mines owned by the Federal Mining & Smelting Co., and from the Star mine near Hailey, owned by Leo J. Falk of Boise. Peter L. Kent at the Lone Pine group on Deer Creek performed a small amount of work, and lessees at the Eureka and Idahoan groups in the Bullion district and at the Baltimore mine near Ketchum were also active. A. F. Peery, who is operating the Vienna mine in the Sawtooth district, installed complete mining equipment and a compressor driven by a Diesel engine, and conducted active work throughout the year. This work was successful in opening a good showing of high-grade silver ore.

Two of the principal new events of the year were: The acquisition by the Hercules Mining Co. of Shoshone County and its allied interests of the Badger group, adjoining the property of the Liberty Gem Mines, Inc.; and the acquisition, late in October, of the Queen of the Hills and Queen of the Hills Extension groups near Bellevue by the Silver Star-Queens Mines, Inc. The former performed all necessary procedure in surveying and acquiring clear title to the property, and the latter commenced mining operations in December.

ARGO MINING CORPORATION

Office: 3725 Kate Ave., Baltimore, Md. **Officers:** Henry Mencken, Pres.; F. H. Gettemuller, Sec., both of Baltimore, Md.; T. R. Bowlden, Mgr., Gannett. **Inc.:** Oct. 15, 1926. **Capital:** 500,000 shares; increased Nov. 13, 1929, to 1,000,000 shares; par value $1; 785,000 shares issued. **Property:** Cove group; 7 unpatented claims, Mineral Hill dist.; Gannett. **Development:** 4 tunnels, giving approximately 580 ft. vertical depth on vein; total development, 2533 ft. **Plant:** Steam-driven compressor on ground not installed; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Annual labor only.

ARGOSY MINING & MILLING CO., LTD.

Office: 1125 N. Garfield Ave., Pocatello, Idaho. **Officers:** W. E. Smith, Pres.; Priscilla K. Smith, Sec., both of Pocatello. **Inc.:** Feb. 24, 1904. **Capital:** 50,000 shares; par value $1; all shares issued. **Property:** Argosy group; 5 patented claims, Little Wood River dist.; Muldoon. **Development:** By 5 tunnels; total development approximately 800 ft. **Ore:** Lead-silver. **Remarks:** Idle for 16 years.

BALTIMORE & VICTORIA MINING CO.

Office: Care of Terre Haute Nat'l Bank & Trust Co., Terre Haute, Ind. **Officers:** William K. Hamilton, Pres., Terre Haute, Ind.; Eph Daft, Agent, Hailey. **Inc.:** July 3, 1903. **Capital:** 150,000 shares; par value 10c; all shares issued. **Property:** Ida Harland group; 5 patented, 8 unpatented claims, Warm Springs Creek dist.; Hailey. **Remarks:** Small amount of work by lessees.

BUNKER HILL & SULLIVAN MINING & CONCENTRATING CO.
(See Shoshone County)

Officers: F. W. Bradley, Pres., 1022 Crocker Bldg., San Francisco, Cal.; Stanly A. Easton, Mgr., Kellogg; James W. Gwinn, Local Mgr., Cascade. **Property:** 10 unpatented claims; Bullion, Mineral Hill dist.; Hailey. **Remarks:** Annual labor only.

CROOKED RIVER MINING CO.

Office: Box 158, Nampa. **Officers:** Melvin T. Rowland, Pres.-Mgr., Nampa; N. S. Talbott, Sec., Dayton, Ohio. **Inc.:** Oct. 5, 1927. **Capital:** 2000 shares, par value $100; 2000 shares, no par value; no shares issued. **Property:** Smuggler and Jupiter groups; 18 unpatented claims held under lease and option, Little Wood River dist.; Muldoon. **Development:** 6 tunnels, totaling over 2,000 ft. **Plant:** Gas-driven C-P compressor; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 4. **Remarks:** Active development work during five months of the year.

DAISY MINING & MILLING CO., LTD.

Office: Hailey. **Officers:** A. E. Larsen, Pres., Yakima, Wash.; L. A. Devine, Sec., Hailey. **Inc.:** July 6, 1920. **Capital:** 500,000 shares; par value $1; all shares issued. **Property:** Camas group; 18 patented claims held under lease and option; Mineral Hill dist.; Hailey. **Development:** Principally by 1 tunnel 800 ft. long. **Plant:** MINE: Electrically-driven compressor and complete mining equipment. MILL: Small concentrator, including flotation. **Ore:** Lead-silver-gold. **Remarks:** Idle.

ERVINE MINING CO.

Office: Ketchum. **Officers:** M. A. Costello, Sec., 40 Court St., Boston, Mass.; C. Fred Howe, Mgr., Ketchum. **Inc.:** March 14, 1922. **Capital:** 1,000,000 shares; par value $1; 357,550 shares issued. **Property:** Boyle Mtn. group; 7 patented, 13 unpatented claims, 350 acres, Warm Springs Creek dist.; Ketchum. **Ore:** Silver-lead. **Remarks:** Annual labor only.

EUREKA DEVELOPMENT CO., LTD.

Office: 319 Dooly Blk., Salt Lake City, Utah. **Officers:** W. A. Wilson, Pres.-Mgr., Salt Lake City, Utah. **Inc.:** June 28, 1905. **Capital:** 200,000 shares; par value 50c; 120,794 shares issued. **Property:** Eureka group; 12 patented, 10 unpatented claims, Mineral Hill dist.; Hailey, 7 miles. **Development:** Total development approximately 12,900 ft., the length of the principal workings being: Bay State, 1000 ft.; Chicagoan, 300 ft.; Whale, 1400 ft.; Eureka, 3920 ft.; Idahoan, 5000 ft. One inclined shaft 700 ft. long; 1 inclined shaft 435 ft. long. **Plant:** MINE: 8x10 Lidgerwood hoist; 40 h. p. C-P oil-driven compressor. MILL: 25-ton concentrator. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** The mine was operated by two lessees during the year.

FEDERAL MINING & SMELTING CO. (See Shoshone County)

Office: Wallace. **Officers:** F. H. Brownell, Pres.; J. L. Martin, Sec., both of 120 Broadway, New York City; Frederick Burbidge, Mgr., Wallace. **Property:** Independence, North Star, Koeninger and Malta groups; 36 patented, 13 unpatented claims, 762 acres, Warm Springs Creek dist.; Hailey, 12 miles. **Development:** Approximately 7 miles of underground workings, the principal of which is the Plummer, or main haulage tunnel, which is over 6000 ft. long and connects the North Star and Independence groups. **Plant:** MINE: 1 English Iron Works 202 single drum 25 h. p. electric hoist; 1 Lidgerwood 8x10 air hoist; 1 I-R 420 cu. ft. compressor; 1 C-P 765 cu. ft. compressor. All electrically driven. Electric haulage through Plummer tunnel. One Waugh drill sharpener and complete mine equipment; 4400 ft. Riblet aerial tram from Plummer tunnel to mill, capacity 20 tons an hour. Shops, timber sheds and bunk houses. MILL: 350-ton concentrator; jaw and gyratory crushers; rolls; Marcy ball mills; Hancock jigs; drag classifiers; Wilfley tables; Dorr thickeners; Oliver filters; electric power. **Ore:** Lead-silver. **Remarks:** Active mining operations were suspended on August 1, 1923, after which various parts of the Independence and North Star mines have been operated by lessees. A substantial tonnage was produced and marketed during the year.

FIELDS MUTUAL DEVELOPMENT CO.

Office: Hailey. **Officers:** Al. W. Field, Pres.- Mgr.; V. F. Rodgers, Sec., both of Portland, Ore. **Inc.:** Nov. 6, 1926. Formerly known as Field Mutual Mining Co. **Capital:** 500,000 shares; par value $1; 82,690 shares issued. **Property:** 14 unpatented claims, Kelly Mountain, Mineral Hill dist.; Hailey. **Development:** Approximately 3000 ft. of underground work, principally 1 tunnel 1000 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** A small amount of development work during the summer months, funds for which were derived from a stock assessment.

HAILEY BONANZA MINING CO.

Office: Hailey. **Officers:** Frank R. Karge, Pres., Chicago, Ill.; Alfred Wolff, Sec.-Mgr., Hailey. **Inc.:** Aug. 9, 1919. **Capital:** 500,000 shares; par value $1; all shares issued. **Property:** Imperial group; 1 patented, 24 unpatented claims, Greenhorn Gulch, Warm Springs Creek dist.; Hailey. **Development:** Approximately 3000 ft. of underground workings, the principal of which is 1 tunnel 1200 ft. long. **Plant:** MINE: Electrically-driven compressor and complete mining equipment. MILL: 100-ton concentrator consisting of tables and jigs. **Ore:** Lead-silver. **Men employed:** Average, 1. **Remarks:** Idle throughout the year.

HAILEY TRIUMPH MINES CO.

Office: 215 Felt Bldg., Salt Lake City, Utah. **Officers:** Geo. W. Snyder, Pres.; Guy M. Snyder, Sec.; E. H. Snyder, Mgr., all of Salt Lake City. **Inc.:** Aug. 23, 1929. **Capital:** 1,000,000 shares; par value 25c; all shares issued. **Property:** Lease on Triumph mine, owned by Ivanhoe Mining Co.; Warm Springs Creek dist.; Hailey. **Development:** Principally by a vertical shaft 300 ft. deep in which there are 3 levels, and an inclined winze in No. 3 level 500 ft. long. Total development approximately 13,000 ft. **Plant:** Electrically-driven double-drum hoist and 700 cu. ft. compressor; steel sharpener; complete mining equipment. **Ore:** Lead-zinc-silver. **Men employed:** Average, 85. **Remarks:** Production and development maintained throughout the year. The principal development work consisted of extending the inclined winze 400 ft., which was equal to a vertical depth of 200 ft. below the bottom of the shaft. This work was successful in opening a substantial tonnage of ore. A large new bunk and boarding house and a number of new homes were erected. In addition to the foregoing, a 4-mile aerial tramway connecting the mine with the railroad was constructed. Articles of incorporation for a Hailey Tramway Co. were filed on Aug. 23, 1929. As no report was filed for this company, it is presumed that the two companies are operated independently of each other. This mine was formerly operated by the Triumph Development Co., of which Geo. W. Snyder, Felt Bldg., Salt Lake City, was secretary.

HOMESTAKE MINES CORPORATION

Office: Bellevue. **Officers:** F. D. Kaufman, Sec., Ketchum. **Inc.:** July 27, 1927. **Capital:** 1000 shares; par value $100; all shares issued. **Property:** Homestake group; 13 unpatented claims, Warm Springs Creek dist.; Ketchum. **Development:** Approximately 4000 ft. of workings, the principal being: No. 3 tunnel, 550 ft. long; No. 4 tunnel, 1000 ft. long; No. 5 tunnel, 1550 ft. long; No. 6 tunnel, 1100 ft. long. **Plant:** Gas-driven C-P compressor; complete mining equipment. **Ore:** Lead-silver-zinc. **Men employed:** Average, 7. **Remarks:** Active development campaign throughout the year.

IDAHO DEMOCRAT MINE, INC.

Office: 207 Glencoe Bldg., Duluth, Minn. **Officers:** A. Hagberg, Pres.; E. O. Olund, Sec., both of Duluth. **Inc.:** Jan. 30, 1924. **Capital:** 300,000 shares; par value $1; 249,671 shares issued. **Property:** Badger group; 3 unpatented claims held under lease and option, Mineral Hill dist.; Hailey. **Remarks:** Idle.

IDAHO MASCOT MINES COALITION

Office: 407 Newhouse Bldg., Salt Lake City, Utah. **Officers:** Charles Peter, Pres.-Mgr.; August Glissmeyer, Sec., both of Salt Lake City. **Inc.:** Jan. 8, 1926. **Capital:** 2,000,000 shares; par value $1; 1,400,000 shares issued. **Property:** Mascot group; 41 patented, 28 unpatented claims, Warm Springs Creek dist.; Hailey. Held under lease and bond from F. C. Richmond Machinery Co., Salt Lake City. **Development:** Principally by 4 tunnels; total development, approximately 11,000 ft., of which the principal tunnels are: Silver Fortune, 50 ft. long; Oregonian, 300 ft. long; Lyda, 6000 ft. long; and West Side, 2250 ft. long. **Plant:** 1 15x9x10 and 1 12x8x12 C-P gas-driven compressor; 1 160 h. p. and 1 40 h. p. C-P semi Deisel engine driving electric generators; sawmill and complete mine equipment and camp. **Ore:** Lead-silver. **Remarks:** Idle.

IDAHO MINERAL PRODUCTS CO., LTD.

Office: Hailey. **Officers:** J. F. McClure, Pres., Montpelier; J. G. Hedrick, Sec., Hailey. **Inc.:** July 6, 1920. **Capital:** 100,000 shares; par value $1; shares issued, none. **Remarks:** Company owns no property.

IDAHO SILVER KING MINING CO.

Office: Huntington Beach, Calif. **Officers:** A. B. Watson, Pres., Santa Ana, Calif.; E. E. Wilson, Sec., Huntington Beach, Calif. **Inc.:** July 17, 1926. **Capital:** 500,000 shares; no par value; 257,500 shares issued. **Property:** Silver King group; 2 patented, 1 unpatented claim, Sawtooth dist.; Ketchum. **Development:** By an inclined shaft 600 ft. long, with 3 intermediate levels; total development, approximately 3000 ft. **Plant:** Steam-driven hoist. **Ore:** Silver, antimony. **Remarks:** Idle.

IVANHOE MINING CO.

Office: 485 California St., San Francisco, Calif. **Officers:** Harry L. Tevis, Pres.; William Letson, Sec., both of San Francisco, Calif. **Inc.:** July 28, 1909. **Capital:** 2500 shares; par value $1; all shares issued. **Property:** Durango group, 16 patented claims; Iris group, 5 patented claims; Mineral Hill dist.; Triumph group, 7 patented claims; Warm Springs Creek dist. **Remarks:** Operated by Hailey Triumph Mines Co., lessees.

LIBERTY GEM MINES, INC.

Office: 610 Eastman Bldg., Boise. **Officers:** Guy E. Mathews, Pres.; G. Arlon Mathews, Sec., both of Hailey. **Inc.:** Sept. 13, 1927. **Capital:** 250 shares; no par value; all shares issued. **Property:** Liberty group; 11 unpatented claims, Mineral Hill dist.; Hailey. **Development:** Numerous open cuts and 6 4x6-ft. vertical shafts, the deepest of which is 125 ft. Total development, 500 ft. **Plant:** 2 gas-driven compressors; air-driven hoist; complete mining equipment and camp. **Ore:** Lead-silver-zinc. **Men employed:** Average, 5. **Remarks:** This enterprise is based on the development of the new ore disclosures made by the Mathewses during the early part of 1927. Active development work was maintained throughout the year; this consisted principally of extending one of the vertical shafts from a depth of 75 ft. to 125 ft. During the closing months of the year, an additional small gas-driven compressor was purchased and installed.

MIDVALE MINING CO.

Office: Ketchum. **Officers:** M. A. Costello, Sec., 40 Court St., Boston, Mass.; C. Fred Howe, Mgr., Ketchum. **Inc.:** March 14, 1922. **Capital:** 1,000,000 shares; par value $1; 400,000 shares issued. **Property:** Pay group; 8 unpatented claims, Warm Springs Creek dist.; Ketchum. **Ore:** Zinc. **Remarks:** Annual labor only.

PANDORA MINING CO.

Office: Miller Bldg., Yakima, Wash. **Officers:** Charles A. Mayo, Pres.-Mgr.; R. Strobach, Sec., both of Yakima, Wash. **Inc.:** Unknown. **Capital:** 500,000 shares; par value 10c; 337,950 shares issued. **Property:** Pandora group; 15 unpatented claims held under lease and option, Lava Creek dist.; Blaine and Butte counties; Carey. **Development:** 1 tunnel 400 ft. long. **Plant:** Portable I-R gas-driven compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 4. **Remarks:** In addition to cooperating with Butte County in constructing a road to the mine, this company maintained active development work throughout the year, and produced and shipped a small tonnage of ore.

QUINCY JUNIOR MINING CO.

Office: 319 Dooly Block, Salt Lake City, Utah. **Officers:** George L. Erwin, Pres., Grand Rapids, Mich.; Robert A. Burns, Sec.; W. A. Wilson, Mgr., both of Salt Lake City. **Inc.:** Dec. 20, 1903. **Capital:** 150,000 shares; par value $1; 105,951 shares issued. **Property:** Red Elephant group; 11 patented, 3 unpatented claims, Mineral Hill dist.; Hailey. **Development:** Approximately 15,000 ft. underground workings. **Remarks:** Annual labor only.

RED ELEPHANT CONSOLIDATED MINES CO.

Office: 319 Dooly Blk., Salt Lake City, Utah. **Officers:** John Rapalji, Pres., Hopewell Junction, N. Y.; Edwin J. Webb, Sec., Beacon, N. Y. **Inc.:** June 16, 1916. **Capital:** 1,500,000 shares; par value $1; 957,167 shares issued. **Property:** Red Elephant Extension group; 1 patented, 16 unpatented claims, Mineral Hill dist.; Hailey. **Remarks:** Annual labor only on unpatented claims.

SILVER SPAR MINING CO.

Office: Idaho Falls. **Officers:** B. M. Rogers, Pres.; Dr. Dwight Lenzi, Sec., both of Idaho Falls. **Inc.:** April 14, 1916, as Falls Mining Co.; name changed April 28, 1917. **Capital:** 200,000 shares; par value $1; 100,000 shares issued. **Property:** Silver Spar group; 18 patented, 7 unpatented claims, Little Wood River dist.; Muldoon. **Development:** By 5 tunnels totaling approximately 1000 ft. in length, and an inclined shaft 200 ft. long. **Plant:** Steam-driven hoist and compressor, complete mining equipment and camp. **Ore:** Silver. **Remarks:** Annual labor only.

SILVER STAR-QUEENS MINES, INC.

Office: Wallace. **Officers:** L. K. Stratton, Pres., Spokane, Wash.; Wm. J. Stratton, Sec., Wallace. **Inc.:** Nov. 22, 1929. **Capital:** 10,000,000 shares; par value 10c; shares issued, unknown. **Property:** Queen of the Hills group; 1 patented, 4 unpatented claims, Mineral Hill dist.; Bellevue. **Development:** Principally by 3 tunnels: No. 1, 900 ft. long; No. 2, 700 ft. long; and Lusk tunnel, 2200 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** Active work in rehabilitating the old tunnels was started in December.

SUNBEAM MINING CO.

Office: 546 So. Main St., Pocatello. **Officers:** W. H. Hall, Pres.-Mgr.; Geo. H. Spongberg, Sec., both of Pocatello. **Inc.:** Sept. 28, 1926. **Capital:** 1,000,000 shares; par value 10c; 500,001 shares issued. **Property:** 2 unpatented claims, Sawtooth dist.; Ketchum. Held under lease and option from C. H. Furey, Pocatello. Option forfeited April, 1929. **Development:** Total development of approximately 300 ft. **Ore:** Silver, antimony.

TORBANEHILL MINING CO.

Office: 810 Deseret Bank Bldg., Salt Lake City, Utah. **Officers:** W. F. Armstrong, Pres.; Oscar W. Moyle, Sec., both of Salt Lake City, Utah. **Inc.:** Sept. 14, 1906. **Capital:** 500,000 shares; par value 1c; all shares issued. **Property:** 7 patented claims, Lava Creek dist.; Carey. **Remarks:** Idle for many years.

TREASURE VAULT MINING CO.

Office: Box 334, Hailey. **Officers:** R. McClure, Pres.; N. Loewen, Sec., both of Hailey. **Inc.:** July 27, 1929. **Capital:** 150,000 shares; par value $1; 80,000 shares issued. **Property:** Treasure Vault group; 8 unpatented claims, Mineral Hill dist.; Hailey.

UNITED MINES CO. OF IDAHO, INC.

Office: 275 Yamhill St., Portland, Ore. **Officers:** Geo. E. Taylor, Pres.; A. Pearson, Sec., both of Portland, Ore.; T. Ure Williams, Mgr., Muldoon. **Inc.:** Feb. 2, 1929. **Capital:** 500,000 shares; par value $1; 117,000 shares issued. **Property:** 5 unpatented claims, held under lease and option from United Mines Co.; Garfield Gulch, Little Wood River dist.; Muldoon. **Development:** Approximately 1140 ft. of underground workings, consisting principally of 3 tunnels: No. 1, 850 ft. long; No. 2, 280 ft. long; No. 3, 90 ft. long. **Plant:** 7x6 I-R compressor, driven by 34-in. Pelton water wheel, and complete equipment. **Ore:** Lead-silver. **Men employed:** Average, 6. **Remarks:** In addition to performing a small amount of development work, the company installed a short aerial tramway and a small jig concentrating mill.

UTAH-BELLEVUE MINES CO.

Office: Box 1975, Salt Lake City, Utah. **Officers:** E. W. Totten, Pres.; O. R. Totten, Sec.; A. W. Kelley, Mgr.; all of Salt Lake City. **Inc.:** Filed in Idaho Dec. 19, 1914. **Capital:** 500,000 shares; par value 10c; 203,455 shares issued. **Property:** Kelley group; 6 unpatented claims. Mineral Hill dist.; Bellevue. **Development:** Principally by 1 tunnel 600 ft. long and a vertical shaft 125 ft. deep. **Plant:** Small gas-driven compressor and air-driven hoist. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Active throughout the summer months.

WAR DANCE MINING CO., LTD.

Office: P. O. Box 397, E. Auburn, Calif. **Officers:** Abigail B. Henderson, Sec., Auburn, Calif. **Inc.:** Sept. 17, 1910. **Capital:** 500,000 shares; par value $1; no shares issued. **Property:** War Dance group; 23 unpatented claims, Mineral Hill dist.; Hailey. **Development:** Over 10,000 ft. of underground workings. **Remarks:** One of Blaine County's old producers. Annual labor only.

WAVA MINING & MILLING CO.

Office: Hailey. **Officers:** C. J. Gordon, Pres., Detroit, Mich.; J. G. Hedrick, Sec., Hailey. **Inc.:** Sept. 18, 1919. **Capital:** 15,000 shares preferred; 35,000 shares common; par value $1; 4282 preferred, 24,282 common issued. **Remarks:** Owns no property.

WOOD RIVER MINING CO.

Office: Thorsen Bldg., Blackfoot. **Officers:** F. T. Halvorson, Pres., B. J. Coumerilh, Mgr., both of Blackfoot. **Inc.:** July 30, 1923. **Capital:** 1,000,000 shares; par value 10c; 369,565 shares issued. **Property:** 9 unpatented claims, Warm Springs Creek dist.; Ketchum. **Development:** By 3 tunnels: No. 1, 170 ft. long; No. 2, 290 ft. long; No. 3, 934 ft. long. **Ore:** Silver and lead. **Men employed:** Average, 4. **Remarks:** A small amount of development work was performed during the summer months.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Ajax	Mineral Hill	Leo Barrett	Hailey
Alabama	Little Wood R.	Joe Longono	Muldoon
Alexander	Warm Spgs. Cr.	Oscar Griffith	Ketchum
Alturas & Scotia	Sawtooth	Frank Becker	Hailey
Amazon	Mineral Hill	Chas. R. Walters	Hailey
Anabelle	Mineral Hill	Sibbie Tandy	Hailey
Anna	Mineral Hill	Mrs. P. McMonigle	Hailey
Anna et al.	Warm Spgs. Cr.	Frank Langell	Hailey
Badger et al.	Mineral Hill	Leo M. Bresnahan	Hailey
Bald Eagle	Mineral Hill	Cecelia J. Thomas	Hailey
Baltimore Ext.	Warm Spgs. Cr.	H. W. Kelley	Hailey
Barbara	Mineral Hill	John Utsch	Hailey
Battling Jack Gr.	Sawtooth	John F. Garrett	Obsidian
Bavarian	Mineral Hill	H. J. Vorberg	Hailey
B B B	Mineral Hill	Beck Bros.	Bellevue
Beaver Gr.	Sawtooth	Thos. Mizer, Sr.	Hailey
Belmont Gr.	Mineral Hill	Jos. Siker	Hailey
Big Mint	Mineral Hill	H. R. Plughoff Est.	Hailey
Black Barb	Mineral Hill	E. B. Williams	Boise
Black Diamond	Warm Spgs. Cr.	Magnolia Gutches	Hailey
Black Horse	Mineral Hill	Mrs. Cecilia Roark	Bellevue
Black Jack et al.	Mineral Hill	K. G. Arkoosh	Gooding
Blue Bell	Warm Spgs. Cr.	Augustine Johnson	Hailey
Bob Tail	Mineral Hill	Rodney Brown	Hailey
Bonanza	Mineral Hill	J. L. Van Over	Bellevue
Boulder Gr.	Warm Spgs. Cr.	M. W. Wood	Boise
Boyle Mt. Gr.	Warm Spgs. Cr.	C. Fred Howe	Ketchum
Broadway	Warm Spgs. Cr.	Fred Vancil	Hailey

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Bromide et al.	Mineral Hill	Ella Breśnahan	Hailey
Bull Whacker	Mineral Hill	G. G. Brown	Hailey
California	Mineral Hill	W. J. Sowden Est.	Hailey
Carboniferous	Mineral Hill	Mrs. Frank Campbell	Bellevue
Chloride Point	Warm Spgs. Cr.	Frank H. Morris	Hailey
Climax	Mineral Hill	Raymond Guyer	Spokane, Wash.
Climax Frac.	Mineral Hill	Geo. Choate	Hailey
Comet Gr.	Mineral Hill	Davidson Groc.	Boise
Compensation Gr.	Mineral Hill	L. A. Ditmer Est.	Hailey
Con Virginia	Mineral Hill	Mark Aukema	Hailey
Cotton Wood et al.	Mineral Hill	Rodney Brown	Hailey
Croesus Gr.	Mineral Hill	Fred C. Robertson	405 Hyde Bldg., Spokane, Wash.
Crown Point	Warm Spgs. Cr.	E. A. Obenchain	Ketchum
Daisy	Warm Spgs. Cr.	Clarence Bonning	Ketchum
Daisy	Mineral Hill	W. J. Oliver	Hailey
Delsie et al.	Unknown	W. H. Uhrig	Gannett
Dewey Gr.	Mineral Hill	Fred W. Smith Est.	Hailey
Double J Gr.	Mineral Hill	J. J. Connor	Heyburn
Easter	Resurrection	Guy U. Lee	Butte, Mont.
Edris	Mineral Hill	R. B. French et al.	Hailey
Elkhorn	Warm Spgs. Cr.	Mrs. Horace Lewis	Ketchum
Ellen Stilts	Mineral Hill	W. A. Holland Est.	Hailey
Elmo	Mineral Hill	Beck Bros.	Rupert
E. Pluribus Unum	Mineral Hill	Geo. W. Hunter	Bellevue
Evelyn	Warm Spgs. Cr.	Hampton & Griffith	Ketchum
Extension	Warm Spgs. Cr.	L. P. McPheters	Ketchum
Flag Staff Gr.	Mineral Hill	E. F. Spooner	Hailey
Free Coinage	Warm Spgs. Cr.	Jas. Bonning Est.	Ketchum
Galena Gr.	Sawtooth	A. C. Martin	Minneapolis, Minn.
Garfield Gulch	Little Wood R.	Chas. Norris	Hailey
Gate City	Mineral Hill	A. M. Glahn, Agt.	Bellevue
Gem	Mineral Hill	Elmer Brown	Hailey
Gilt Edge	Mineral Hill	Sarah Campbell	Bellevue
Glendale Queen	Mineral Hill	W. D. Schraff Est.	Bellevue
Gold King	Mineral Hill	Mark J. King	Hailey
Grayhound et al.	Warm Spgs. Cr.	H. D. Jones et al.	Hailey
Hardscrabble	Mineral Hill	A. M. Singer	Gooding
Hard Times	Mineral Hill	Jos. Werry, Jr.	Bellevue
High Ore et al.	Little Wood R.	A. M. Glahn	Bellevue
Hill Side	Mineral Hill	Sam Carpenter et al.	Bellevue
Hispanolia	Sawtooth	Chas. H. Furey	Pocatello
Homestake Gr.	Warm Spgs. Cr.	J. A. Nelson	Hailey
Hyndman Gr.	Warm Spgs. Cr.	Andrew Johnson	Hailey
Imperial Gr.	Warm Spgs. Cr.	Leo Snider	Hailey
Independence Ext.	Warm Spgs. Cr.	John M. Price	Nampa
Jack Dempsey	Mineral Hill	Joseph Teuscher	Bellevue
Jennie R.	Mineral Hill	W. P. Fowler	Hailey
Jupiter	Little Wood R.	E. M. James Est.	Compton, Calif.
Keystone	Warm Spgs. Cr.	James McKelvey	Mackay
Kitty	Mineral Hill	Thos. Povey	Hailey
La Grande	Mineral Hill	Floyd W. Wilson	Hailey
Lake Creek	Warm Spgs. Cr.	Robt. Koeninger	Ketchum
Lark	Mineral Hill	Mrs. A. I. Harris	Bellevue
Last Chance	Warm Spgs. Cr.	P. M. Gray	Ketchum
Lawrence Gr.	Sawtooth	Geo. H. Spongberg et al.	Pocatello
Lead King Gr.	Mineral Hill	Joe Siker	Hailey
Leinster et al.	Mineral Hill	W. H. MacFarlane et al.	Hailey
Les Despencer	Mineral Hill	Edw. Flannery Est.	Hailey

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Lone Jack	Sawtooth	John T. Garrett	Obsidian
Lone Pine Gr.	Little Wood R.	J. H. Glahn	Bellevue
Lone Pine Gr.	Warm Spgs. Cr.	Gus Anderson et al.	Ketchum
Lone Pine Tree	Mineral Hill	Peter Lorillard Kent	Union Club, N.Y.C.
Lottie	Warm Spgs. Cr.	Victor Stolle	Olympia Hotel, Seattle, Wash.
Lucky Boy	Sawtooth	H. D. Jones	Hailey
Lucky Boy Gr.	Warm Spgs. Cr.	C. Fred Howe	Ketchum
Lucky Coin	Warm Spgs. Cr.	Robert Harrison	Bellevue
Lucky Shot Gr.	Mineral Hill	J. J. McFadden, Agt.	Hailey
Lucky Strike	Mineral Hill	W. D. McKercher	Bellevue
Mae	Warm Spgs. Cr.	L. L. Brown	Hailey
Majestic Gr.	Mineral Hill	Guy U. Lee	Butte, Mont.
Majestic et al.	Warm Spgs. Cr.	Leo P. Snider	Hailey
Mammoth	Mineral Hill	Ralph Edmiston	Gannett
Mary M.	Warm Spgs. Cr.	Gus Anderson	Ketchum
Maybe	Mineral Hill	Chas. Sonneleitner	Hailey
Maybelle	Mineral Hill	Wayne Beck	Bellevue
Minnesota	Warm Spgs. Cr.	Duquette Bros.	Idaho City
Minnie B.	Warm Spgs. Cr.	W. A. Sullivan	Hailey
Mohawk	Warm Springs	Clint Allen	Hailey
Moonlight	Mineral Hill	Sam Carpenter	Bellevue
Moonshine	Warm Spgs. Cr.	Thos. J. Mizer et al.	Hailey
Morning Glory	Warm Spgs. Cr.	Eugene Sorenson	Ketchum
Mountain Lion	Little Wood R.	C. L. Swan	Pocatello
Myrtie	Sawtooth	M. O. Duffy Est.	Hailey
Narrow Gauge	Mineral Hill	Eph Daft	Hailey
Nay Aug	Mineral Hill	J. J. Baker	Hailey
New Hope	Warm Spgs. Cr.	W. H. Warfield	Ketchum
New Year	Mineral Hill	Alex Fischer	Bellevue
New York	Mineral Hill	J. W. Redding	Bellevue
O'Neil-Clark Gr.	Mineral Hill	Geo. Westlake	Hailey
Ontario	Mineral Hill	D. F. Dowd	Idaho Falls
Oriental	Mineral Hill	S. M. Friedman Est.	Hailey
Oriole	Mineral Hill	Wm. McWade	Bellevue
Overland	Mineral Hill	R. B. French	Hailey
Owl	Mineral Hill	Arthur Cloughton	Bellevue
Parnell	Mineral Hill	P. McMonigle Est.	Hailey
Paymaster	Lava Creek	J. G. Hedrick	Ketchum
Portland Gr.	Mineral Hill	D. F. Dowd	Idaho Falls
Porto Rico Gr.	Little Wood R.	Wm. O'Connor Est.	Hailey
Prize Taker	Mineral Hill	F. E. Grenfell, Agt.	Bellevue
Queen Bee et al.	Mineral Hill	Antone Peterlin	Bellevue
Queen Bess	Mineral Hill	J. J. Baker	Hailey
Queen Extension	Mineral Hill	Neil Campbell Est.	Bellevue
Radio	Sawtooth	Frank Croner	Fairfield
Rattler	Mineral Hill	Alex McKibben	Hailey
Red Bird	Mineral Hill	W. R. Edmiston	Gannett
Red Cloud	Mineral Hill	M. J. Smith, Agt.	Hailey
Red Leaf	Mineral Hill	Jos. Siker	Hailey
Red Rocket	Little Wood R.	J. W. Pitman	Meridian
Richmond Gr.	Mineral Hill	Jos. Werry	Bellevue
Riverside Gr.	Mineral Hill	J. J. Rowley	Hailey
Roadside	Mineral Hill	J. S. Shotwell	Gooding
Rockcricker	Mineral Hill	Arthur D. Davis	Hailey
Ruth	Mineral Hill	Victor Haupt	Hailey
Saint Idloes	Mineral Hill	Chas. Sheehan	Boise
Saint Joseph et al.	Mineral Hill	Geo. W. Westlake	Hailey
Silver Bell Gr.	Warm Spgs. Cr.	Arvid Johnson et al.	Hailey
Silver Cord Gr.	Warm Spgs. Cr.	Chas. Swanson Est.	Ketchum
Silver Crown	Warm Spgs. Cr.	S. L. Schwartz	Hailey

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Silver King	Mineral Hill	A. D. Hunter	Bellevue
Silver King	Sawtooth	F. E. Riddle	Tulsa, Okla.
Silver Knob	Mineral Hill	W. A. Sullivan	Hailey
Silver Pick	Mineral Hill	T. A. Blakeley	San Bernardino, Calif.
Sitting Bull et al.	Mineral Hill	Joe Day	Hailey
Slab Sides	Warm Spgs. Cr.	H. M. Young	Hailey
Smuggler	Little Wood R.	H. L. Watkins	Muldoon
Snowbound	Mineral Hill	Matt McFall	Shoshone
Standard	Warm Spgs. Cr.	Richard Hays Est.	Hailey
Star	Mineral Hill	Leo J. Falk	Boise
Stockholder	Mineral Hill	Ira L. Kilgore	Hailey
Sunrise Gr.	Warm Spgs. Cr.	R. J. Blakeley	Hailey
Surprise	Little Wood R.	F. J. Long	Wendell
Susie S.	Mineral Hill	John Hailey Est.	Boise
Telluride	Mineral Hill	Harry Gordon	Bellevue
Tenbrook et al.	Warm Spgs. Cr.	Alonzo Price, Agt.	Ketchum
Tiger	Mineral Hill	Guy U. Lee	Butte, Mont.
Tiger Frac.	Mineral Hill	Fred Reinhard	Hailey
Tom Cat	Mineral Hill	Chas. Sonneleitner	Hailey
Triumph et al.	Warm Spgs. Cr.	M. W. Wood	Boise
Tungad	Mineral Hill	Peter L. Kent	Hailey
Vindicator Gr.	Warm Spgs. Cr.	Archie Bell	Hailey
Wheelbarrow	Warm Spgs. Cr.	A. T. Farnlund	Ketchum
White Elephant	Warm Springs	Jas. Obenchain	Ketchum
White Wing	Unorganized	C. C. Starcher	Carey
Wichita	Warm Spgs. Cr.	J. W. Gailey	Boise
Wolftone	Mineral Hill	W. T. Riley	Boise
Wonder Gr.	Mineral Hill	Robert Justus	Hailey
Wood River Pride	Mineral Hill	Alice Holland	St. Louis, Mo.
Woodrow Gr.	Mineral Hill	V. T. Clark	Bellevue
Woodrow Wilson	Warm Spgs. Cr.	M. A. Morris	Ketchum

BIBLIOGRAPHY

See pages 71-72-73 for publisher's address, meaning of reference marks, and abbreviations.

Graphitic anthracite in the Parker mine, Wood River, Idaho, by W. P. Jenny: Columbia School of Mines Quart., vol. 10, pp. 313-315, **1889.***

A geological reconnaissance across Idaho, by G. H. Eldridge: U. S. Geol. Survey Sixteenth Ann. Rept., pt. 2, pp. 217-276, **1895.***

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey, Twentieth Ann. Rept., pt. 3, pp. 65-256, **1900.***

Some Idaho mining districts, by Arthur Lakes: Mines and Minerals, vol. 22, pp. 203-206, December, **1901.***.

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

The Bellevue mining district, by Arthur Lakes: Mines and Minerals, vol. 23, pp. 271-272, January, **1903.***

Some of the veins and ore deposits of the Wood River district, by Arthur Lakes: Min. World, vol. 23, pp. 696-697, Dec. 23, **1905.***

A new and large deposit of barite in Idaho, by Arthur Lakes: Min. Reporter, vol. 54, p. 162, Aug. 16, **1906.***

The Bullwhacker mine, near Hailey, Idaho, by Arthur Lakes: Min. Reporter, vol. 53, pp. 168-169, Feb. 15, **1906.***

Faulting in the Red Cloud mine, by H. W. Turner: Min. and Sci. Press, vol. 95, pp. 747-748, Dec. 14, **1907.***

Wood River mining district of Idaho, by Arthur Lakes: Min. World, vol. 34, pp. 307-308, Feb. 4, **1911.***

Barytes and strontium: Idaho, by J. M. Hill: U. S. Geol. Survey Mineral Resources, **1915**, pt. 2, p. 172.‡
Ore deposits in the Sawtooth quadrangle, Blaine and Custer counties, Idaho, by J. B. Umpleby: U. S. Geol. Survey Bull. 580, pp. 221-249, **1915**.‡
Geology and ore deposits of the Mackay region, Idaho, by J. B. Umpleby: U. S. Geol. Survey Prof. Paper 97, **1917**.‡
Geology and ore deposits of Alturas quadrangle, by S. M. Ballard: Idaho Bureau of Mines and Geology Bull. 5, **1922**.*
Arsenical ore deposits in the United States, by R. H. Sayre: Eng. and Min. Jour.-Press, vol. 118, pp. 929-932, Dec. 13, **1924**.§
The Vienna district, Blaine County, Idaho, by C. P. Ross: Idaho Bureau of Mines and Geology Pamphlet 21, **1927**.**
A lead ore consisting of native lead, leadhillite and lethargite, by E. V. Shannon: Econ. Geology, vol. 22, pp. 826-829, December, **1927**.**
A geologic error regarding the Wood River district, by Stewart Campbell: Eng. and Min. Jour., vol. 126, pp. 287-289, Aug. 25, **1928**.§
Craters of the Moon National Monument, Idaho, by H. T. Stearns: Idaho Bureau of Mines and Geology Bull. 13, **1928**.**
Geology and ore deposits of the Lava Creek district, Idaho, by A. L. Anderson: Idaho Bureau of Mines and Geology Pamphlet 32, **1929**.**

BOISE COUNTY

Boise is one of the principal mining counties in the southwestern part of the State. It is bounded by Ada, Gem, Valley, Custer, Blaine and Elmore counties. Included within its area are a part of the drainage basin of the Payette River, practically all of the drainage basin of the South Fork of the Payette River, and all of the drainage basins of Grimes Creek and Moore Creek. The last two comprise the area generally known as the Boise Basin. The county has a total area of 1840 square miles, and was accredited with a population of 1822 in the 1920 census, or one person to the square mile. The principal industries are mining, stock raising, timber and lumbering.

Different sections of the county are served by Federal and State highways, which are supplemented by well-maintained county roads. These roads extend into all the various mining districts and are open to automobile travel during the larger part of the year. The western part of the county is traversed by the Nampa-McCall branch of the Oregon Short Line Railroad; the central part, or Boise Basin, is served by the Intermountain Railroad, which extends from Barber, near Boise, to Centerville. Idaho City, the county seat, and one of the oldest towns in the State, dates its existence from 1863, the time of the original gold rush to the Basin. It once boasted of a population as high as seven to ten thousand.

The history of Boise County dates back to the formation of the State in 1860, when placer gold was first discovered near Pierce City (Clearwater County). The overflow from this stampede resulted in the discoveries of Elk City, Florence, and Boise Basin, in quick succession; and by 1863 Boise Basin was one of the most thriving communities in the western part of the United States. In July, 1864, more than 9000 20-acre placer claims had been recorded in the three principal mining districts.

During the first few years after the discovery of gold all mining was confined to the placers which were susceptible to hand methods. After these became less profitable, numerous ditches 5 to 30 miles in length were constructed, and hydraulic mining of the higher bench gravels was started. These operations were conducted for many years, and a few have survived to the present day.

Shortly after the placer rush had subsided, attention was given to quartz mining; many discoveries soon were made, mills were constructed, and deep mining started. The principal discovery was the Gold Hill mine at Quartzburg. In 1863 the vein was exposed by placer mining, and by 1867 a mill had been built and was in operation. Except at brief periods when it was being repaired, the mill was operated continuously for 12 years. The mine has been in almost continuous operation since the day of discovery and is credited with a production of six to eight million dollars. This record gives it the distinction of being the oldest and largest producing gold mine in the State. The vein has been opened to a vertical depth of 700 feet only; at this point the ore is still persistent both in grade and extent, and there appears to be no reason why it should not continue deeper.

In addition to the Gold Hill, many other gold mines have a large production record. This production, combined with that derived from placer mining, both hydraulic and dredging, held Boise County in first place in gold production in the State until the year 1923, and it regained this position in 1928. The opening of the ore bodies on the 700-ft. level of the Gold Hill mine, the production from the Belshazzar mine, and the new ore disclosures made during 1928 were instrumental in attracting much attention to the district in 1929, as well as proving the permanence of the ore bodies.

As the early-day miner was interested only in the precious metals, gold and silver, which could be recovered by the methods then in use, he disregarded all veins containing the sulphide, or base, ores. Before these ores became valuable prospecting had practically ceased, so the result is that this county offers one of the best fields in the State to prospectors or small development companies in search of lead-zinc-silver ores. Deposits of these metals are widely distributed throughout the county; and a few have been partially developed. When properly exploited and intelligently managed, they will become an important factor in the future prosperity of Boise County and the City of Boise, and will give the State an additional lead-zinc producing district. Although Boise County has always been known as a gold producing county, there are numerous widely distributed deposits of lead, silver, zinc, copper, bismuth, and antimony; in addition to these, monazite is found in the placer deposits in sufficient quantity to be of commercial importance.

During 1929 this county witnessed a larger increase in new mine plant installation and new development work than at any period during the past ten years, all of which greatly stimulated prospecting, new locations and investigations by those seeking gold mines.

The most important construction work was the completion of rebuilding the mine surface plant and mill building and the installation of complete new mill equipment at the Gold Hill & Iowa mine of the Talache Mines, Inc.; the remodeling of its mill by the Mineral Mining Co.; the remodeling of the mill at the Mountain Chief mine, which was operated during part of the year by the Federated Mines Co.; the construction of a new 50-ton flotation concentrator by the Missouri Mining Co., Ltd.; and the erection of ore bins and the installation of crushing equipment at the Banks mine of the American Mines Development Co.

The principal mine development during the year was the sinking of the vertical winze from the 700-foot to the 800-foot level of the Gold Hill mine of the Talache Mines, Inc. Others who developed their properties throughout the year were: American Mines Development Co.; Missouri Mining Co., Ltd.; Penn Mining Co. at the Coin Bond group; Jarvis Bros. at the Hay Fork mine; and the operators of the Mayflower group near Quartzburg.

The Idaho Gold Dredging Corporation and the Boise Placer Co., both producers of placer gold, were active throughout the summer months, and each increased its production over that of the previous year. The two largest gold producers from deep mines were the Idawa Gold Mining Co. and the Talache Mines, Inc. The Crooked River Mining Co. completed the reconstruction of its dredge, which sank on being put into operation in 1927, and conducted mining operations for a period of 27 days.

AMERICAN MINES DEVELOPMENT CO.

Office: 325 Idaho Bldg., Boisé. **Officers:** L. S. Honstead, Pres.-Mgr.; C. R. Hanan, Sec., both of Boise. **Inc.:** Mar. 15, 1928. **Capital:** 1,000,000 shares; par value $1; 269,882 shares issued.

GRANDVIEW GROUP

Property: 6 unpatented claims held under lease and option, Pioneerville dist.; Grimes Pass. **Development:** By 2 tunnels: No. 1, 210 ft. long; No. 2, 450 ft. long. **Plant:** Gas-driven G-D compressor; complete mining equipment and camp. **Ore:** Gold. **Men employed:** Average, 8. **Remarks:** Compressor installed and development work maintained during the summer months.

BANKS MINE

Property: 144 acres patented farm land, unorganized dist.; Banks. **Plant:** 150-ton ore bin and 70-ton gas-driven dry-crushing equipment. **Ore:** Agricultural limestone. **Men employed:** Average, 10. **Remarks:** Property was acquired, ore bins and crushing equipment installed, and production started during the latter part of the year. The product is sold to the agricultural and poultry industries.

BIG ENTERPRISE MINING CO.

Office: Pioneerville. **Officers:** S. D. Whaley, Pres., Placerville; E. Lightfoot, Sec.-Mgr., Pioneerville. **Inc.:** June 24, 1915. **Capital:** 8000 shares; par value $100; 4000 shares issued. **Property:** Noble placer; 4 unpatented claims, Pioneerville dist.; Pioneerville.

BOISE PLACER CO.

Office: Idaho City. **Officers:** Fleming Howell, Pres., Buckhannon, W. Va.; W. Guy Tetrick, Sec., Clarksburg, W. Va.; E. F. Blain, Mgr., Boise. **Inc.:** Dec. 11, 1922. **Capital:** 750,000 shares; par value $1; 203,530 shares issued. **Property:** Plowman and Woodburn groups; 300 acres, Idaho City dist.; Idaho City. **Plant:** An oil-driven 10x7 compressor, and complete mining equipment. This equipment is used for the blasting of the big boulders in the hydraulic pits; complete hydraulic mining equipment. **Ore:** Placer gold. **Men employed:** Average, 24, for period of 60 days. **Remarks:** This company is the largest producer of placer gold in Boise County, and conducts the largest hydraulic mining operation in the State. Its mining operations can be conducted during the high-water season only.

COME-BACK MINING CO.

Office: Pioneerville. **Officers:** Jos. Gonnick, Pres.; Frank Raze, Sec.; Louis Painich, Mgr., all of Pioneerville. **Inc.:** Apr. 30, 1928. **Capital:** 1,000,000 shares; par value 25c; 601,050 shares issued. **Property:** Come-Back group; 16 unpatented claims, Pioneerville dist.; Pioneerville. **Development:** Principally by 4 tunnels: No. 3, 340 ft. long; No. 4, 570 ft. long. **Ore:** Lead-silver-gold. **Men employed:** Average, 3. **Remarks:** Active development work throughout the year.

CONSOLIDATED MINES SYNDICATE

Office: 615 Empire Bldg., Boise. **Officers:** Frank E. Johnesse, Pres.; William MacLeod, Sec., both of Boise. **Inc.:** May 6, 1924. **Capital:** 10,000 shares; no par value. On August 15, 1924, the capitalization was changed to 10,000,000 shares, $2.50 par value; and on May 2, 1925, the capitalization was decreased to 10,000,000 shares, par value $1; 2,662,083 shares issued. **Property:** Washington and Subrosa groups; 4 patented, 14 unpatented claims, Gambrinus dist.; Idaho City. **Development:** Total development, approximately 12,000 ft., the principal part of which is the main crosscut tunnel 3700 ft. long, which intersects the bottom of a vertical shaft 414 ft. deep, near the bottom of which is a winze 150 ft. deep. **Plant:** MINE: Diesel oil engine driving a 480-cu.-ft. compressor, and complete mining equipment. Saw mill, modern boarding and bunk houses, change house, and complete camp. **Ore:** Silver-gold. **Remarks:** Idle since 1926.

CONTINENTAL MINING CO. AND INC.

Office: 1310 Main St., Boise. **Officers:** Fred A. Williams, Pres.; Louis M. Longeteig, Sec.; Bert Stevens, Mgr., all of Boise. **Inc.:** Oct. 15, 1929. **Capital:** 500,000 shares; par value $1; 280,000 shares issued. **Property:** Long Chance group; 12 unpatented claims, unorganized dist.; Shaefer Creek; Horseshoe Bend. **Development:** By 1 tunnel 450 ft. long. **Ore:** Gold.

CROOKED RIVER MINING CO.

Office: Dayton, Ohio. **Officers:** Melvin T. Rowland, Pres.-Mgr., Nampa; N. S. Talbott, Sec., Dayton, Ohio. **Inc.:** Oct. 5, 1927. **Capital:** 2000 shares common, no par value; 2000 shares preferred, par value $100; no shares issued. **Property:** Kempner Ranch placer; 1 patented, 60 unpatented claims, 1960 acres, Banner dist.; Idaho City. **Plant:** Flume-type dredge, 3-cu. ft. buckets; this dredge is driven by two 60-h. p. Diesel engines. **Ore:** Placer gold. **Men employed:** Average, 20. **Remarks:** During 1927 this company constructed its dredge at a cost of $92,000; when completed, it proved to be so improperly designed and faultily constructed that its operation was impossible and it sank. During 1928 approximately $60,000 was expended in wholly reconstructing it. This work was completed during 1929, and the dredge operated for a period of 27 days.

CURRY DITCH GOLD PLACER MINES ASSOCIATION

Office: Pioneerville. **Officers:** P. E. Hall, Jr., Pres.-Mgr., 2184 Fiftieth Ave., Oakland, Calif. **Inc.:** An association. **Capital:** 500,000 shares; par value unfixed; 48,693 shares issued. **Property:** 3 patented, 2 unpatented placer claims, Pioneerville dist.; Pioneerville. **Remarks:** Idle.

DIAMOND L MINING CO., LTD., OF IDAHO

Office: Pioneerville. **Officers:** Lottie Morehead, Pres.-Sec.-Mgr., Idanha Hotel, Boise. **Inc.:** July 1, 1918. **Capital:** 500,000 shares; par value 1 mill; 282,220 shares issued. **Property:** Buckskin group; 13 unpatented claims, Pioneerville dist.; Pioneerville. **Development:** Approximately 2700 ft. of underground workings, the most important of which are 2 tunnels, 1 900 ft. long, and the other 500 ft. long. **Ore:** Lead-silver-gold. **Men employed:** Average, 2. **Remarks:** Development work was maintained throughout the year.

EDNA MINES CO.

Office: Idaho City. **Officers:** D. J. Atkins, Pres., 124 Front St., New York City. **Inc.:** Aug. 9, 1926. **Capital:** 200 shares; par value $100; all shares issued. **Property:** Edna group; 1 patented, 8 unpatented claims, Banner dist.; Idaho City. **Development:** Principally by 1 tunnel 1100 ft. long, and a vertical shaft 350 ft. deep with 3 intermediate levels. **Ore:** Silver-gold. **Men employed:** Average, 3. **Remarks:** Small amount of work throughout the year.

FEDERATED MINES CO.

Office: 220 Idaho Bldg., Boise. **Officers:** Wm. W. Dey, Pres., New York City; Edward L. Morgan, Sec.; Frank T. Day, Mgr., both of Boise. **Inc.:** June 26, 1928. **Capital:** 5,000,000 shares; par value $1; 3,000,000 shares issued. **Property:** Mountain Chief group, 12 unpatented claims; Canyon Creek group, 9 unpatented claims; Hanley group, 6 unpatented claims; all held under lease and option; Quartzburg dist.; Placerville. **Development:** By 5 tunnels, the principal one of which is over 2000 ft. long. **Plant:** 2000-ft. aerial tramway connecting mill building and No. 4 tunnel. **Ore:** Gold. **Men employed:** Average, 40. **Remarks:** This company acquired its property in August, 1928, and immediately commenced the rehabilitation of the mine and reconstruction of the old mill, including installation of new equipment. During 1929 the mill was completed; the two principal mine tunnels were rehabilitated; and a few tons of ore extracted and milled. In the late summer financial and legal difficulties were encountered and operations suspended.

FRANKLIN PLACER CO.

Office: Placerville. **Officers:** W. W. Miller, Pres.; Paul C. Moore, Sec., both of Franklin, Pa.; E. F. Blain, Mgr., Boise. **Inc.:** July 21, 1928. **Capital:** 300,000 shares; par value $1; 115,000 shares issued. **Property:** Leary and Brogan group, Placerville dist.; Placerville. **Ore:** Placer gold. **Remarks:** During the summer months the Leary and Brogan ditch was cleaned out and enlarged and many of the old flumes were replaced, preparatory to conducting operations.

GOLDEN SEAL MINING & MILLING CO.
Office: 427 Idaho Bldg., Boise. **Officers:** C. V. Dowlin, Pres.; Wm. B. Davidson, Sec., both of Boise. **Inc.:** Oct. 28, 1924. **Capital:** 1,000,000 shares; par value 25c; 936,260 shares issued. **Property:** 19 unpatented claims, unorganized dist.; Dry Creek; Boise. **Development:** By 3 tunnels: No. 1, 140 ft. long; No. 2, 100 ft. long; No. 3, 600 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

GOLD EAGLE MINING CO.
Office: Idaho City. **Officers:** W. C. Jenks, Pres.; W. P. Guthrie, Sec., both of Seattle, Wash.; W. D. Southworth, Mgr., Idaho City. **Inc.:** Jan. 9, 1929. **Capital:** 299,000 shares; par value $1; 243,100 shares issued. **Property:** Boulder group; 2 patented, 10 unpatented claims held under lease and option, Boulder dist.; Idaho City. **Development:** By 3 tunnels: No. 1, 700 ft.; No. 2, 1400 ft.; No. 3, 1000 ft. **Plant:** Old 20-stamp mill. **Ore:** Gold. **Men employed:** Average, 5. **Remarks:** Small amount of work during the year.

GOLD HILL & IOWA MINES CO.
Office: 605 Eastman Bldg., Boise. **Officers:** Jess Hawley, Pres., Boise; Wendell H. Marden, Sec., Boston, Mass.; James H. Hawley, Jr., Mgr., Boise. **Inc.:** June 10, 1908. **Capital:** 200,000 shares; par value $10; 194,622 shares issued. **Property:** Gold Hill & Iowa groups; 19 patented, 26 unpatented claims, Quartzburg dist.; Quartzburg. **Remarks:** Under option to Talache Mines, Inc., which see.

HALLEY PLACER CO.
Office: Placerville. **Officers:** E. F. Blain, Mgr., 1601 N. 12th St., Boise. **Inc.:** An association. **Property:** Halley Placers; 7 unpatented placer claims, Placerville dist.; Placerville. **Remarks:** Annual labor only.

IDAHO DEVELOPMENT CO.
Office: 605 Eastman Bldg., Boise. **Officers:** Wendell H. Marden, Pres., Boston; James H. Hawley, Jr., Mgr., Boise. **Inc.:** Dec. 16, 1920. **Capital:** 1000 shares; par value $10; all shares issued. **Property:** 4 unpatented claims, Placerville dist.; Placerville.

IDAHO GOLD DREDGING CORPORATION
Office: 615 First Nat'l Bank Bldg., Boise. **Officers:** S. K. Atkinson, Pres.-Mgr.; W. A. Buis, Sec., both of Boise. **Inc.:** Apr. 9, 1928. **Capital:** 4,000,000 shares; par value 25c; 1,000,000 shares issued. **Property:** 150 patented, 8 unpatented claims, Placerville dist.; Centerville. **Plant:** Electrically driven Risdon dredge, 2½-cu.-ft. buckets close connected, wood hull. **Ore:** Placer gold. **Men employed:** Average, 12. **Remarks:** A reorganization of the Gold Dredging & Power Corporation. Active operations throughout the summer months, consisting principally of the dredge digging its way through a narrow channel of Grimes Creek in order to reach a large dredgeable area on the upper end.

IDAWA GOLD MINING CO.
Office: 521 Idaho Bldg., Boise. **Officers:** W. N. Harris, Pres., Turtle Lake, N. D.; E. A. Nordquist, Sec., Boise; S. M. Ballard, Mgr., Quartzburg. **Inc.:** Jan. 3, 1919. **Capital:** 2,000,000 shares; par value 25c; 797,000 shares issued. **Property:** Belshazzar group, 22 unpatented claims, Quartzburg dist.; Quartzburg. **Development:** By 5 tunnels, the principal of which are No. 4, 1200 ft. long, and No. 5, 3000 ft. long. Total development, approximately 7000 ft. **Plant:** MINE: Electrically-driven compressor; complete mining equipment and camp. MILL: 25-ton amalgamation and table-concentration. **Ore:** Gold. **Men employed:** Average, 30. **Remarks:** Active production throughout the year. This is one of the principal gold-producing mines in the State, all operations being conducted through No. 4 tunnel, which is connected with the mill by an aerial tramway.

IDEAL MINING CO.
Office: 212 Boise City Nat'l Bank Bldg., Boise. **Officers:** W. E. Sullivan, Sec.; H. P. Taylor, Mgr., both of Boise. **Inc.:** Sept. 17, 1927. **Capital:** 200,000 shares; par value $1; 150,000 shares issued. **Property:** Osborne group; 5 unpatented claims, Westview dist.; Horseshoe Bend. **Development:** Principally by 1 inclined shaft. **Plant:** Electrically- driven I-R compressor; complete mining equipment. **Ore:** Gold-silver-lead. **Remarks:** Idle.

INDEPENDENT MINES SYNDICATE
Office: Owyhee Hotel, Boise. **Officers:** Geo. H. Cochran, Pres., New York; Stanley G. Smith, Mgr., Owyhee Hotel, Boise. **Inc.:** Common Law Trust. **Capital:** 1000 shares; par value $100; 780 shares issued. **Property:** Independent group; 14 unpatented claims, Pioneerville dist.; Pioneerville. **Development:** By 3 tunnels and 2 short shafts: No. 1, 200 ft. long; No. 2, 300 ft. long; No. 3, 720 ft. long. **Ore:** Gold, lead-silver-zinc. **Men employed:** Average, 1. **Remarks:** Annual labor only.

IRON DYKE MINES CO.
Office: 402 Empire Bldg., Boise. **Officers:** S. T. Schreiber, Pres.-Mgr., Boise. **Inc.:** Apr. 16, 1923. **Capital,** 150,000 shares; par value $1; 210 shares issued. **Property:** Iron Dyke group; 2 patented, 19 unpatented claims, unorganized dist.; Holcomb. **Development:** By 2 tunnels: No. 1, 25 ft. long; No. 2, 20 ft. long. **Ore:** Gold, silver-lead.

McKINLEY MINE
Owners: Thos. Hardin and Wm. Matevia, both of Boise. **Inc.:** Not incorporated. **Property:** McKinley group; 6 unpatented claims, Idaho City dist.; Idaho City. **Development:** 1 tunnel 2000 ft. long. **Plant:** Small gas-driven compressor.

MINERAL MINING CO.
Office: Placerville. **Officers:** A. C. Gallupe, Pres.-Mgr., Placerville; C. C. Fairchild, Sec., Idaho City. **Inc.:** Feb. 6, 1920. **Capital:** 2,500,000 shares; par value 6c; 2,439,452 shares issued. **Property:** Enterprise and Smuggler groups; 12 patented, 22 unpatented claims; Enterprise group held under lease and bond from Exta Lightfoot, Pioneerville; Pioneerville dist.; Pioneerville. **Development:** Approximately 8000 ft. of underground workings. **Plant:** MINE: 25-h. p. steam-driven hoist on Smuggler group; complete mining equipment and camp. MILL: 100-ton concentrator, partly dismantled. POWER: Small hydroelectric power plant. **Ore:** Lead-silver-zinc. **Men employed:** Average, 29. **Remarks:** During a period of 6 months, the mill was further reconstructed and a small amount of mine development work performed.

MISSOURI MINING CO., LTD.
Office: 2035 Osgood St. N. S., Pittsburgh, Pa. **Officers:** L. H. Reniers, Pres.; H. H. Rogge, Sec., both of Pittsburgh, Pa.; Harry A. Foreman, Mgr., Pioneerville. **Inc.:** Feb. 4, 1914. **Capital:** 50,000 shares; par value $1; on June 1, 1925, capitalization was increased to 1,000,000 shares, par value $1; 178,000 shares issued. **Property:** 10 unpatented claims, Pioneerville dist.; Pioneerville. **Development:** Approximately 600 ft. of underground workings, the principal of which is an inclined shaft 210 ft. long. **Plant:** MINE: 210-cu. ft. C. P. gas-driven compressor. MILL: 50-ton flotation concentrator. **Ore:** Lead-silver-zinc. **Men employed:** Average, 12. **Remarks:** Mining equipment installed; mill building erected and equipment fully installed; new camp buildings constructed; and shaft extended 100 ft. during the year.

NATIONAL MINING & DEVELOPMENT CO.
Office: Placerville. **Officers:** A. C. Gallupe, Pres.; E. A. Gallupe, Sec., both of Placerville. **Inc.:** Sept. 23, 1911. **Capital:** 1,000,000 shares; par value $1; 236,540 shares issued. **Property:** Mountain Chief group; 11 unpatented claims, Quartzburg dist.; Placerville. **Ore:** Gold. **Remarks:** Property under option to Federated Mines Co.

PAYETTE COAL MINING CO.
Office: P. O. Box 104, Payette. **Officers:** F. A. Wilbur, Pres.; J. C. Anderson, Sec., both of Payette. **Inc.:** Oct. 6, 1928. **Capital:** 500 shares; no par value; all shares issued. **Property:** 320 acres of patented land; Horse Shoe Bend. **Mineral sought:** Coal.

PENN MINING CO.

Office: Placerville. **Officers:** W. W. Miller, Pres.; Paul C. Moore, Sec., both of Franklin, Pa.; E. F. Blain, Mgr., Boise. **Inc.:** Jan. 8, 1929. **Capital:** 200,000 shares preferred, 750,000 shares common; par value $1; 72,500 shares preferred, all shares common issued. **Property:** Coin Bond group; 34 unpatented claims, Placerville dist.; Placerville. **Development:** Principally by 2 tunnels, one of which is 1555 ft. long, the other 1176 ft. long. **Ore:** Gold, lead-silver. **Men employed:** Average, 2. **Remarks:** Active throughout the year in rehabilitating the tunnels.

TALACHE MINES, INC.

Office: Quartzburg. **Officers:** A. H. Burroughs, Jr., Pres.-Mgr.; B. K. Burroughs, Sec., both of Quartzburg. **Inc.:** Apr. 21, 1917, as Armstead Mines, Inc.; name changed June 8, 1922. **Capital:** 1,000,000 shares common, 600,000 shares preferred; par value $1; 983,000 shares common, 579,233 shares preferred issued. **Property:** Lease and option on property owned by Gold Hill & Iowa Mines Co., which see. **Development:** Principally by a 700-ft., 3-compartment, vertical shaft and a 100-ft. vertical winze on the 700-ft. level. Total development, over 40,000 ft. in Gold Hill mine. **Plant:** MINE: 250-h. p. double-drum hoist and 600-cu. ft. I. R. compressor, both electrically driven. MILL: 150-ton, including crusher, rolls, Hardinge ball mill, amalgamating plates, concentrating tables, and regrinding. **Ore:** Gold. **Men employed:** Average, 57. **Remarks:** In March, 1927, property was acquired and operations started, the principal part of which was the unwatering of underground workings. This was completed early in 1928, after which a 100-ft. vertical winze was sunk from the 600-ft. level on the ore body. This winze and the drifts at the bottom of it proved the extension of the ore to this level, at which point it was more extensive and of higher grade than on the 600-ft. level. During 1929 the main shaft was connected with the 600-ft. level by raising from the 700-ft. level, and the 800-ft. level was opened by extending the vertical winze from the 700-ft. level. The mill building was enlarged, the mill entirely rehabilitated with practically all new equipment, the mine buildings were completely reconstructed, and a new hoist installed. This work was completed early in the year, after which production was maintained without interruption. Early in August the entire town of Quartzburg, including the boarding and bunk house, all of which was owned by the company, was destroyed by fire. The fire and subsequent rebuilding of living quarters greatly handicapped mining operations. This property was first located in 1865, since which time it has been in practically continuous operation, with a production record of approximately $8,000,000, half of which was produced during the last 15 years prior to 1926, at which time the mine was closed down and permitted to fill with water. Its reopening, rehabilitation, and new ore disclosures indicate a future productive period, the length of which can not yet be determined.

WASHOE MINING CO.

Office: 605 Eastman Bldg., Boise. **Officers:** Jess Hawley, Pres.; C. W. Mack, Sec,. both of Boise; Vivian Thorn, Mgr., Banner. **Inc.:** Dec. 16, 1911. **Capital:** 100,000 shares; par value $1; all shares issued. **Property:** Banner group; 7 patented, 15 unpatented claims, Banner dist.; Idaho City. **Development:** 2 tunnels, the principal one of which is 4000 ft. long. **Plant:** 30-ton mill, tables and flotation. **Ore:** Silver. **Remarks:** Idle.

WIONE MINING CO.

Office: 421 Idaho Bldg., Boise. **Officers:** C. B. Wilde, Pres., Portland, Ore.; Ira E. Barber, Sec., Boise.; E. C. Ashbaugh, Mgr., Pioneerville. **Inc.:** Apr. 21, 1928. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** 6 unpatented placer claims, Pioneerville dist.; Pioneerville. Held under lease and option from C. R. Poncia. **Ore:** Placer gold. **Men employed:** Average, 7. **Remarks:** During the year some hydraulic equipment was installed and a small amount of mining operations conducted.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Adonis	Unknown	Herman Schultz	Boise
Alameda	Unknown	Wm. S. Bella	Boise
Alpine Gr.	Alpine	J. T. C. Harrington	Nampa
American Girl Gr.	Gambrinus	Louise D. Stewart	Boise
Annie Lee	West View	Chas. Smith	Horseshoe Bend
Argonne	Granite Creek	Fred C. Brown	Boise
Argonne Forest	Gambrinus	H. Mauernhamer	Boise
Ashcroft Pl.	Placerville	H. Ashcroft	Placerville
Banner	Banner	V. A. Thorn	Idaho City
Atlast	Unknown	J. F. Thompson	Horseshoe Bend
Beaver Cr. Pl.	Banner	J. D. Demming	Idaho City
Belmont Gr.	Quartzburg	Murty Driscol & F. Daly	Quartzburg
Big Ben	Centerville	Frank H. Cooper	Boise
Blackbird	Pioneerville	Exta Lightfoot	Pioneerville
Blackbird et al.	Cold Springs	Anderson & Newbrand	Idaho City
Black Crook Gr.	West View	Bincord Realty Co.	Denver, Colo.
Black Hawk	Centerville	Homer Granger	Centerville
Black Jack	Summit Flat	Jerry Dowling	Idaho City
Bluebird et al.	Banner	G. R. Moland	Boise
Blue Jet Pl.	Centerville	Archie R. Koppes	Centerville
Blue Grouse	Unknown	Thos. C. Mayne	Idaho City
Blue Ribbon Gr.	Dry Buck	Lee Davis	Horseshoe Bend
Blue Rock	Quartzburg	Allen B. Eaton	Boise
Blue Stone	Idaho City	Henry Holsmeier	Idaho City
Boston Girl	Placerville	Wm. W. Thorn	Centerville
Boulder Gr.	Elk Horn	Patrick Moriarty	Idaho City
Boundary	Dry Buck	Lee Davis	Horseshoe Bend
Buffalo Gr.	Elk Creek	Frank Cooper	Boise
Bull Durham Pl.	Boise River	I. I. Youngblood	Boise
Bummer Hill	Quartzburg	H. C. Granger	Centerville
Calumet	West View	G. Faull	Horseshoe Bend
Cash Register	Placerville	Frank H. Cooper	Centerville
Catherine	Placerville	Pat H. Quirk	Boise
Chance Gr.	Pioneerville	W. H. Van Meter	Elks' Club, Boise
Claude Marsh	Summit Flat	Edward Brisbin	616 S. 17th St., Boise
Clay Gulch	Placerville	J. T. Blair	Centerville
Clear Cr. Pl.	Pioneerville	J. A. Adams	Pioneerville
Cleopatra et al.	Pioneerville	Skidmore & McDonald	Pioneerville
Climax	Banner	Chris Smith	Idaho City
Cold Springs	Idaho City	O. F. Sibley	Boise
Coon Dog	Pioneerville	C. C. Fairchild	Idaho City
Deer Horn Pl.	Gambrinus	Joe Elliott	Idaho City
Dew Drop	Centerville	Warren J. Cooper	Centerville
Dog Tooth	Quartzburg	Allen B. Eaton	Boise
Edna	Banner	F. A. Willson	Idaho City
Eldorado Gr. Pl.	Banner	Harold Rowland	Nampa
Elkhorn	Gambrinus	Lippincott & Warner	Idaho City
Elkmeat	Idaho City	Chas. E. Clark	Soldiers' Home Boise
Etta B. Gr.	Placerville	Robt. S. Bunch	Centerville
Eureka Gr.	Gambrinus	Mrs. P. J. Hall	Boise
Fall Creek	Placerville	Albert Elster	Placerville
Florence	Quartzburg	C. C. Fairchild et al.	Idaho City
Franklin	Idaho City	H. A. Schlosser	Idaho City
Gambrinus	Gambrinus	V. A. Thorn	Idaho City
Gem of the Mts.	Placerville	C. C. Fairchild	Idaho City
Golconda	Idaho City	B. F. Kloppenburg	Idaho City
Gold Coin	Gambrinus	M. L. Phelps	Idaho City

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Gold Dollar	Summit Flat	James H. Hawley	Boise
Gold Lodge Pl.	Idaho City	Henry Holsmeier	Idaho City
Golden Seal	Unorganized	Jas. Curtin	905 Idaho St., Boise
Goodenough Pl.	Idaho City	Jas. King	Idaho City
Gornick Pl.	Pioneerville	Joe Gornick	Pioneerville
Grant Gr.	Idaho City	John Jamieson	Idaho City
Great Western	Gambrinus	J. W. Duquette	Idaho City
Grooms Pl.	Payette River	James L. Tyson	Banks
Hamilton Pl.	Pioneerville	Ezra E. Howard	Pioneerville
Hard Times	Unorganized	C. M. Hunt	Twin Springs
Hay Fork	Moore Creek	H. R. Jarvis	Idaho City
Hidden Treasure	Pioneerville	J. D. Branson	Pioneerville
Highland Valley	Barber	P. J. Smith	Barber
Hilltop	Quartzburg	Louis Klein	Grand Hotel, Boise
Hilltop	West View	L. C. Hall	Horseshoe Bend
Homestake	Summit Flat	Joe Labbee	Idaho City
Honey Bee	Shaw Mountain	Elmer Gettys	Boise
Hooch Can Gr.	Pioneerville	J. O. McDonald	Pioneerville
Hoodoo Pl.	Pioneerville	C. R. Poncia	Pioneerville
Idaho Pl.	Idaho City	James Farrell	Idaho City
Illinois	Idaho City	Abraham Duquette	Idaho City
I. X. L. Pl.	Pioneerville	P. J. Shaughnessy	Pioneerville
J. S. Gr.	Pioneerville	A. E. Anderson	Garden Valley
K. C. Fraction	Pioneerville	Damien Ader	Pioneerville
Kentuck	Placerville	John Golden	Centerville
King Lead Gr.	Pioneerville	A. E. Yoder	Pioneerville
Kirkham	Banner	Ira R. Cromwell	Idaho City
K. M. Gr.	Cold Springs	M. Marchmonte	Idaho City
Last Chance et al.	Quartzburg	Frank Daly	Quartzburg
Leary & Brogan	Placerville	Michael Leary	Placerville
Long Chance	Shaffer Creek	R. C. Hall	Horseshoe Bend
Lucky Boy Gr.	Gambrinus	Lucky Boy Mining Assoc.	Idaho City
McKinley	Idaho City	Thos. Hardin	Boise
Mamie Pl.	Summit Flat	S. Frank Smith et al.	Idaho City
Mammoth	Pioneerville	Nelson Bottcher	Idaho City
Mary Lou	Elk Horn	Garrecht & Campbell	Idaho City
Mascot et al.	Gambrinus	Mrs. Cora Banwell	Idaho City
May Flour	Gambrinus	John McCarthy	Idaho City
Mayflower	Quartzburg	Stephen Mackin	Placerville
Nally Placers	Pioneerville	Stephen Nally	Pioneerville
New Era Gr.	Pioneerville	Jos. Gornick	Pioneerville
New York	Gambrinus	D. R. Morgan	Idaho City
Nighthawk	Pioneerville	John Miller	Pioneerville
Olympia	Summit Flat	Mary Berry	701 E. Jefferson St., Boise
Ophir & Ophir 2	Pioneerville	Peter Reichert	Pioneerville
Orofino	Elkhorn	Janette Jordan	San Francisco, Cal.
Oxbow Gr. Pl.	Grimes Pass	Mary L. Bunch et al.	Boise
Paul's Gulch et al.	Pioneerville	Andrew Hansen	Pioneerville
Pioneer	Quartzburg	P. J. Evans	Quartzburg
Poor Man	Willow Creek	J. J. Shanahan	Idaho City
Pot Latch	Pioneerville	Sherman O. Barker	Grimes Pass
Printer	Idaho City	Amelia Garrecht	Idaho City
Queen of the Mts.	Rock Creek	James E. Fox	Boise
Riley & Farren	Placerville	J. J. Brogan	Placerville
Riverside	South View	Robt. W. Clarke	Horseshoe Bend
Rough & Ready	Unorganized	P. S. Smith	Barber
St. Clair Gr.	Pioneerville	Damien Ader	Placerville
Saunders	Placerville	W. F. Hiatt	Placerville
Seventeen Pl.	Placerville	Lee Bunch	Boise

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Seventy-four	Pioneerville	C. R. Poncia	Pioneerville
Shamrock	Summit Flat	Mrs. E. W. Barry	Boise
Silver Bell	Placerville	W. F. Hiatt	Placerville
Sniveley Pl.	Centerville	H. C. Granger	Centerville
Sourdough	Summit Flat	J. D. Smith	Idaho City
Standby Pl.	Placerville	August Michelson	Beaverton, Ore.
Stanton Gulch	Placerville	John Stanton	Placerville
Sunny Day Gr.	Alpine	E. R. Swindler	Banks
Sunrise Pl.	Placerville	Nellie T. Wood et al.	Boise
Swede Gulch et al.	Pioneerville	Carlo Poncia	Centerville
Terry Gr.	Willow Creek	J. T. Blair	Centerville
Trader	Idaho City	J. H. Eggars	Idaho City
Tuxedo Pl.	Boise River	C. J. Schooler et al.	Boise
Venture	Unorganized	John Benzer	Hailey
Windfall	Pioneerville	Robt. D. Aikens	Boise

BIBLIOGRAPHY

See pages 71-72-73 for publisher's address, meaning of reference marks, and abbreviations.

The Boise basin in Idaho, by J. B. Hastings: Sci. Am. Suppl., vol. 38, Aug. 18, 1894; Eng. and Min. Jour., vol. 58, p. 56, July 21, **1894.**§

A geological reconnaissance across Idaho, by G. H. Eldridge: U. S. Geol. Survey, Sixteenth Ann. Rept., pt. 2, pp. 211-276, **1895.***

Monazite in Idaho, by Waldemar Lindgren: Am. Jour. Sci., 4th ser., vol. 64, p. 63, July, 1897; Eng. and Min. Jour., vol. 64, pp. 63-67, July 17, **1897.**§

Description of the Boise quadrangle, by Waldemar Lindgren, U. S. Geol. Survey Geol. Atlas, Folio No. 45, **1898.***

Mining districts of the Idaho Basin and the Boise Ridge, Idaho, by Waldemar Lindgren: U. S. Geol. Survey, Eighteenth Ann. Rept., pt. 3, pp. 625-736, **1898.***

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey, Twentieth Ann. Rept., pt. 3, pp. 65-256, **1900.***

The Boise Basin mining district, by Robert Nye: Min. and Sci. Press, vol. 81, p. 400, Oct. 6, **1900.***

Preliminary report on artesian basins in southwestern Idaho and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Water-Supply Paper 78, pp. 29-30, **1903.**‡

Boise Basin, Idaho, by W. A. Scott: Min. and Sci. Press, vol. 101, pp. 76-78, July 16, **1910.***

Coal at Horseshoe Bend and Jerusalem Valley, Boise County, Idaho, by C. F. Bowen: U. S. Geol. Survey Bull. 531, pp. 245-251, **1911.***

Boise Basin, Idaho, by W. L. Brown: Pacific Miner, vol. 18, February, **1911.***

Gold dredging in the Boise Basin of Idaho, by J. H. Miles: Min. and Sci. Press, vol. 105. pp. 330-332, Sept. 14, **1912.***

Winter dredging in Idaho, by J. H. Miles: Min. and Sci. Press, vol. 108, p. 455, March 14, **1914.***

Lode mining in the Quartzburg and Grimes Pass porphyry belt, Boise Basin, Idaho, by E. L. Jones, Jr.: U. S. Geol. Survey Bull. 640, pp. 83-111, **1916.**‡

The Boise Basin district in Idaho, by S. M. Ballard: Eng. and Min. Jour., vol. 109, pp. 881-882, Apr. 10, **1920.**§

Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 60, art. 3, pp. 1-33, **1921.**‡

Ore deposits of Gold Hill mine, at Quartzburg, Idaho, by A. J. McDermid: Eng. and Min. Jour.-Press, vol. 114, pp. 537-540, Sept. 23, **1922.**§

Geology and gold resources of Boise Basin, Boise County, Idaho, by S. M. Ballard: Idaho Bureau of Mines and Geology Bull. 9, **1924.****

A disseminated lead prospect in northern Boise County, Idaho, by C. P. Ross: Idaho Bureau of Mines and Geology Pamphlet 20, **1926.****

Idawa Gold Mining Co.: Belshazzar mill, by S. M. Ballard: Twenty-ninth Ann. Rept. Min. Industry of Idaho, **1927.***

BONNER COUNTY

Bonner constitutes an important part of the Idaho Panhandle and is one of the extreme northern counties. It is bounded on the east by the State of Montana, and on the west by the State of Washington; Boundary County adjoins it on the north, and Kootenai and Shoshone counties on the south. It contains an area of 1748 square miles and was accredited with a population of 12,957 in the 1920 census. The principal industries are lumbering, mining, stock raising, and agriculture. Although the county is recognized as one of the important mining counties of the State, the proportion of the population that is interested in mining is very small.

The county is exceptionally fortunate with respect to transportation facilities, as it is served by two State highways, lake boats, and three transcontinental railroads. Boats that can reach any point on Lake Pend d'Oreille give connection with the railroads at Sandpoint and Bayview.

Practically all the mining has been devoted to the areas adjacent to Pend d'Oreille and Priest lakes and the Clark Fork River. However, mining locations are numerous and widely scattered throughout the county. The mining history of the county dates back to the discovery of silver ores near Lakeview in 1888, which resulted in a stampede from the Coeur d'Alene district. Since that time there has always been a small amount of mining, but the county did not attract attention in recent years until the Talache mine was a proved and successful operation. The Talache has been a big factor in drawing attention to the mineral possibilities and prospecting opportunities of the county, resulting in a large increase in mining activities during the past few years.

The principal minerals are those of silver, lead, copper, zinc, and gold. These metals, and the limestone quarried near Lakeview, constitute the chief mineral resources. Silver is the most widely distributed metal and constitutes the most important part of the ores.

This county witnessed a greater substantial improvement in the development of new ore by old companies, new mine plant and mill plant installation, discoveries of new ore, development work by prospectors and new organizations than it had witnessed in many years. The Whitedelf Mining & Development Co. and the Hope Mining Co. both proved their properties and the continuation of ore at a greater depth, and both produced and marketed a greater tonnage of ore than for any previous year. During the early part of the year, the Whitedelf Mining & Development Co. completed the construction of a 75-ton flotation concentrator. One of the principal new ore disclosures in the State during 1929 was at the Hewer mine, under operation by the Idaho Lakeview Mines Co. In addition to maintaining active development work throughout the year, this company rehabilitated the mine camp and installed a new hoist and an electric generator driven by a semi-Diesel engine.

The International Portland Cement Co., with quarries at Bayview, mined the largest tonnage of limestone that it has ever produced in any one year. This limestone is ferried across the lake and then sent by rail to Spokane, where it is manufactured into cement.

Prospectors and small development companies in the Priest Lake district were active throughout the year, the principal ones being the Kaniksu Mining Co.; P. F. Vandever and C. W. Beardmore at the Grey Goose; and the Binarch Creek Mining Co. Many others increased their usual yearly work, and there continues to be an active search for new mines.

Encouraged by the success of the Whitedelf and Hope mines, the Clark Fork section witnessed more prospecting and more work by small development companies than during any other past year. New ore disclosures by two of these were reported by the press.

The properties owned by the Falls Creek Mining Co. and the Talache Mines, Inc., were under option during the greater part of the year and witnessed a little activity, none of which was reported. The reasons for refusing to file the reports required by law on these operations are probably best known by the promoters.

AMERICAN EAGLE MINING CO.

Office: Sandpoint. **Officers:** R. A. Martin, Pres., Martinsdale, Mont.; H. L. Thomason, Sec.; James A. Evans, Mgr., both of Sandpoint. **Inc.:** May 28, 1919. **Capital:** 10,000 shares; par value $100; 608 shares issued. **Property:** American Eagle group; 7 unpatented claims, Pend d'Oreille dist., Sandpoint. **Development:** 1 tunnel 1790 ft. long, which is principally a drift on the vein. **Ore:** Lead-silver. **Remarks:** A small amount of development work during the year.

ARGUS MINING CO.

Office: Cleveland, Ohio. **Officers:** Daniel Myers, Pres., Athletic Club, Cleveland, Ohio. **Inc.:** April 20, 1917. **Capital:** 800,000 shares, par value $1; 500,000 shares issued. **Property:** Argus group; 5 unpatented claims, Lakeview dist.; Lakeview. **Development:** 4 tunnels, totaling approximately 800 ft. in length. **Ore:** Lead-silver. **Remarks:** Annual labor only.

AUXER GOLD MINES CO.

Office: Hope. **Officers:** James Campbell, Pres.-Mgr., Hope; H. H. Braden, Sec., Sandpoint. **Inc.:** June 24, 1920. **Capital:** 500,000 shares; par value $1; 379,539 shares issued. **Property:** Boston group; 9 unpatented claims, Pend d'Oreille dist.; Hope. **Development:** Approximately 1300 ft. of underground workings, the principal one of which is a tunnel 865 ft. long. **Plant:** Gas-driven compressor and complete mining equipment. **Ore:** Gold. **Men employed:** Average, 4. **Remarks:** Principal tunnel was extended a short distance during two months of the year.

BIG FIVE MINING CO.

Officers: Earl Eagan, Sec., Hope. **Inc.:** June 10, 1910. **Capital:** 1,500,000 shares; par value $1; 1,079,852 shares issued. **Development:** 1 tunnel 640 ft. long. **Plant:** Steam-driven Sullivan compressor; complete mining equipment. **Ore:** Lead-silver. **Remarks:** Annual labor only.

BINARCH CREEK MINING CO.

Office: 501 City Hall Bldg., Spokane, Wash. **Officers:** Arthur L. Hooper, Pres.-Mgr.; W. W. Greenwood, Sec., both of Spokane, Wash. **Inc.:** July 30, 1928. **Capital:** 500,000 shares; par value $1; 400,000 shares issued. **Property:** Washington-Idaho group; 9 unpatented claims, Priest Lake dist.; Coolin. **Remarks:** During the year a mile of road was constructed and work started on erecting camp buildings.

BOYER MINES, INC.

Office: Sandpoint. **Officers:** J. B. Gardner, Pres.; Bruce Turnbull, Sec.; Caryl W. Wilson, Mgr., all of Sandpoint. **Inc.:** Sept. 3, 1929. **Capital:** 2,500,000 shares; par value $1; 132,604 shares issued. **Property:** Boyer group; 2 patented claims, Pend d'Oreille dist.; Sandpoint. **Development:** By 1 tunnel 155 ft. long and vertical shaft 43 ft. deep. **Men employed:** Average, 2. **Remarks:** Small amount of work during the closing months of the year.

BRITANNIA MINING CO.

Office: Priest River. **Officers:** A. O. Kendall, Pres., Oregon City, Ore.; M. W. McLean, Sec.-Mgr., Priest River. **Inc.:** Nov. 8, 1912. **Capital:** 1,000,000 shares; par value $1; 770,000 shares issued. **Property:** Britannia group: 8 unpatented claims, Priest Lake dist.; Priest River. **Development:** Approximately 900 ft. of underground workings. **Ore:** Gold. **Remarks:** Annual labor only, performed by the officers of the company.

CAMPBIRD MINING & DEVELOPMENT CO.

Office: Sandpoint. **Officers:** J. W. Lloyd, Pres., Spokane, Wash.; E. E. Boies, Sec.; E. W. Dreisbach, Mgr., both of Sandpoint. **Inc.:** Aug. 21, 1911. **Capital:** 1,500,000 shares; par value $1; 1,350,000 shares issued. **Property:** Campbird group; 6 patented, 2 unpatented claims, Priest Lake dist.; Priest River. **Development:** By 3 tunnels: No. 1, 750 ft. long; No. 2, 150 ft. long; No. 3, 700 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

CARPIE MINING CO.

Office: Cabinet, Idaho. **Officers:** J. W. Powell, Pres.-Mgr.; Cabinet. **Inc.:** Unknown. **Capital:** 750,000 shares; par value $1; 430,849 shares issued. **Property:** Carpie group; 4 unpatented claims, Pend d'Oreille dist.; Cabinet. **Development:** By a vertical shaft 300 ft. deep, in which are 5 levels. **Plant:** Steam-driven hoist and small Sullivan compressor. **Ore:** Copper. **Remarks:** Annual labor only since April, 1921. An active advertising campaign in the sale of stock was conducted during the closing months of the year.

CLARINDA COPPER MINING CO.

Office: 50 Broad St., New York City. **Officers:** John P. Delaney, Pres., New York City; Compton I. White, Sec.-Mgr., Clark Fork. **Inc.:** July 30, 1920. **Capital:** 1,500,000 shares; par value $1; 336,783 shares issued. **Property:** 9 unpatented claims, Pend d'Oreille dist.; Clark Fork. **Development:** By 5 tunnels, the longest of which is No. 5, totaling 2100 ft. in length. **Plant:** Electrically-driven compressor and complete mining equipment. **Ore:** Copper. **Remarks:** Annual labor only. Involved in litigation.

COPPER GIANT MINING CO.

Office: Clark Fork. **Officers:** J. B. Whitcomb, Pres.; Miss H. F. Thibadeau, Mgr., both of Clark Fork. **Inc.:** Oct. 10, 1908. **Capital:** 1,500,000 shares; par value $1; 1,200,000 shares issued. **Property:** Copper Giant group; 5 patented claims, Pend d'Oreille dist.; Clark Fork. **Development:** Approximately 1300 ft. of underground workings. **Plant:** 10x10 electrically-driven I-R compressor. **Ore:** Copper-gold. **Remarks:** Idle throughout the year. "The corporation does not own any property, the mine and equipment were sold for debt, and (Miss) H. F. Thibadeau is sole owner."

EMPIRE TUNGSTEN MINING CO.

Office: 2401 Colfax St., Evanston, Ill. **Officers:** Frank G. Forbes, Pres.; George S. Smith, Sec., both of Evanston, Ill. **Inc.:** March 20, 1914. **Capital:** 1,500,000 shares; par value 1c; all shares issued. **Property:** Rainbow; 1 patented claim, Lakeview dist.; Lakeview.

FALLS CREEK MINING CO.

Office: Sandpoint. **Officers:** W. C. Ames, Pres.-Mgr.; Wm. Hollembaek, Sec., both of Sandpoint. **Inc.:** Nov. 11, 1911. **Capital:** 500,000 shares; par value $1; 245,561 shares issued. **Property:** Falls Creek Group; 11 unpatented claims, Lakeview dist.; Hope. **Development:** By 2 tunnels: No. 1, 400 ft.; No. 2, 1600 ft. **Ore:** Lead-silver. **Remarks:** Property under option to R. M. Taylor, who performed a small amount of labor.

GOAT MOUNTAIN MINING CO.

Office: Clark Fork. **Officers:** E. C. Aschenbrenner, Pres., Endicott, Wash.; Chas. Jans, Sec., Lapwai; J. Teague, Mgr., Clark Fork. **Inc.:** Apr. 26, 1926. **Capital:** 1,500,000 shares; par value 10c; 427,200 shares issued. **Property:** Goat Mountain group, 11 unpatented claims, Pend d'Oreille dist.; Clark Fork. **Development:** By 2 tunnels: No. 1, 200 ft. long; No. 2, 814 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

HALLIDAY MINING CO.

Office: Halliday Hotel, Spokane, Wash. **Officers:** C. A. Kerr, Pres., Priest River; W. W. Greenwood, Sec., Spokane, Wash. **Inc.:** Mar. 28, 1929. **Capital:** 250,000 shares; par value $1; all shares issued. **Property:** 640 acres patented timber land, Priest Lake dist.; Priest River.

HOPE MINING CO.

Office: Clark Fork. **Officers:** O. A. Holte, Pres., Coeur d'Alene; C. C. Jensen, Sec.; S. W. Purdy, Mgr., both of Clark Fork. **Inc.:** Nov. 19, 1927. **Capital:** 1,500,000 shares; par value 10c; 1,460,000 shares issued. **Property:** Elsie K. group; 2 unpatented claims and 320 acres patented farm land, Pend d'Oreille dist.; Clark Fork. **Development:** By 5 tunnels, the principal one of which is No. 4, 1500 ft. long. Total development about 4000 ft. **Plant:** Gas-driven 6x6 compressor, complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 10. **Remarks:** During the year, a substantial tonnage of ore was produced and marketed by company and lessee operations. This property appears to be developing into one of the substantial mines of the Clark Fork district.

IDAHO LAKEVIEW MINES CO.

Office: Lakeview. **Officers:** D. M. Drumheller, Jr., Pres., Spokane, Wash.; R. C. Crowe, Sec., Trail, B. C.; F. A. Fortier, Mgr., Kimberley, B. C. **Inc.:** June 28, 1928. **Capital:** 2,100,000 shares; par value 20c. Increased Nov. 23, 1929, to 2,310,000 shares; par value 20c; 2,100,000 shares issued. **Property:** Hewer group; 4 patented, 11 unpatented claims, Lakeview dist.; Lakeview. **Development:** Total development approximately 10,000 ft.; principally by 1 tunnel 2200 ft. long, in which is an inclined shaft 1400 ft. long. **Plant:** MINE: 500-cu.-ft. I-R compressor; electrically-driven hoist; 75-kw. generator, driven by 100-h. p. semi-Deisel engine; complete mining equipment. MILL: 100-ton concentrator, fine grinding and flotation; driven by semi-Deisel oil engine. **Ore:** Silver-lead-zinc. **Men employed:** Average, 23. **Remarks:** Mine camp was rehabilitated; new hoist, electric power plant, and a large amount of new mining equipment were installed; and active development work was maintained throughout the year. This work consisted principally of extending the shaft and lateral work on the various levels; the new ore opened by this work was one of the most important new ore disclosures in the State during the year.

INTERNATIONAL PORTLAND CEMENT CO., LTD.

Office: 1124 Old National Bank Bldg., Spokane, Wash. **Officers:** R. K. Neill, Pres.; H. M. Heleniak, Sec., both of Spokane, Wash. **Inc.:** Filed in Idaho, September 9, 1911. **Capital:** 30,000 shares; par value $100; 27,233 shares issued. **Property:** 5 patented claims, 524 acres, near Bayview. **Development:** Open quarry. **Plant:** 300-cu.-ft. compressor, driven by Deisel engine; steam-shovel; gas-driven shovel; crushing plant; complete mining equipment; machine shops, buildings, and mine camp. **Ore:** Limestone. **Men employed:** Average, 23. **Remarks:** This company mines all of the limestone used in its cement-manufacturing plant near Spokane, Wash. The quarry was operated throughout the year and a large tonnage or rock was mined. It is the largest operation of its kind in the State.

KANIKSU MINING CO.

Office: 903 Knox Ave., Spokane, Wash. **Officers:** J. W. Lloyd, Pres.; Dr. Earl H. Current, Sec., both of Spokane, Wash. **Inc.:** Sept. 16, 1922. **Capital:** 100,000 shares; par value $1. Increased July 13, 1929, to 3,000,000 shares; par value 10c; 1,266,750 shares issued. **Property:** Wood Rat group; 11 unpatented claims, Priest Lake dist.; Priest River. **Development:** By a shaft 400 ft. long, which is part vertical and part inclined. **Plant:** Steam-driven hoist and complete hand-mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Small amount of work for five months of the year.

KEEP COOL MINING CO.

Office: P. O. Box 2181, Spokane, Wash. **Officers:** T. S. Griffith, Pres.; R. Insinger, Sec., both of Spokane, Wash. **Inc.:** June 16, 1922. **Capital:** 1,500,000 shares; par value 5c; 1,018,167 shares issued. **Property:** Keep Cool group; 4 patented claims, Lakeview dist.; Lakeview. **Ore:** Lead-silver. **Remarks:** Property under option to Idaho Lakeview Mines Co.

KING SOLOMON'S MINES CO.

Office: Sandpoint. **Officers:** J. W. Newton, Pres.; Wm. Hollembaek, Sec.-Mgr., both of Sandpoint. **Inc.:** Oct. 1, 1921. **Capital:** 500,000 shares; par value $1; 260,000 shares issued. **Property:** King Solomon group; 5 unpatented claims, Pend d'Oreille dist.; Hope. **Development:** By 2 tunnels: No. 1, 300 ft.; No. 2, 800 ft. **Ore:** Gold. **Remarks:** Annual labor only.

LAWRENCE CONSOLIDATED MINING CO.

Office: Clark Fork. **Officers:** Joseph Reed, Pres.-Mgr.; L. J. Reed, Sec., both of Clark Fork. **Inc.:** Mar. 3, 1923. **Capital:** 1,500,000 shares; par value 1c; 980,200 shares issued. **Property:** Lawrence group; 12 unpatented claims, Pend d'Oreille dist.; Clark Fork. **Development:** 5 tunnels, the principal one being 1240 ft. long; approximate total development 4800 ft. **Plant:** MINE: Water-driven compressor; complete mining equipment. MILL: 50-ton concentrator; crushers, 2 sets rolls, 2 jigs, 3 tables. **Ore:** Lead-silver. **Remarks:** Annual labor only.

LUCKY ABE MINING CO.

Office: Priest River. **Officers:** W. L. Fann, Pres.; F. F. Nelson, Sec., both of Priest River. **Inc.:** Mar. 1, 1916. **Capital:** 1,000,000 shares; par value 10c; approximately 82,000 shares issued. **Property:** Lucky Abe group; 6 unpatented claims, Priest Lake dist.; Coolin. **Development:** By 2 tunnels, each of which is approximately 175 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

LUCKY STRIKE MINING CO.

Office: Clark Fork. **Officers:** W. W. Webb, Pres.-Mgr., Clark Fork. **Inc.:** Oct. 25, 1913. **Capital:** 1,000,000 shares; par value $1; 584,281 shares issued. **Property:** Lucky Strike group; 8 unpatented claims, Pend d'Oreille dist.; Clark Fork. **Development:** 2 tunnels: No. 1, 55 ft. long; No. 2, 250 ft. long. **Plant:** Gardner-Ricks gas-driven compressor. **Men employed:** Average, 2. **Remarks:** Lower tunnel extended a short distance during the year.

MAJOR LODE MINING CO.

Office: Priest River. **Officers:** Philip Naccarato, Sec., Priest River. **Inc.:** An association. **Property:** Major Lode group, 6 unpatented claims, Priest Lake dist.; Priest River. **Development:** By 4 short tunnels. **Ore:** Lead-silver. **Remarks:** Annual labor.

MILWAUKEE MINES

Office: 501 City Hall Bldg., Spokane, Wash. **Officers:** J. W. Lloyd, Pres.; Arthur L. Hooper, Sec.-Mgr., both of Spokane, Wash. **Inc.:** Apr. 6, 1928. **Capital:** 2,000,000 shares; par value 25c; 640,000 shares issued. **Property:** Milwaukee group; 64 unpatented claims, Priest Lake dist.; Nordman.

MINERVA SILVER, INC.

Office: Granite Creek. **Officers:** E. R. Lindsey, Pres.-Mgr.; E. Mahoney, Sec., both of Spokane, Wash. **Inc.:** July 25, 1929. **Capital:** 1,500,000 shares; par value 25c; 700,000 shares issued. **Property:** Minerva group; 4 patented claims, Pend d'Oreille dist.; Sandpoint. Held under lease and option. **Development:** By 6 tunnels. **Ore:** Lead-silver. **Remarks:** Small amount of work, which consisted principally of rehabilitating the property.

NAOMI MINING CO.

Office: Glengary. **Officers:** Leslie Kipper, Pres., Tacoma, Wash.; Fred Kipper, Sec., Puyallup, Wash.; Albert Buehlmann, Mgr., Glengary. **Inc.:** Mar. 16, 1929. **Capital:** 32,000 shares; par value $1; 17,200 shares issued. **Property:** 1 unpatented claim, Pend d'Oreille dist.; Glengary. **Development:** By 1 tunnel 550 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Small amount of work.

NEVADA MINES

Office: 501 City Hall Bldg., Spokane, Wash. **Officers:** J. V. Campbell, Pres.; Arthur L. Hooper, Sec.-Mgr., both of Spokane, Wash. **Inc.:** Aug. 20, 1928. **Capital:** 250,000 shares; par value 10c; all shares issued. **Property:** Nevada group; 29 unpatented claims, Priest Lake dist.; Coolin.

NORTH IDAHO MINING & DEVELOPMENT CO.

Office: Clark Fork. **Officers:** W. J. Doust, Pres., Spokane, Wash.; H. D. Alcorn, Sec.; A. F. Alcorn, Mgr., both of Clark Fork. **Inc.:** Mar. 14, 1929. **Capital:** 2,000,000 shares common, par value 20c; 100,000 shares preferred, par value $1; 1,166,178 shares comman, 43,370 shares preferred issued. **Property:** I. J. Brant group; 11 unpatented claims, Clark Fork dist.; Clark Fork. **Development:** Principally by 1 tunnel 825 ft. long. **Plant:** Gas-driven C. P. compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Amerage, 3. **Remarks:** Small amount of work during the year.

OPPORTUNITY MINING CO.

Office: Sagle. **Officers:** Peter Mainzer, Pres.; A. A. Heskestad, Sec., both of Sagle. **Inc.:** Aug. 18, 1919. **Capital:** 1,500,000 shares; par value 5c 533,610 shares issued. **Property:** 8 unpatented claims, Pend d'Oreille dist.; Sagle. **Development:** Approximately 1700 ft. of underground workings, consisting of 6 tunnels and 5 shafts, the principal tunnel being 650 ft. long. **Plant:** Steam-driven compressor, complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 1. **Remarks:** Active development work throughout the year, the funds for which were derived from stock assessments as follows: 2 mills, Feb. 23; 4 mills, July 29.

PONDERA MINING & POWER CO.

Office: Grand Forks, N. D. **Officers:** P. Bilden, Pres., Northwood, N. D.; H. H. Aaker, Sec., Grand Forks, N. D. **Inc.:** July 2, 1912. **Capital:** 2,000,000 shares; par value $1; 379,675 shares issued. **Property:** 10 patented claims, Pend d'Oreille dist.; Sandpoint.

PONDOROSA MINING CO.

Office: Clark Fork. **Officers:** J. P. Delaney, Pres., New York City; Compton I. White, Sec., Clark Fork. **Inc.:** Jan. 18, 1927. **Capital:** 1,500,000 shares; par value $1; shares issued, unknown. **Property:** Pondorosa group; 6 unpatented claims, Pend d'Oreille dist.; Clark Fork. **Remarks:** Annual labor only.

REGAL MINING CORPORATION

Office: 50 Broad St., New York City. **Officers:** J. P. Delaney, Pres., W. M. Thompson, Sec., both of New York City; Compton I. White, Mgr., Clark Fork. **Inc.:** Feb. 10, 1928. **Capital:** 1,000,000 shares; par value $1; 900,000 shares issued. **Property:** 8 unpatented claims, Pend d'Oreille dist.; Clark Fork. **Development:** By 2 short tunnels. **Plant:** Water-driven I-R compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Erection of the camp buildings completed; 3 miles of wagon road constructed; and active development work maintained during the year.

R. J. PRICE MINING CO.

Office: Pasco, Wash. **Officers:** J. W. Blanton, Pres.; Tom Summers, Sec., both of Pasco, Wash. **Inc.:** Sept. 20, 1923. **Capital:** 500,000 shares; par value $1. On June 5, 1928, increased to 1,000,000 shares; par value $1; 510,552 shares issued. **Property:** 3 patented, 9 unpatented claims, Pend d'Oreille dist.; Cabinet. **Development:** By 1 tunnel 150 ft. long.

SILVER MOUNTAIN MINING CO.

Office: Sandpoint. **Officers:** John T. Elsasser, Mgr., Sandpoint. **Inc.:** July 24, 1909. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Silver Mountain group; 6 unpatented claims, Priest Lake dist.; Priest River. **Development:** 2 tunnels: No. 1, 400 ft. long; No. 2, 625 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

SILVER STAR MINING CO., LTD.

Officers: N. M. Sholz, Pres.-Mgr.; Ray Dahlberg, Sec., both of Route 1, Sagle. **Inc.:** Jan. 19, 1927. **Capital:** 2500 shares; par value $10; 886 shares issued. **Property:** Silver Star mine; 1 unpatented claim and 140 acres patented land, Pend d'Oreille dist.; Cocolalla. **Development:** By 1 tunnel 100 ft. long. **Ore:** Lead-silver-zinc.

SYRINGA MINING CO.

Office: Sandpoint. **Officers:** Ralph M. Mellor, Pres.; B. I. Hunt, Sec., both of Sandpoint. **Inc.:** Dec. 17, 1928. **Capital:** 300 shares; par value $100. Increased Oct. 25, 1929, to 1,000,000 shares; par value $1; shares issued, unknown. **Property:** 328 acres patented land, Pend d'Oreille dist.; Sandpoint. **Development:** By 2 tunnels: No. 1, 140 ft. long; No. 2, 300 ft. long. **Plant:** Small gas-driven compressor. **Ore:** Gold. **Men employed:** Average, 3. **Remarks:** Active development work throughout the year.

TALACHE MINES, INC.

Office: Talache. **Officers:** A. H. Burroughs, Jr., Pres.-Mgr.; B. K. Burroughs, Sec., both of Quartzburg. **Inc.:** Apr. 21, 1917, as Armstead Mines, Inc.; name changed June 8, 1922. **Capital:** 1,000,000 shares common, 600,000 shares preferred; par value $1; 983,000 shares common, 579,233 shares preferred issued. **Property:** Armstead mine; 18 patented, 44 unpatented claims, Pend d'Oreille dist.; Talache. **Development:** Approximately 34,591 ft. of underground workings, the principal of which are a main haulage tunnel, 3900 ft. long, the main inclined raise 916 ft. long and an inclined shaft 200 ft. long. **Plant:** MINE: 9x10 Hendre-Bolthoff electrically-driven geared hoist; 1574 cu. ft., 2 stage I-R type Pre-2 compressor, electrically driven; haulage, G. E. 4-ton storage battery locomotive; buildings, 44 room hotel, 24 residences, compressor house, blacksmith shop, warehouse, cook house, store, dry room and office. MILL: 150-ton flotation, 2 stage crushing to ½ in. fine grinding to 80 mesh, electrically driven. **Ore:** Silver. **Remarks:** Operations were suspended in October, 1926. In March, 1927, the famous Gold Hill & Iowa mine at Quartzburg, Boise County, was acquired and operations were transferred to that mine, which see. Press reports were to the effect that lessees performed a small amount of labor during the year. For reasons probably best known by lessees, they refused to file the reports required by law.



WHITEDELF MINING & DEVELOPMENT CO. MILL

WHITEDELF MINING & DEVELOPMENT CO.

Officers: John P. Delaney, Pres., 50 Broad St., New York; Compton I. White, Mgr., Clark Fork. **Inc.:** March 17, 1926. **Capital:** 100,000 shares, par value $1; 65,000 shares issued. Company reported 1000 shares; par value $100; all shares issued. Change not filed in Idaho. **Property:** 160 acres of patented land, Pend d'Oreille dist.; Clark Fork. **Development:** Principally by 3 tunnels, with a total of over 2500 feet, and an inclined shaft 300 ft. long. **Plant:** MINE: Electrically-driven compressor; complete mining equipment. MILL: 75-ton flotation concentrator. **Ore:** Lead-silver. **Men employed:** Average, 20. **Remarks:** In addition to the work performed by the company, part of the mine was under operation by lessees. A large tonnage of high-grade lead-silver crude ore and concentrate was produced and marketed. The development work consisted

principally of lateral work on the 100, 200 and 300-ft. levels. The work on the 100-ft. level opened a substantial tonnage of ore. The construction of the flotation concentrator, which was started late in 1928, was completed and the mill placed in operation in July. The success with which this enterprise is meeting has been instrumental in attracting a large amount of attention to the Clark Fork district.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Aberdeen et al.	Pend d'Oreille	King Solomon Mines Co.	Sandpoint
Alamo Gr.	Pend d'Oreille	Sam Owen	Hope
Alpine	Priest Lake	E. W. Butts et al.	Priest River
American Eagle	Clark Fork	Edward Hanson et al.	Clark Fork
American Legion et al.	Priest Lake	Chas. Hagenson	Sandpoint
Anna et al.	Priest Lake	A. W. Eynon	Priest River
Antlers et al.	Pend d'Oreille	T. W. Whalen Est.	Juliaetta
Apex Lode Gr.	Lakeview	E. D. Faust	Lakeview
Badger et al.	Priest Lake	Clyde Smith	Priest River
Bank Roll	Priest Lake	J. A. Adam	Sandpoint
Basaltic et al.	Priest Lake	N. Y. Mt. Chief Cons. M. Co.	Priest River
Bellvill et al.	Lakeview	Chas Wiberg	Lakeview
Bernice et al.	Lakeview	Fount Perry Jr.	Lakeview
Big Four et al.	Priest Lake	Stewart Coolin et al.	Coolin
Big View et al.	Priest Lake	Leo Gwinn	Priest River
BiMetallic et al.	Pend d'Oreille	Marie E. Root	Hope
Black Angel et al.	Priest Lake	James Elsasser et al.	Elmira
Black Bear et al.	Priest Lake	H. B. Gumaer et al.	Priest River
Black Hornet et al.	Lakeview	John & Louis Weissenberger	Hope
Black Jack et al.	Priest Lake	John Elsasser et al	Sandpoint
Black Prince et al.	Priest Lake	Joseph Saccomanno	Priest River
Black Slate et al.	Pend d'Oreille	E. B. Clark	Clark Fork
Blanket Ledge Gr.	Lakeview	O. L. McNall	Lakeview
Blowout et al.	Priest Lake	John Hamberg	Priest River
Bluebird	Lakeview	Walter Street	Lakeview
Bluebird Gr.	Pend d'Oreille	Ernest E. Ward	Sagle
B & M et al.	Priest Lake	J. E. Peterkin et al.	Newport, Wash.
Bob Cat	Priest Lake	Katherine L. Brown	Priest River
Boulder et al	Priest Lake	J. W. and C. Butts	Priest River
Buck Horn et al.	Pend d'Oreille	Arthur E. Smith	Talache
Cabinet	Priest Lake	G. A. Naccarato et al.	Priest River
Catherine	Pend d'Oreille	Helmer Foss et al.	Sandpoint
Clagg	Pend d'Oreille	J. Reed & E. Clagg	Clark Fork
Copper Butte	Priest Lake	I. Daugherty	Priest River
Copper Coin	Pend d'Oreille	Dyrskog Bros.	Midas
Copper King	Pend d'Oreille	John Larson	Hope
Cuban et al.	Priest Lake	Cuban Mt. Mng. Co.	Priest River
Dad's Dream	Pend d'Oreille	E. E. Ralph	Clark Fork
Deer Park et al.	Pend d'Oreille	G. M. Walker et al.	Sandpoint
Deer Track	Priest Lake	O. E. Burquist	Sandpoint
Dirty Deuce	Priest Lake	Wm. Moscript et al.	Priest River
Easter Sunday	Lakeview	Frank Drummond	Lakeview
E & C Gr.	Pend d'Oreille	J. R. Coleman et al.	Sagle
Ella et al.	Lakeview	John W. Sheer	Lakeview
Felice et al.	Pend d'Oreille	C. I. White	Clark Fork
Frances B	Clark Fork	J. O. Peterson et al.	Clark Fork
Garfield Gr.	Pend d'Oreille	Gotlib Baker	Ponderay
General Pershing et al.	Pend d'Oreille	H. F. Rau et al.	R. 3, Tacoma, Wash.
Glasgow	Lakeview	R. C. Henry	Lakeview

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Gray Goose	Priest Lake	C. W. Beardmore	Priest River
Hog Eye et al.	Lakeview	W. F. Sharai	Lakeview
Honest John et al.	Lakeview	J. Flewelling et al.	Sandpoint
Horseshoe	Priest Lake	S. S. Beldon et al.	Priest River
Imogene et al.	Lakeview	Wm. Shannon	Lakeview
Joker et al.	Priest Lake	W. B. Quinn	Molson, Wash.
Jumbo Gr.	Pend d'Oreille	E. H. Becker	Clark Fork
Keno et al.	Lakeview	Dr. H. C. Meyers	Lakeview
Last Chance	Priest Lake	Bert Fry et al.	Priest River
Lincoln	Pend d'Oreille	Harry Churchill et al.	Spokane, Wash.
Little Bench	Pend d'Oreille	C. A. Johnson	Clark Fork
Little Geraldine Fr.	Priest Lake	Alex Judge	Box 1734, Spokane, Wash.
Little Three	Priest Lake	L. G. Brown et al.	Priest River
Lookout	Pend d'Oreille	W. W. Derr et al.	Clark Fork
Lucky Strike et al.	Priest Lake	F. C. Fredericks et al.	Spangle, Wash.
Morning Star	Pend d'Oreille	F. S. Hayes	Hope
Nest Egg	Pend d'Oreille	J. O. Derr	Clark Fork
North Star Pl.	Lakeview	S. R. Catlow	Clark Fork
Ontario et al.	Lakeview	Robt. Rennie	Lakeview
Rainbow et al.	Pend d'Oreille	Goat Mt. Mng. Co.	Clark Fork
Ready Cash	Lakeview	Bruyere & Hanchett	Bayview
Red Horse	Pend d'Oreille	Ed Hammon	Sandpoint
Scotchman	Pend d'Oreille	Dr. C. P. Stackhouse	Sandpoint
Silver Fox Gr.	Priest Lake	J. A. Adams	Sandpoint
Silver Star	Pend d'Oreille	C. O. Olsen	Sandpoint
Snowbird	Pend d'Oreille	Walter Blossom	Lindelle Bldg., Spokane, Wash.
Snow Slide	Pend d'Oreille	Foster & Bixel	Clark Fork
T. Bone	Lakeview	Frank Brown	Lakeview
Tiger	Priest Lake	Alex Judge	Spokane
Triangle	Lakeview	Ralph Henrichs et al.	Hope
True Fisher	Pend d'Oreille	Fred Vogel	Clark Fork
Twilight et al.	Pend d'Oreille	C. B. Stuart	Sandpoint
West Point	Pend d'Oreille	Henry F. Phillips	Clark Fork

BIBLIOGRAPHY

See pages 71-72-73 for publisher's address, meaning of reference marks, and abbreviations.

Survey of the boundary line between Idaho and Montana from the international boundary to the crest of the Bitterroot Mountains, by R. U. Goode: U. S. Geol. Survey Bull. 170, **1900.**‡

Geology of the region adjoining the western part of the international boundary, by R. A. Daly: Canada Geol. Survey Ann. Rept., vol. 14, pp. 39-51a, **1901.**§

Economic features of northern Idaho and northwestern Montana, by D. F. MacDonald: U. S. Geol. Survey Bull. 285, pp. 41-52, **1905.***

Priest Lake mining district, Idaho, by W. M. Curtis: Eng. and Min. Jour., vol. 82, p. 866, Nov. 10, **1906.**§

A geological reconnaissance in northern Idaho and northwestern Montana, by F. C. Calkins, with notes on the economic geology, by D. F. MacDonald: U. S. Geol. Survey Bull. 384, **1909.***

Lawrence mine and mill in Kootenai County (Bonner), Idaho, by A. L. Flagg: Min. and Eng. World, vol. 38, p. 340, Feb. 15, **1913.***

Guidebook of the Western United States, by M. R. Campbell, and others: U. S. Geol. Survey Bull. 611, pp. 150-156, 160, **1915.**‡

The mining districts of northern Idaho, by E. K. Soper: Min. & Sci. Press, vol. 116, pp. 125-126, **1918.***
Silver mining and milling at Talache, Idaho, by F. E. Wormser: Eng. and Min. Jour.-Press, vol. 114, pp. 581-585, Sept. 30, **1922.**§
Some Miocene and Pleistocene drainage changes in northern Idaho, by A. L. Anderson: Idaho Bureau of Mines and Geology Pamphlet 18, **1927.****
Granodiorites in the Pend d'Oreille district of northern Idaho, by J. L. Gillson: Jour. Geol., vol. 35, pp. 1-33, **1927.**§
Geology and silver ore deposits of the Pend d'Oreille district, Idaho, by Edward Sampson: Idaho Bureau of Mines and Geology Pamphlet 31, **1928.****
Contact metamorphism of the rocks in the Pend d'Oreille district, northern Idaho, by J. L. Gillson: U. S. Geol. Survey Prof. Paper 158-F, **1929.****

BONNEVILLE COUNTY

Bonneville County is bounded on the south by Caribou and Bingham counties, on the west by Bingham County, on the north by Jefferson, Madison and Teton counties, and on the east by the State of Wyoming. It is one of the principal, as well as one of the largest, southeastern counties; and has an area of 1904 square miles, and population of 17,501 at the time of the 1920 census. The larger part of the population is in the Snake River valley, which occupies all of the western part of the county. The southeastern part, which is occupied by the Caribou Range of the Snake River Mountains, is drained by the South Fork of the Snake River and its tributaries. It is primarily an agricultural county and is noted for its potato and sugar-beet industries, particularly potatoes, as it is one of the largest potato shipping points in the United States. Idaho Falls, the largest town, and civic center of the Upper Snake River valley, is the county seat.

Although recognized only as an agricultural community, this county was once the scene of many active mining operations. This was during the gold rush in the Mt. Pisgah, or Caribou, district at the time placer gold was discovered on McCoy and Gray's creeks. These placers produced a creditable amount of gold, and subsequently a few lode deposits were discovered and exploited. In late years a small dredge was constructed, but this and the deep mines are now idle and the only gold produced is from a few small placer operations.

The principal mineral resources of Bonneville County are gold, phosphate rock, copper, silver, and coal. Many structures favorable to the accumulation of petroleum in commercial quantity are found throughout the southern and eastern parts of the county.

The extensive phosphate beds of southeastern Idaho are exposed over a large area. These, and possibly petroleum, will eventually add to the county's prosperity and put it into the list of important mining counties.

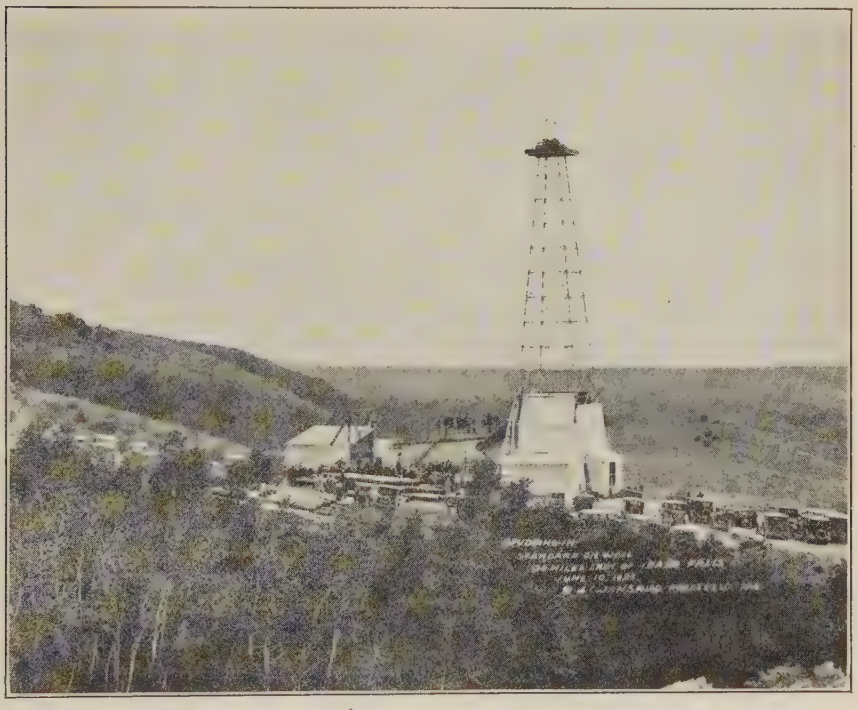
One of the most important enterprises to start during the year 1928 was that of The California Co., a subsidiary of the Standard Oil Co. of California, which acquired a large acreage on the Meadow Creek structure. A drilling rig and equipment capable of drilling to a depth of 6000 feet were installed and drilling operations commenced, the well being 14 inches in diameter. Drilling was continued throughout 1929 and by the close of the year the well had reached a depth of 3780 feet. This company's activities were instrumental in the starting of other drilling operations by small companies and the investigation of petroleum possibilities in eastern Idaho by two large oil companies.

BONNEVILLE MINING CO., INC.

Office: Rexburg. **Officers:** Francis J. Kiely, Sr., Pres.; Raymond Sherry, Sec., both of Jersey City, N. J.; Lewis A. Lee, Vice-pres., Rexburg. **Inc.:** July 9, 1929. **Capital:** 250,000 shares; par value $1; 1000 shares issued. **Property:** Oneida South group; 7 unpatented claims, Mt. Pisgah dist.; Gray. **Ore:** Gold. **Men employed:** Average, 3. **Remarks:** Small amount of location work during summer months.

THE CALIFORNIA CO.

Office: 225 Bush St., San Francisco, Calif. **Officers:** K. R. Kingsbury, Pres.; J. H. Tuttle, Sec., both of San Francisco; E. G. Lawson, Mgr., Kemmerer, Wyo. **Inc.:** Filed in Idaho Mar. 19, 1928. **Capital:** 5,000 shares; par value $100; 1,000 shares issued. **Property:** 920 acres held under oil and gas lease. **Development:** 14 to 10-in. well, 3780 ft. deep. **Plant:** 90-ft. steel derrick; complete drilling equipment, gas-driven; complete and modern camp. **Mineral sought:** Oil and gas. **Men employed:** Average, 12. **Remarks:** This company is a subsidiary of the Standard Oil Co. of California. The rig was installed in May, 1928, and active well-drilling operations were commenced on June 10, 1928, and continued without interruption throughout 1929. These operations consisted in extending the well 2000 ft.



THE CALIFORNIA COMPANY'S DERRICK

IDAHO GOLD MINING CO.

Office: 319 Dooly Block, Salt Lake City, Utah. **Officers:** Chas. C. Dey, Pres.; W. A. Wilson, Sec.-Mgr., both of Salt Lake City, Utah. **Inc.:** April 19, 1917. **Capital:** 150,000 shares; par value 10c; 130,026 shares issued. **Property:** Robinson group; 2 patented claims, Mt. Pisgah dist.; Gray. **Ore:** Gold. **Remarks:** Idle for many years.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
American Placer	Mt. Pisgah	W. H. Stocks	Gray
Anderson Bar et al.	Mt. Pisgah	Helmer Ronback, Agt.	Gray
Barnes Gr.	Mt. Pisgah	W. K. Lynch, Agt.	Gray
Idaho Gr.	Mt. Pisgah	W. K. Lynch, Agt.	Gray
Oneida Gr.	Mt. Pisgah	Fred Brenzinger, Agt.	Gray
Oneida South	Mt. Pisgah	Miles Schneider, Agt.	Gray
Pisgah Gr.	Mt. Pisgah	Fred Brenzinger, Agt.	Gray
Silver Bell Gr.	Mt. Pisgah	Fred Brenzinger, Agt.	Gray
Timber Line	Mt. Pisgah	Leroy Layland	Gray
Toway	Mt. Pisgah	J. C. Beatty	Soda Springs
Wolfe Bar	Mt. Pisgah	Amos S. Clark	Unknown

BIBLIOGRAPHY

See pages 71-72-73 for publisher's address, meaning of reference marks, and abbreviations.

Fifth, Sixth and Eleventh Ann. Repts., U. S. Geol. and Geog. Survey of the Territories, by F. V. Hayden, **1871, 1873** and **1879.***

The gold ore deposits of Mount Caribou, Idaho, by E. B. Kirby: Colorado Sci. Soc. Proc., vol. 5, pp. 72-75, **1898.***

Mount Caribou gold deposits, by Arthur Lakes: Mines and Minerals, vol. 19, pp. 55-56, September, **1898.***

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

A geological reconnaissance in southeastern Idaho, by A. R. Schultz and R. W. Richards: U. S. Geol. Survey Bull. 530, pp. 267-284, **1911.***

Guidebook of the western United States, by W. T. Lee and others: U. S. Geol. Survey Bull. 612, pp. 114-147, **1915.**‡

A geologic reconnaissance for phosphate and coal in southeastern Idaho and western Wyoming, by A. R. Schultz: U. S. Geol. Survey Bull. 680, **1918.**‡

Coal in eastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 716f, **1920.**‡

Oil shale in western Montana, southeastern Idaho, and adjacent parts of Wyoming and Utah, by D. D. Condit: U. S. Geol. Survey Bull. 711, pp. 15-40, **1920.**‡

The Wasatch and Salt Lake formations of southeastern Idaho, by G. R. Mansfield: Am. Jour. Sci., vol. 49, pp. 399-406, June, **1920.**§

Triassic and Jurassic formations in southeastern Idaho and neighboring regions, by G. R. Mansfield: Am. Jour. Sci., vol. 50, pp. 53-64, July, **1920.**§

Types of Rocky Mountain structure in southeastern Idaho, by G. R. Mansfield: Jour. Geology, vol. 29, No. 5, pp. 444-468, July-August, **1921.**§

Geology and oil possibilities of Bingham, Bonneville, and Caribou counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Bull. 8, **1924.****

Oil possibilities of southeastern Idaho, by V. R. D. Kirkham: Mining and Metallurgy, vol. 6, No. 218, Feb., **1925.**§

Ground water for municipal supply at Idaho Falls, Idaho, by A. M. Piper and V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 16, **1926.****

Geography, geology, and mineral resources of part of southeastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Prof. Paper 152, **1927.****

BOUNDARY COUNTY

Boundary County is bounded on the north by the Dominion of Canada, on the east by the State of Montana, on the west by the State of Washington, and on the south by Bonner County. Its principal area comprises the drainage basins of the Moyie River, which flows in a southerly direction, and the Kootenai River, which flows northerly from Bonners Ferry, the county seat and principal town. It has a total area of 1276 square miles, and was accredited with a population of 4474 in the 1920 census. The principal industries are lumbering, farming, and mining.

The county is served by two transcontinental railroads, the Great Northern, with its branch line from Bonners Ferry to Porthill, on the Canadian border, and the Spokane International; by the North and South Highway, with an easterly outlet from Bonners Ferry; and by a system of county roads which extend into the different sections along the main stream valleys.

The principal mineral resources are lead, silver, gold, copper, zinc, tungsten, and molybdenum. These metals are widely distributed, and a few of the deposits have been partially developed. Heavy overburden, dense overgrowth, and limited accessibility have retarded prospecting, discovery, and development. The many favorable areas and wide diversity of mineralization make this county an exceptionally favorable field for the prospector and the small development company.

The year 1929 witnessed more new companies and a larger amount of attention from the press than for a great number of years, but for some unknown reason practically all the new organizations refused to file the information with the inspector of mines as required by law, so nothing is known as to their activities. The Continental mine at Porthill, owned by the Idaho Continental Mining Co., which was closed in 1928, remained idle throughout the year. The Idamont Lead-Zinc Mines Co., a reorganization of the Leonia Gold Mining Co., formerly the Idaho Gold & Ruby Mining Co., and the Metals Mining Co. performed a small amount of work during the year.

The Moyie Gold-Copper M. & M. Co., Ltd., and the International Molybdenum Co. expanded their operations over those of the previous year.

BRUSH LAKE MINES CO.

Office: 412 Ziegler Block, Spokane, Wash. **Officers:** J. W. Reid, Pres., Bonners Ferry; David Emley, Sec., Spokane, Wash. **Inc.:** Aug. 6, 1921. **Capital:** 2,000,000 shares; par value 10c; 1,386,682 shares issued. **Property:** Bethlehem group; 7 unpatented claims, Moyie Yaak dist.; Bonners Ferry. **Development:** Approximately 1200 ft. of underground workings. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Property under development during part of the year.

CLANCY MINING CO.

Office: Bonners Ferry. **Officers:** Chas. Spoor, Pres., Caldwell; C. D. Simonds, Sec.; James Clancy, Mgr., both of Bonners Ferry. **Inc.:** July 29, 1929. **Capital:** 500,000 shares; par value $1; 272,500 shares issued. **Property:** 7 unpatented claims, Moyie Yaak dist., Boulder Creek; Bonners Ferry. **Development:** By 1 tunnel 250 ft. long. **Ore:** Lead-silver.

COPPER FALLS MINING CO.

Office: Eastport. **Officers:** Gus Kallman, Pres.-Mgr., Gem; Spencer Lewis, Sec.-Treas., Eastport. **Inc.:** March 30, 1911. **Capital:** 1,000,000 shares; par value $1; 669,772 shares issued. **Property:** Copper Falls group; 5 unpatented claims, Moyie Yaak dist.; Addie. **Development:** 2 tunnels: No. 1, 240 ft. long; No. 2, 600 ft. long; 1 vertical shaft, 45 ft. deep. Total development, approximately 1185 ft. **Ore:** Lead-silver. **Remarks:** Annual labor.

IDAHO CONTINENTAL CO., THE

Office: Bonners Ferry. **Officers:** A. Klockmann, Pres.-Mgr., Bonners Ferry; Richard Schacht, Sec., Spokane, Wash. **Inc.:** Jan. 11, 1910. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** 15 patented, 5 unpatented claims, Porthill dist.; Klockmann. "The company owns by lease and exchange of shares with Idaho Continental Min-

ing Co., the Continental, Jasper, Blue Joe, Volcanic, Morning Star, Evening Star, and outright all others." **Development:** Approximately 15,118 ft. of underground workings consisting principally of 5 tunnels: No. 1, 250 ft. long; No. 2, 100 ft. long; No. 3, 750 ft. long; No. 4, 1800 ft. long; No. 5, 2653 ft. long. **Plant:** MINE: 1200-cu.-ft. I-R Imperial type 10 compressor; Leyner drill sharpener, and complete mining equipment; 1600 ft. aerial tram between mine and mill. MILL: 250-ton. concentrator; 10x20 crusher; conveyor belt; 4 double 4-compartment Hartz jigs; 3 rolls 12x20; drag classifier; 5 Wilfley tables; Hardinge ball mill; 4 Frue vanners; flotation; hydroelectric power plant. **Ore:** Lead-silver. **Remarks:** Idle throughout the year.

IDAHO CONTINENTAL MINING CO.

Office: 805 Sellwood Bldg., Duluth, Minn. **Officers:** Henry Turrish, Pres.; Henry Maxeiner, Sec., both of Duluth, Minn. **Inc.:** Dec. 12, 1902. **Capital:** 1,500,000 shares; par value $1; 1,200,000 shares issued. **Property:** Continental group; 7 patented, 1 unpatented claim, namely: Continental, Jasper, Blue Joe, Volcanic, Morning Star, Evening Star, and Aurora; Porthill dist.; Klockmann. **Remarks:** This is the same property as that held by The Idaho Continental Co.

IDAMONT LEAD-ZINC MINES CO.

Office: Leonia. **Officers:** J. S. Hutchinson, Pres., Portland, Ore; M. E. Carson, Sec., Leonia. **Inc.:** Sept. 10, 1928. **Capital:** 1,000,000 shares; par value $1; 624,130 shares issued. **Property:** 66 placer and lode claims, approximately 2400 acres, Moyie Yaak dist.; Leonia. **Development:** 5-mile, 200 sec.-ft. capacity canal, giving a working head of approximately 430 ft.; in 2 sections, upper 3 miles long, lower 2 miles, with a difference in elevation of 210 ft. Water conducted from upper to lower through two 22-inch steel pipes; about 20 miles of road, 5 of which were very heavy construction. Lode claims developed by numerous cuts and tunnels. **Plant:** Approximately 3000 ft. steel pipe, one 8-inch giant, operating under a 430-ft. head and two 5-inch giants, operating under 130-ft. head; bed rock flume and spillway 300 ft. long on a grade of 10 inches in 12 ft.; in 3 sections, spillway 12 ft. wide by 8 ft. deep; one flume 6 ft. wide and one 12 ft wide, both 8 ft. deep. Concentrates from flume discharge into cement lined tank of approximately 15,000-ton capacity from which they are elevated into cleaning plant on top of flume. Cleaning plant consists of Ogden tables, classifiers and specially designed riffles. Complete machine shop, sawmill, planing mill, overhead cable system operated by steam; tractor haulage; complete company buildings and 35 individual homes for the men. **Ore:** Principally placer gold. **Men employed:** Average, 6. **Remarks:** A reorganization of the Leonia Gold Mining Co., in order that the stock might be made assessable. Principal work throughout the year consisted in sinking a small shaft 113 ft. deep. A stock assessment of 2c was levied in February, 1929.

INTERNATIONAL MOLYBDENUM CO.

Office: Porthill **Officers:** H. A. French, Pres.; P. W. Stas, Sec., both of Porthill. **Inc.:** Feb. 3, 1926. **Capital:** 25,000 shares; par value $1; 14,178 shares issued. **Property:** Hottentot group; 4 unpatented claims, Porthill dist.; Porthill. **Development:** 2 tunnels with a total length of 188 ft., and a number of open cuts. **Ore:** Molybdenum. **Men employed:** Average, 2. **Remarks:** Active prospecting work was maintained for a period of 3 months.

MOYIE GOLD COPPER MINING & MILLING CO., LTD.

Office: Bonners Ferry. **Officers:** A. J. Kent, Pres.; G. E. Crocker, Sec.; Sven A. Anderson, Mgr., all of Bonners Ferry. **Inc.:** Sept. 16, 1911. Charter forfeited Nov. 30, 1929. **Capital:** 1,250,000 shares; par value $1; 1,200,000 shares issued. **Property:** Queen and Damon groups; 7 unpatented claims, Moyie Yaak dist.; Bonners Ferry. **Development:** 5 tunnels and 2 shafts, approximately 700 ft. **Ore:** Lead-silver. **Men employed:** Average, 4. **Remarks:** Active development work throughout the year. Press reports were to the effect that this work was successful in exposing a substantial showing of ore.

BIBLIOGRAPHY

See pages 71-72-73 for publisher's address, meaning of reference marks, and abbreviations.

Survey of the boundary line between Idaho and Montana from the international boundary to the crest of the Bitterroot Mountains, by R. U. Goode: U. S. Geol. Survey Bull. 170, **1900.**‡

Geology of the region adjoining the western part of the international boundary, by R. A. Daly: Canada Geol. Survey Ann. Rept., vol. 14, pp. 39-51a, **1901.**§

A geological reconnaissance in northern Idaho and northwestern Montana, by F. C. Calkins, with notes on the economic geology, by D. F. MacDonald: U. S. Geol. Survey Bull. 384, **1909.***

The mining districts of northern Idaho, by E. K. Soper: Min. & Sci. Press, vol. 116, pp. 126-127, **1918.***

Tungsten, cinnabar, manganese, molybdenum and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****

Geology and ore deposits of Boundary County, Idaho, by V. R. D. Kirkham and E. W. Ellis: Idaho Bureau of Mines and Geology Bull. 10, **1926.****

BUTTE COUNTY

Butte is one of the south-central counties, being bounded by Lemhi, Custer, Blaine, Bingham, Jefferson, and Clark counties. The Big and Little Lost rivers flow in a southerly direction across the county, and the lower valleys of these rivers constitute the larger part of its area of 2048 square miles. Arco, situated near the lower end of Big Lost River valley, is the largest town and the county seat. It is primarily an agricultural and stock-raising community, although its mining industry is gaining recognition and importance. The publicity given and the travel attracted to the new national monument, the Craters of the Moon, which is located in this county, have widely advertised the resources and scenic attractions of the State.

Two State highways have been designated and partly constructed, the Lost River Highway, which extends from Blackfoot to Challis and passes through Arco and Big Lost River valley, and the Idaho Central Highway from Hailey to Dubois, which serves the Craters of the Moon. The county is served by the Blackfoot-Mackay branch of the O. S. L. Railroad.

The principal mineral resources are lead, silver, zinc, gold, tungsten, manganese, limestone, and marble, the high-grade lead-silver ores being the most important, as they are found in all the mining districts of the county. The other metals occur in sufficient extent to be of commercial importance. Butte is one of the principal lead-silver producing counties in southern Idaho.

This county witnessed more new mine development, more new investigations and more prospecting and location of new claims than during the past 30 years. A large amount of these activities were inspired to a great degree by the success of the Wilbert and Horn Silver mines. The Wilbert Mining Co., Ltd., operating in the Dome district, maintained active production and mine development work throughout the year, in addition to constructing a 17-mile electric power transmission line from Howe to the mine and transforming the mine and mill plants from gas-driven to electrically driven. This company is one of the largest producers of lead-silver ore in southern Idaho.

The Dahle Bros. at the Horn Silver mine in the Lava Creek district, known as the Horn Silver Consolidated Mines Co., maintained active development work throughout the year and were successful in proving a substantial showing of new ore. Three new enterprises in the Lava Creek district were active throughout the year in developing their properties.

One of the principal publications issued during 1929 by the Idaho Bureau of Mines and Geology was its Pamphlet No. 32, "Geology and Ore Deposits of the Lava Creek District, Idaho", by Alfred L. Anderson. This publication is a comprehensive survey of the district and has greatly assisted in attracting attention to it.

BADGER MINES CO.

Office: Rexburg. **Officers:** S. H. Abbott, Pres.-Mgr.; Fay Abbott, Sec., both of Rexburg. **Inc.:** June 8, 1925. **Capital:** 1,000,000 shares; par value 3c; 959,400 shares issued. **Property:** Badger group; 8 unpatented claims, Dome dist.; Howe; held under lease and option. **Development:** Principally by 1 tunnel, 2355 ft. in length. **Plant:** MINE: Gas-driven compressor and complete mining equipment. MILL: 25-ton concentrator, driven by gas engine. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Tunnel extended 200 ft. during the year.

ERA CONSOLIDATED MINES, INC.

Office: Arco. **Officers:** Roy R. Stover, Pres., Missoula, Mont.; Jasper T. Hawes, Sec.-Mgr., Spokane, Wash. **Inc.:** May 27, 1929. **Capital:** 1,000,000 shares; par value 25c; 20,000 shares issued. **Property:** Martin group; 9 unpatented claims, Lava Creek dist.; Martin. **Development:** Principally by 1 tunnel 300 ft. long. **Plant:** Gas-driven G. D. compressor; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 4. **Remarks:** New camp buildings erected, machinery and equipment installed, and active development campaign maintained during the year.

HORN SILVER CONSOLIDATED MINES CO.

Office: Arco. **Officers:** Edward Dahle, Pres.-Mgr.; M. M. Dahle, Sec., both of Arco. **Inc.:** Dec. 21, 1925. **Capital:** 100,000 shares; par value $1; all shares issued. **Property:** Horn Silver group; 3 patented, 7 unpatented claims, held under lease and option; Lava Creek dist.; Martin. **Development:** By 3 tunnels: No. 1, 630 ft.; No. 2, 530 ft.; No. 3, 1500 ft. **Plant:** Gas-driven compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 7. **Remarks:** Active development work throughout the year, which consisted principally of drifting on the vein in No. 3 tunnel. This work opened a substantial showing of ore. All the men employed are interested in the mine and work without wages. The Dahle brothers are to be complimented for hard work, intelligent manner of developing the property and economy of operation.

METTA MINING CO., LTD.

Office: Shelley. **Officers:** W. R. Jones, Pres., Ogden, Utah; A. E. Christensen, Sec.-Mgr., Shelley. **Inc.:** Oct. 20, 1906. **Capital:** 1,000,000 shares; par value $1; 386,500 shares issued. **Property:** Metta group; 9 unpatented claims, Hamilton dist.; Howe. R. R. Dubois, 47 miles. **Development:** 3 short tunnels and 3 short vertical shafts; total development work approximately 1000 ft. **Ore:** Lead-silver. **Remarks:** Annual labor only.

ST. LOUIS MINING CO.

Office: 876 First Ave., Salt Lake City, Utah. **Officers:** Earl Wright, Pres.; Mrs. Jessie B. Russell, Sec., both of Salt Lake City. **Inc.:** Unknown; never filed in Idaho. **Capital:** 750,000 shares; par value 1c; 395,899 shares issued. **Property:** St. Louis group; 5 unpatented claims, Lava Creek dist.; Arco. **Development:** By 3 tunnels: No. 1, 600 ft. long; No. 2, 400 ft. long; No. 3, 450 ft. long; and an inclined shaft 160 ft. long. **Plant:** Gas-driven Gardner compressor; small air-driven hoist; complete mining equipment. **Ore:** Silver. **Remarks:** Operated during part of the year by a lessee who employed 4 men.

WILBERT MINING CO., LTD.

Office: 221 Kearns Bldg., Salt Lake City, Utah. **Officers:** J. A. Foley, Pres.-Mgr.; T. L. Mitchell, Sec., both of Salt Lake City, Utah. **Inc.:** Apr. 10, 1907. **Capital:** 2,000,000 shares; par value 50c; 1,566,128 shares issued. **Property:** Daisy Black group; 6 patented, 30 unpatented claims, Dome dist.; Howe. R. R. Arco, 42 miles. **Development:** Approximately 15,000 ft. of underground workings, the principal of which is No. 4 tunnel, in which there is an inclined shaft 550 ft. long with 4 intermediate levels. When

this tunnel was completed to 2800 ft. in length, a raise was put through at its end and connection made with the old workings. **Plant:** MINE: Hoist and 2 electrically-driven compressors; complete mining equipment and camp. MILL: 75-ton concentrator, electrically driven. **Ore:** Lead-silver. **Men employed:** Average, 50. **Remarks:** In addition to maintaining production and shipping a large tonnage of concentrate during the year, a large amount of mine development work was performed. This work consisted principally of extending the shaft 200 ft., which was successful in opening a substantial tonnage of new ore, after which power line was constructed from Howe to the mine, a distance of 17 miles, and the mine and mill plants were converted from gas-driven to electrically-driven. This property is one of the largest lead-producing mines of southern Idaho.



MINE CAMP AND MILL: WILBERT MINING CO., LTD.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Apex, Apex 3	Lava Creek	Edward Dahle	Martin
Badger 1, 2, 3, 4	Hamilton	William Deusner	Howe
Badger Creek	Hamilton	Frank Peete	Clyde
Betty Lou	Lava Creek	C. V. Genoway	Boise
Big Butte	Hamilton	B. A. Smith	Arco
Black Hawk	Hamilton	Chas. W. Johnson	Howe
Bluebird et al.	Hamilton	Roy Hawley	Howe
Bonanza Gr.	Dome	W. W. Brown	Arco
Bozette Gr.	Lava Creek	J. W. Gamett	Moore
Comstock	Lava Creek	Mrs. E. H. Brim	Martin
Copper King Gr.	Lava Creek	B. A. Smith	Arco
Crater View Gr.	Lava Creek	J. Y. Greene et al.	Arco
Crown Point	Lava Creek	P. J. McQuaid	Arco
Cut Wall	Hamilton	W. A. Beakley	Blackfoot
Denver Gr.	Lava Creek	Leonard Dresser	Emmett
Divide et al.	Lava Creek	Mary V. Stone	Martin
Edmonville	Badger Creek	Louis Edmon	Howe
Ella	Lava Creek	B. F. Morrison	Martin
Flora	Hamilton	G. W. Hooper et al	Howe
Foot Wall	Lava Creek	Ardell Gamett	Moore
Garage	Lava Creek	C. J. Samuels	Arco

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Gold Belt Gr.	Lava Creek	J. M. Walker	Blackfoot
Golden Chariot	Lava Creek	Mabel R. Rush	6710 Windsor Ave., Chicago, Ill.
Granite Mountain	Lava Creek	E. H. Hammond	Arco
Gray Wolfe et al.	Hamilton	S. H. Abbott	Howe
Great Western	Lava Creek	Daniel Romney	Arco
Happy Hooligan	Lava Creek	Ardell Gamett	Moore
Hidden Treasure	Lava Creek	Mattie D. Martin	Martin
Homestake	Lava Creek	J. F. Houf	Arco
Hub Gr.	Lava Creek	S. O. Nelson	Boise
Humdinger	Lava Creek	Ole Anderson	Martin
Iron Dyke et al.	Lava Creek	V. R. Markel	Martin
Ironsides	Lava Creek	A. Brim	Martin
Ironsides	Lava Creek	Gordon Lee	Boise
Johnson Gr.	Dome	Lew Johnson	Howe
Josephine et al.	Hamilton	W. C. Hammond	Martin
Joyce	Lava Creek	M. Shaughnessy	Arco
Lead Belt	Lava Creek	H. W. Weiler Est.	Mackay
Lindy No. 1	Dome	Geo. H. Shail	Rexburg
Little Jim	Lava Creek	John T. Welch	Arco
Lone Pine	Badger Creek	George Hooper	Howe
Lost Gold et al.	Lava Creek	Mattie D. Martin	Martin
Matilda	Lava Creek	M. Weeks	Arco
Neppar et al.	Hamilton	John Linder	Howe
Nester	Lava Creek	Thos. D. Kilion	Arco
O My	Unorganized	H. L. Race	Arco
Oxide Lode	Lava Creek	Ole Anderson	Arco
Pacific et al.	Lava Creek	M. L. Shanafelt	Hailey
Pandora	Lava Creek	Mattie D. Martin	Martin
Pioneer	Lava Creek	Ardell Gamett	Moore
Policy	Lava Creek	Hugo Vogelsang	Arco
Rabbits Foot	Lava Creek	H. C. Schwamb	Hailey
Reliance	Lava Creek	T. C. Woodbridge	Arco
Rosetta	Lava Creek	Rose Shaughnessy	Arco
St. Louis et al.	Lava Creek	T. H. Philipson	Arco
Sam & Tom	Lava Creek	Ira Petty	Howe
Second Chance	Lava Creek	Riley Kent	Arco
Senator Gooding	Lava Creek	D. W. Nichols	Martin
Shail & Comstock	Dome	Shail & Comstock	Rexburg
Silent Friend	Dome	J. D. Powell	Howe
Silver Bell	Lava Creek	Ardell Gamett	Moore
Silver Bell	Lava Creek	P. J. McGuinness	Martin
Silver Horn et al.	Lava Creek	E. B. Jones	Martin
Sooge Gr. et al.	Hamilton	Louis Edmonds	Howe
Sunbeam	Dome	Isidore Fallert	Howe
West Idaho et al.	Lava Creek	W. H. Miller et al.	Arco

BIBLIOGRAPHY

See pages 71-72-73 for publisher's address, meaning of reference marks, and abbreviations.

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Notes on geology of southwestern Idaho and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Bull. 217, pp. 36-47, 59, **1903.**‡

The lead-silver deposits of the Dome district, Idaho, by J. B. Umpleby: U. S. Geol. Survey Bull. 540, pp. 212-222, **1912.***

Geology and ore deposits of the Mackay region, Idaho, by J. B. Umpleby: U. S. Geol. Survey Prof. Paper 97, **1917.**‡

Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****

A geologic reconnaissance of Clark and Jefferson, and parts of Butte, Custer, Fremont, Lemhi and Madison Counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 19, **1927.****

Craters of the Moon National Monument, Idaho, by H. T. Stearns: Idaho Bureau of Mines and Geology Bull. 13, **1928.****

Lava Creek vents, Butte County, Idaho, by A. L. Anderson, Dept. of Geology, University of Idaho, Moscow, Idaho: Northwest Science, vol. 3, pp. 13-18; also issued privately; December, **1928.**§

The "Craters of the Moon" in Idaho, by H. T. Stearns: Ann. Rept. Smithsonian Institution, pp. 307-313, **1928.**§

Geology and ore deposits of the Lava Creek district, Idaho, by A. L. Anderson: Idaho Bureau of Mines and Geology Pamphlet 32, **1929.****

CAMAS COUNTY

Camas County is one of the south-central counties, being bounded on the north and east by Blaine, on the south by Lincoln and Gooding, and on the west by Elmore County. It has an area of 1070 square miles, and was accredited with a population of 1730 in the 1920 census, or 1.6 persons to the square mile. The population is engaged in stockraising and dry farming, which pursuits are confined to the 300,000 fertile acres of the Camas Prairie.

The county is served by locally maintained roads, two Forest Service highways, and the Shoshone-Hill City branch of the O. S. L. Railroad. Fairfield is the largest town and county seat.

The principal mining districts are the Rosetta, Little Smoky, and Skeleton. The Skeleton district includes the drainage area forming the headwaters of the South Fork of the Boise River, and Little Smoky district comprises the drainage area of Little Smoky and Carrie Leonard Creeks. The ores found in the latter are those of lead-silver and zinc, and the mines in the former are principally gold, both placer and lode. In addition to the foregoing, the other mineral resources are copper, tungsten, and diatomaceous earth.

The mines in the Carrietown section of the Little Smoky district have a good production record to their credit, and their latent possibilities still offer excellent opportunities for profitable mines, either through the apparent possibility in some mines for finding the ore beyond the faults which caused a suspension of operations in the early nineties, or, in other mines, of adapting modern flotation methods to the large bodies of proven low-grade ore.

The Consolidated Mines Syndicate, which is developing a prospect in the Willow Creek district, maintained exploration work with a small crew throughout the year. During the closing months of 1929, the Silver Star and Carrie Leonard groups in the Little Smoky district were acquired by the Silver Star-Queens Mines, Inc., and arrangements were completed for the construction of the remaining five miles of highway into this district.

CARRIE LEONARD MINING CO.

Office: 319 Dooly Blk., Salt Lake City, Utah. **Officers:** Boyd T. Park, Pres.; W. A. Wilson, Sec.-Mgr., both of Salt Lake City. **Inc.:** Filed in Idaho, July 21, 1926. **Capital:** 200,000 shares; par value 10c; 188,142 shares issued. **Property:** Carrie Leonard group; 8 patented claims, Little Smoky dist.; Fairfield. **Ore:** Lead-silver. **Remarks:** Idle. At one time this property was the principal producer in the Little Smoky district. Under lease and option to Silver Star-Queens Mines, Inc.

CLIPPER GOLD MINING & MILLING CO.

Office: Box 61, Fairfield. **Officers:** Chas. J. Sherry, Sr., Pres.-Mgr.; Mrs. Anne Sherry, Sec., both of Fairfield. **Inc.:** Apr. 3, 1907. **Capital:** 500,000 shares; par value $1; 400,000 shares issued. **Property:** Clipper group; 4 unpatented claims, Rosetta dist.; Fairfield. **Development:** By 3 short tunnels. **Remarks:** Annual labor only.

CONSOLIDATED MINES SYNDICATE

Office: 623 First Nat'l Bank Bldg., Boise. **Officers:** Frank E. Johnesse Pres.-Mgr.; Wm. MacLeod, Sec., both of Boise. **Inc.:** May 6, 1924. **Capital** 10,000 shares; no par value. On August 15, 1924, the capitalization wa changed to 10,000,000 shares, $2.50 par value; and on May 2, 1925, th capitalization was decreased to 10,000,000 shares; par value $1; 2,662,08 shares issued. **Property:** Princess-Blue Ribbon groups; 7 unpatented claims, unorganized dist.; Beaver Creek; Fairfield. **Development:** By tunnels: No. 1, 170 ft.; No. 2, 415 ft.; No. 3, 350 ft.; No. 4, 225 ft. **Ore** Lead-silver-gold. **Men employed:** Average, 9. **Remarks:** Active explora tory work throughout the year.

CRYSTAL GOLD PLACER MINING CO.

Office: Fairfield. **Officers:** S. B. McEwen, Pres., San Gabriel, Calif. R. M. Angel, Sec., Fairfield. **Inc.:** Nov. 8, 1924. **Capital:** 500,000 shares par value $1; 53,000 shares issued. **Property:** 7 unpatented claims Skeleton dist.; Fairfield; held under lease and option. **Development:** short cuts. **Plant:** Small sawmill and small concentrating plant, both gas-driven. **Ore:** Placer gold. **Remarks:** Annual labor only.

HIDDEN TREASURE MINE & MILLING CO.

Office: Fairfield. **Officers:** Chas. J. Sherry, Sr., Pres.-Mgr.; Fairfield **Inc.:** July 10, 1916. **Capital:** 500,000 shares; par value 10c; 450,000 share issued. **Property:** Hidden Treasure group; 4 unpatented claims, Little Smoky dist.; Fairfield. **Development:** By 3 tunnels; total development approximately 3000 ft. **Plant:** Partly dismantled 50-ton concentrator **Ore:** Lead-silver. **Remarks:** Annual labor only.

RED STAR MINING CO.

Office: Boise. **Officers:** D. W. Zent, Pres., Fairfield; John M. Berry Sec., Gooding. **Inc.:** Nov. 20, 1924. Charter forfeited Nov. 30, 1929. **Capital:** 250,000 shares; par value 10c; 170,000 shares issued. **Property** Red Star group; 4 unpatented claims, Little Smoky dist.; Fairfield. **De velopment:** 1 tunnel 50 ft. long. **Ore:** Gold-silver-lead. **Remarks:** Annua labor only.

RICHARD ALLEN MINES CO.

Office: Gooding. **Officers:** F. D. Wagner, Pres., Gooding; Mrs. Kate Finch Sec., Fairfield. **Inc.:** May 23, 1927. **Capital:** 600,000 shares; par valu 5c; 69,000 shares issued. **Property:** 3 unpatented claims, unorganized dist. Soldier Mountain; Fairfield. **Development:** By 3 tunnels; total develop ment, approximately 1000 ft. **Ore:** Copper-silver-gold. **Remarks:** Annua labor only.

SILVER STAR-QUEENS MINES, INC.

Office: Wallace. **Officers:** L. K. Stratton, Pres., Spokane, Wash.; Wm. J Stratton, Sec., Wallace. **Inc.:** Nov. 22, 1929. **Capital:** 10,000,000 shares par value 10c; shares issued, unknown. **Property:** Silver Star group, 1 patented claims; Carrie Leonard group, 8 patented claims; Little Smok dist.; Fairfield. **Development:** Silver Star group: By 3 tunnels: No. 1 700 ft. long; No. 2, 900 ft. long; No. 3, 1100 ft. long; and an incline shaft 200 ft. long. Total development over 6000 ft., which opens th vein to a depth of 500 ft. **Ore:** Lead-zinc-silver.

TAFT MINE

Office: Hailey. **Owner:** Homer D. Jones, Hailey. **Property:** Taft group 4 unpatented claims, Little Smoky dist.; Fairfield. **Development:** By tunnels: No. 1, 165 ft. long; No. 2, 200 ft. long. **Ore:** Lead-zinc-silver **Men employed:** Average, 1. **Remarks:** Small amount of work during th year.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Axalorr	Skeleton Creek	R. M. Angel	Fairfield
Bear Creek	Skeleton Creek	R. S. Mockett	Lincoln, Neb.
Blue Bird	Little Smoky	Robt. Leaper	Fairfield
Carrie Leonard	Little Smoky	Jas. Gilson, Agt.	Hailey
Climax	Little Smoky	Jas. Williams	Fairfield
Dollarhide	Little Smoky	R. D. Leach	Pocatello
Five Points	Little Smoky	Wm. Finney	Soldier
Fourth of July	Little Smoky	H. D. Jones	Hailey
Golden Star	Little Smoky	Chris Christofsen	Fairfield
Hercules	Big Smoky	W. W. Counterman	209 So. 3d St., Boise
Horn Silver	Little Smoky	P. E. Fletcher	Fairfield
Idaho Chief	Little Smoky	Philip B. Becker	Fairfield
Isabella	Little Smoky	Edw. Somers Est.	Hailey
Gold Bar Placer	Skeleton Creek	Chris L. Giskey	Fairfield
King of the West	Little Smoky	Maylan C. Fox	P. O. Box 774, Salt Lake City, U.
Little Bob	Little Smoky	M. Ryan	Fairfield
Lucky Strike	Little Smoky	Joe Vogner	Fairfield
Manchuria Placer	Rosetta	H. D. Jones	Hailey
Ohio Placer	Little Smoky	Geo. E. Ball	Bridgeport, Conn.
Princess	Willow Creek	Roy Jones	Fairfield
Silver King	Little Smoky	H. D. Jones, Agt.	Hailey
Smoky Bullion	Little Smoky	Ernest Worswick Est.	Reno, Nev.
Square Deal	Little Smoky	Robert Leaper	Fairfield
----------	Little Smoky	Wm. Lewis	Fairfield

BIBLIOGRAPHY

See pages 71-72-73 for publisher's address, meaning of reference marks, and abbreviations.

A geological reconnaissance across Idaho, by G. H. Eldridge: U. S. Geol. Survey, Sixteenth Ann. Rept., pt. 2, pp. 217-276, **1895.***

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey, Twentieth Ann. Rept., pt. 3, pp. 75-256, **1900.***

Nitrate deposits in southern Idaho, and eastern Oregon, by G. R. Mansfield: U. S. Geol. Survey Bull. 620, pp. 19-44, **1915.***

Ore deposits in the Sawtooth quadrangle, Blaine and Custer counties, Idaho, by J. B. Umpleby: U. S. Geol. Survey Bull. 580, pp. 221-249, **1915.**‡

Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****

Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 60, art. 3, pp. 1-33, **1921.**‡

Ground water for irrigation on Camas Prairie, Camas and Elmore counties, Idaho, by A. M. Piper: Idaho Bureau of Mines and Geology, Pamphlet 15, **1926.****

CARIBOU COUNTY

Caribou is one of the large southeastern counties of the State, being bounded on the east by the State of Wyoming, on the south by Bear Lake, on the east by Bannock, and on the north by Bingham and Bonneville counties. It has an area of 1263 square miles, and was accredited with a population of 2191, or 1.7 persons to the square mile, in the 1920 census. Soda Springs, the county seat and the only settlement of importance, is situated in the southeastern corner. The county is principally a sheep raising and agricultural community, and Soda Springs is one of the largest sheep shipping points in the United States.

The southeastern corner of the county is served by the main line of the O. S. L. Railroad, with an 8-mile branch road to Conda, the scene of the Anaconda Copper Mining Co.'s operation, and by the main east and west State highway, the Old Oregon Trail.

The principal mineral resources are phosphate rock, salt, sulphur, and mineral springs, and there are excellent possibilities for the discovery of petroleum. These resources are different from those of most counties, and when properly exploited will be a material factor in the prosperity of the county and State.

A large part of the five billion tons of minable phosphate rock, estimated by geologists of the U. S. Geological Survey, is in this county. These deposits are practically untouched, and constitute one of the greatest potential mineral resources of the State. They are fully described, including analyses and tonnage estimates, in the numerous publications referred to in the bibliography. The Anaconda Copper Mining Co. is pioneering in the development of the rock phosphate industry and has expended over $2,000,000 in its mine, mine plant, mill, railroad, power lines, and townsite.

One of the most outstanding publications issued by the U. S. Geological Survey in recent years is Professional Paper 152, by G. R. Mansfield: "Geography, Geology, and Mineral Resources of Part of Southeastern Idaho". This appeared during 1927; it is profusely illustrated with pictures, maps, and diagrams, and describes in detail the subjects mentioned in its title, dealing especially with the immense areas of phosphate rock found in this county.

The only salt found in the State is in Caribou County. Geologists of the U. S. Geological Survey conservatively estimate five million tons in one deposit, with the possibility of a large tonnage in adjacent areas. The deposits are located on Stump and Tygee creeks, near the State line.

The mineral springs, which are located at Soda Springs, constitute an important resource which is lying dormant. The waters from these springs have exceptional medicinal qualities, are excellent for table use, and offer a great possibility if properly developed and exploited.

A number of structures favorable to the accumulation of petroleum are found in the eastern part of the county. The location and geology of these areas are fully described in the publications issued by the Idaho Bureau of Mines and Geology.

The Anaconda Copper Mining Co., which is operating one of the largest phosphate mines in the United States, enlarged its mining equipment, constructed nine new homes for its employees, and maintained capacity production throughout the greater part of the year. The phosphate rock which this company is producing is shipped to Anaconda, Montana, where it is manufactured into high-grade fertilizer and sold under the trade name of "Anaconda treble superphosphate."

ANACONDA COPPER MINING CO.

Office: Anaconda, Mont. **Officers:** C. F. Kelley, Pres.; A. H. Melin, Sec., both of 25 Broadway, New York City; E. M. Norris, Local Mgr., Conda, Idaho. **Inc.:** Filed in Idaho: Apr. 10, 1916. **Capital:** 12,000,000 shares; par value $50; 5,415,266 shares issued. **Property:** 23 patented claims; 3403 acres, unorganized dist.; Conda. **Development:** 3 adits, 45 ft. above railroad-track level, 9x9 ft. inside of timbers: No. 1, 6050 ft. long; No. 2, 2660 ft. long; No. 3, 5120 ft. long. The main operating tunnels are equipped with 25-lb. rail, 36-in. gauge track, 15-ton storage-battery locomotive capable of hauling a 100-ton net load at a speed of 4 to 7 miles per hour, 10-ton side dump ore cars, power loading machines operated by compressed air and No. 4 sirocco fan. **Plant:** MINE: 1000-cu.-ft. compressor; drill sharpeners; machine, blacksmith and carpenter shops with latest type power-driven equipment; switch boards and motor generator charging set; laboratory; electric sub-station and sawmill all housed in fireproof gunited and steel buildings. MILL: Crushing and drying plant. The mill feed and storage bins are connected with the main tunnels by large trestles. The storage bins, with a capacity of over 4000 tons, and houses over them are protected with several inches of gunite. The main storage

bin is equipped with an Ottumwa boxcar loader and modern railroad scales. The rock drawn from the mill feed bin, which has a capacity of 450 tons, passes over shaking grizzlies, the oversize going to a 12-inch Traylor gyratory crusher, which reduces it to about 2½ inches. The product from the crusher and the undersize is elevated and passed over a Mitchell vibrating screen. The rock passing through this screen goes to the dryer feed bin, and the oversize to 22x54-inch Anaconda rolls that reduce it to three-fourths of an inch. The product from the rolls is elevated and again passes over the Mitchell vibrating screen. The crushed rock drawn from the dryer feed bins is conveyed into class A-12 Ruggles-Coles dryers by apron feeders. After leaving the dryer the rock goes over a shaking feeder to a chain bucket elevator. This elevator carries it to the top of the mill where it passes through a Vezin sampler, and it is then conveyed to the storage bins. The present capacity of the mill is 400 tons in 24 hours. This output can be increased to 1000 tons in the same time by adding another dryer. **Railroad:** 8-mile branch from Soda Springs to mine, with storage tracks that will accommodate 100 fifty-ton railroad cars, spurs to mill and coal bins, and wyes at each end of the yards. The gradient of the storage tracks is such that the cars are operated by gravity to and from the storage bins. **Town:** The company has erected a model mine town consisting of modern homes, which are rented to the employees at a nominal figure. Company offices, bunk and boarding houses, superintendent's home, recreation hall and a number of small homes have been erected. A fully equipped store is maintained by the company, a postoffice has been established, and a modern school erected and maintained. A complete water system for the town and plant has been installed; the water is piped a distance of 2 miles to a 100,000-gallon storage tank from which it is distributed. **Ore:** Phosphate rock. **Men employed:** Average, 70. **Remarks:** During the greater part of the year active production was maintained at the rate of approximately 200 tons per day. A large number of new homes for the employees were constructed, mine plant was enlarged, an additional storage-battery locomotive added, and a preservative plant for the treating of mine timbers installed during the year. Note pages 26 to 31 of 1923 Annual Report for complete description of this operation, and pages 28 and 29 of this report for stoping methods used.

BIBLIOGRAPHY

See pages 71-72-73 for publisher's address, meaning of reference marks, and abbreviations.

Phosphate deposits in western United States, by F. B. Weeks and W. F. Ferrier: U. S. Geol. Survey Bull. 315, pp. 449-462, **1907.***

The salt resources of the Idaho-Wyoming border, with notes on the geology, by C. L. Breger: U. S. Geol. Survey Bull. 430, pp. 555-569, **1910.***

Preliminary report on a portion of the Idaho phosphate reserve, by R. W. Richards and G. R. Mansfield: U. S. Geol. Survey Bull. 470, pp. 371-439, **1910.***

Sulphur deposits near Soda Springs, Idaho, by R. W. Richards and J. H. Bridges: U. S. Geol. Survey Bull. 470, pp. 499-503, 1910; Eng. and Min. World, vol. 36, p. 12, Jan. 6, **1910.***

A geological reconnaissance in southeastern Idaho, by A. R. Schultz and R. W. Richards: U. S. Geol. Survey Bull. 530, pp. 267-284, **1911.***

Geology of the phosphate deposits northeast of Georgetown, Idaho, by R. W. Richards and G. R. Mansfield: U. S. Geol. Survey Bull. 577, **1914.**†

Revision of the Beckwith and Bear River formations of southeastern Idaho, by G. R. Mansfield and P. V. Roundy: U. S. Geol. Survey Prof. Paper 98, pp. 75-84, **1916.***

Salt resources of the United States, by W. C. Phalen: U. S. Geol. Survey Bull. 669, pp. 131-137, **1919.**‡

Oil shale in western Montana, southeastern Idaho, and adjacent parts of Wyoming and Utah, by D. D. Condit: U. S. Geol. Survey Bull. 711, pp. 15-40, **1920.**‡

Petroleum possibilities of certain anticlines in southeastern Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Bull. 4, **1922.***
The Wasatch and Salt Lake formations of southeastern Idaho, by G. R. Mansfield: Am. Jour. Sci., vol. 49, pp. 390-406, June, **1920.**§
Triassic and Jurassic formations in southeastern Idaho and neighboring regions, by G. R. Mansfield: Am. Jour. Sci., vol. 50, pp. 53-64, July, **1920.**§
Types of Rocky Mountain structure in southeastern Idaho, by G. R. Mansfield: Jour. Geology, vol. 29, No. 5, pp. 444-468, July-August, **1921.**§
Phosphate mine of Anaconda Copper Company, by C. E. Nighman: Twenty-fifth Ann. Rept., Mining Industry of Idaho, **1923.***
Geology and oil possibilities of Bingham, Bonneville, and Caribou counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Bull. 8, **1924.****
Geography, geology, and mineral resources of part of southeastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Prof. Paper, 152, **1927.***
The Idaho phosphate field, by G. R. Mansfield: Mining and Metallurgy, vol. 9, pp. 19-20, January, **1928.**§
Geography, geology, and mineral resources of the Portneuf quadrangle, Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 803, **1929.**‡

CASSIA COUNTY

Cassia is one of the principal southern counties, being bounded on the south by the States of Nevada and Utah, on the west by Twin Falls, and on the east by Oneida and Power counties. Snake River forms its northern boundary, which is also a part of the southern boundary of Jerome, Minidoka, Blaine, and Power counties. It has an area of 2595 square miles, and was accredited with a population of 15,659 in the 1920 census. The principal industries are stockraising and farming. Burley, which is on the Snake River, near the center of the Minidoka project of the U. S. Reclamation Service, is the largest town and county seat.

The northern part of the county is served by the Old Oregon Trail State Highway; the other parts by a well-maintained system of county roads. Its railroad is the Minidoka-Buhl branch of the O. S. L. Railroad, from which there are branch lines extending from Burley to Idahome, and from Burley to Oakley.

The minerals found in this county are silver, lead, copper, gold, limestone, building stone, marble, cinnabar, and lignite. In the past, a little drilling has been done for petroleum, but all the companies have been practically idle for the past four years. These varied mineral resources, particularly the high grade lead-silver and silver-copper ores of the Stokes and Dolomite districts, offer excellent opportunities and possibilities for prospectors and development companies.

The Silver Hills Mining Co. was the only active company during the year, although there was an increase in the number of prospectors and the amount of work done by them.

BIG BERTHA MINING CO.

Office: Albion. **Officers:** R. A. Bohn, Pres., Oakland, Calif.; R. E. Bohn, Sec., Escondida, Calif. **Inc.:** Sept. 30, 1924. **Capital:** 25,000 shares; par value $1; 5 shares issued. **Property:** Big Bertha group; 13 unpatented claims, Stokes dist.; Declo. **Development:** By 2 tunnels: No. 1, 500 ft. long; No. 2, 400 ft. long. **Plant:** Small gas-driven compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Remarks:** Annual labor only.

GOOSE CREEK OIL AND DEVELOPING CO.

Office: Penn Ave. & 18th St., Pittsburgh, Pa. **Officers:** W. M. Gill, Pres.; H. E. Wynn, Sec., both of Pittsburgh, Pa.; D. P. Carpenter, Mgr., Oakley. **Inc.:** Oct. 28, 1920. **Capital:** 1,000,000 shares; par value 50c; 332,000 shares issued. **Property:** Government prospecting permit on 8000 acres on Coal and Goose creeks; Oakley. **Development:** 1750-ft. well. **Mineral sought:** Oil and gas. **Remarks:** Well extended 275 ft. during the year.

MELCHER MINING & MILLING CO.

Office: 503 McIntyre Bldg., Salt Lake City, Utah. **Officers:** Samuel McIntyre, Sr., Pres.; Roy A. McIntyre, Sec., both of Salt Lake City. **Inc.:** May 2, 1899. **Capital:** 500,000 shares; par value 10c; all shares issued. **Development:** By 2 tunnels: No. 1, 3300 ft. long; No. 2, 1600 ft. long. **Remarks:** Annual labor only.

SILVER HILLS MINING CO.

Office: 1258 Crandall Ave., Salt Lake City, Utah. **Officers:** W. J. Burridge, Pres.-Mgr., Black Pine; L. M. Francis, Sec., Salt Lake City, Utah. **Inc.:** Mar. 31, 1920. Charter forfeited Nov. 30, 1926. **Capital:** 800,000 shares; par value 10c; 495,598 shares issued. **Property:** Busy Bee and Joven groups; 30 unpatented mining claims, Black Pine dist.; Black Pine. **Development:** 3 tunnels, 1 shaft; approximately 3000 ft. total development. **Ore:** Lead-silver. **Men employed:** Average, 4. **Remarks:** Small amount of development work during the summer months.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Alice	Stokes	W. E. Langford	229 W. 2d St. N., Salt Lake City
Albion Gr.	Stokes	J. E. Comerford	Rupert
Bimetallic	Stokes	F. E. Trayme	Albion
Giant	Stokes	Samuel McIntyre	Salt Lake City
Golden Eagle	Stokes	O. H. Melcher	Albion
Hazel Pine	Black Pine	F. B. Platt	265 E. Broadway, Salt Lake City
Ken-Sko	Dolomite	Robt. B. Kenner	Salt Lake City
Last Chance	Unorganized	Charles Ransom	Burley
Last Chance Gr.	Grape Creek	J. W. Durfee	Malta
Sample Placer	Snake River	Thomas C. Elgin	Neeley
Walton No. 2	Stokes	T. C. Walton	Burley

BIBLIOGRAPHY

See pages 71-72-73 for publisher's address, meaning of reference marks, and abbreviations.

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Lignite in the Goose Creek district, Cassia County, Idaho, by C. F. Bowen: U. S. Geol. Survey Bull. 531, pp. 252-262, **1913.***

Portland cement materials and industry in the United States, by E. C. Eckel, with contributions by E. F. Burchard and others: U. S. Geol. Survey Bull. 522, p. 135, **1913.***

Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****

Preliminary report on the clays of Idaho, by F. H. Skeels: Idaho Bureau of Mines and Geology Bull. 2, **1920.****

Geology and water resources of the Goose Creek Basin, Cassia County, Idaho, by A. M. Piper: Idaho Bureau of Mines and Geology Bull. 6, **1923.****

CLARK COUNTY

Clark is one of the southeastern counties, adjoining and lying east of Lemhi and Butte counties, and bounded on the north by the State of Montana, on the east by Fremont County, and on the south by Jefferson County. It contains an area of 1778 square miles and was accredited with a population of 1886 in the 1920 census. Dubois is the principal town and county seat.

The Pocatello-Butte division of the O. S. L. Railroad, and the Idaho-Montana State highway traverse the county north and south, thus giving it good transportation facilities.

The Lemhi Mountains, which extend into the northwest corner of the county, constitute the principal mining district. This district is named from

Birch Creek, which flows in a southern direction and which divides the district. The western part is an extension of the Dome, or Hamilton, district of Butte County, and the eastern part is an extension of the Nicholia district of Lemhi County. The ores found throughout this area are lead-silver, copper-silver, and zinc. The deposits have been partially developed and a small tonnage has been marketed.

Deposits of coal and bentonite of sufficient extent to be of commercial importance and structures favorable to the accumulation of oil and gas in commercial quantities occur in the Beaver Head Mountains, the summit of which is the state line between Idaho and Montana.

The geography, geology, and ore deposits of the Birch Creek district are fully described, together with maps and illustrations, in a publication issued during 1928 by the Idaho Bureau of Mines and Geology as Pamphlet No. 27: "Geology and Ore Deposits of the Birch Creek District, Idaho," by P. J. Shenon.

The Birch Creek district witnessed a small amount of development work and investigation during 1929, and press reports were to the effect that the Monida Oil Co., a new organization, had installed drilling equipment and commenced operations during the closing months of the year.

BIRCH CREEK MINING CO., LTD.

Office: Idaho Falls. **Officers:** George Brunt, Pres.; A. T. Shane, Sec., both of Idaho Falls. **Inc.:** June 21, 1907. **Capital:** 1,000,000 shares; par value 10c; 500,000 shares issued. **Property:** Scott group; 9 unpatented claims, Birch Creek dist.; Winsper, R. R. Dubois, 35 miles. **Ore:** Lead.

MONIDA OIL CO.

Office: 11 Myler Bldg., Portland, Ore. **Officers:** Fred G. Ostland, Pres., Portland, Ore.; Paul R. Greever, Sec., Cody, Wyo. **Inc.:** Filed in Idaho Nov. 7, 1929. **Capital:** 20,000 shares; par value $25; 7500 shares issued. **Property:** Oil and gas prospecting leases on 20,000 acres; Humphrey. **Remarks:** Press reports during the latter part of the year were to the effect that complete drilling equipment was installed and operations were commenced.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Aviator et al.	Birch Creek	R. A. Connell and J. O'Brien	Reno
Big Dyke	Birch Creek	John Peterson	Winsper
Elephant	Birch Creek	David Bloom et al.	Idaho Falls
Lead Basin	Birch Creek	Frank Worthing	Reno
Lucky Strike No. 1	Unorganized	E. M. Kaufman	Dubois
Lucky Strike No. 2	Unorganized	C. H. Manhart	Dubois
Snow Flake Pl.	Birch Creek	John Peterson	Winsper
Sunset	Birch Creek	Ray Best et al.	Dubois
Sun Shine	Heart Mountain	Geo. A. Briggs et al.	Winsper
Tip Top	Birch Creek	Wm. Garretson et al.	Dubois

BIBLIOGRAPHY

See pages 71-72-73 for publisher's address, meaning of reference marks, and abbreviations.

Geology and ore deposits of the Mackay region, Idaho, by J. B. Umpleby: U. S. Geol. Survey Prof. Paper 97, **1917.**‡

Geology and water resources of the Mud Lake basin, Idaho, by H. T. Stearns and L. L. Bryan: U. S. Geol. Survey Water-Supply Paper 560-D, **1925.**‡

A geologic reconnaissance of Clark and Jefferson, and parts of Butte, Custer, Fremont, Lemhi and Madison counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 19, **1927.****

Geology and ore deposits of the Birch Creek district, Idaho, by P. J. Shenon: Idaho Bureau of Mines and Geology Pamphlet 27, **1928.****

CLEARWATER COUNTY

Clearwater is one of the large northern counties, being bounded on the north by Shoshone County, on the east by the State of Montana, on the south by Idaho County, and on the west by Lewis, Nez Perce, and Latah counties. It has an area of 2508 square miles and was accredited with a population of 4993 in the 1920 census. Orofino, which is on the Clearwater River, near the western border, is the largest town and county seat. Except a small area adjacent to Orofino, which is devoted to agriculture, the entire county is mountainous and heavily timbered. The largest body of virgin white pine timber in the United States is located in this county.

It is served by three State highways which are partly constructed, by good county-maintained roads, and by the Lewiston-Stites branch of the Northern Pacific Railroad, which follows the Clearwater River.

Pierce City, which is the principal mining district in the county, was the scene of the first gold discovery in Idaho. This discovery was made in 1860, and the ensuing stampede soon crowded the district and the overflow spread into other sections. The stampede and resulting overflow formed the nucleus of the State, and shortly thereafter the Territory of Idaho was formed. Practically all the placer gold that could be recovered by hand methods or hydraulicking was exhausted years ago, and all recent operations have been devoted to dredging and lode mining.

Gold—placer and lode—silver, monazite, and copper are the principal minerals found in the Pierce City district. Lead, zinc, and silver occur in the Neva Hill section, and placer gold is still found in some of the isolated sections.

The lead-silver deposits in the Neva Hill section, near Elk River, received a small amount of attention, the principal operations being those of the Ruby Creek Mining Co.

Near Orofino the Clearwater Lime Products Co., an enterprise based on the mining and marketing of a high-grade white crystalline limestone, installed its plant and equipment and produced and marketed a substantial tonnage during the year. Its products are sold principally to the agricultural industries.

ALDER CREEK MINING CO.

Office: 404 Court House, Duluth, Minn. **Officers:** Thos. Owens, Pres., Two Harbors, Minn.; F. H. Grannis, Sec., Duluth, Minn. **Inc.:** Apr. 4, 1902. **Capital:** 200,000 shares; par value $1; 178,000 shares issued. **Property:** 800 acres patented land, Pierce City dist.; Orofino. **Ore:** Placer gold.

AMERICAN PLACER MINING CO., LTD.

Office: Peyton Bldg., Spokane, Wash. **Officers:** J. M. Porter, Pres.; D. W. Porter, Sec., both of Spokane. **Inc.:** Nov. 18, 1893. **Capital:** 500,000 shares; par value $1; all shares issued. **Property:** 3 patented, 1 unpatented claim; Pierce.

INDEPENDENCE PLACER MINING CO., LTD.

Office: Wallace. **Officers:** Wm. Fahle, Pres.-Mgr.; Hugh Toole, Sec., both of Wallace. **Inc.:** Oct. 25, 1906. **Capital:** 1,000,000 shares; par value $1; 838,657 shares issued. **Property:** 16 unpatented claims, Moose City dist.; Rivulet, Mont. **Men employed:** Average, 4. **Ore:** Placer gold. **Remarks:** Flumes constructed during a period of 200 days. Stock assessments were levied during 1929 as follows: Apr. 10, 6 mills; Dec. 12, 1c.

NEVA COPPER CO.

Office: Bovill. **Officers:** George Brady, Pres.-Mgr., Bovill; E. Harris, Sec., Spokane, Wash. **Inc.:** Feb. 29, 1924. Charter forfeited Nov. 30, 1929. **Capital:** 1,000,000 shares; par value 25c; 515,000 shares issued. **Property:** 2 unpatented claims, Ruby Creek dist.; Bovill. **Ore:** Copper-silver. **Remarks:** Annual labor only.

OXFORD COPPER MINING CO., LTD.

Office: Moscow. **Officers:** Samson Snyder, Pres., Orofino; L. F. Parsons, Sec., Moscow. **Inc.:** Apr. 10, 1907. **Capital:** 1,000,000 shares; par value $1; 611,185 shares issued. **Property:** 6 unpatented claims, Pierce City dist.; Pierce. **Development:** Approximately 500 ft. of underground workings. **Plant:** Steam-driven hoist. **Ore:** Copper. **Remarks:** Annual labor only.

RUBY CREEK MINING CO.

Office: Bovill, Idaho. **Officers:** P. A. Hughes, Pres.; J. M. Evans, Sec.; James Gilroy, Mgr., all of Bovill. **Inc.:** Sept. 14, 1925. **Capital:** 1,500,000 shares; par value 10c; 732,050 shares issued. **Property:** Ruby Creek group; 20 unpatented claims, Ruby Creek dist.; Bovill. **Development:** By 1 tunnel 665 ft. long, and a vertical shaft 170 ft. deep. **Plant:** Steam-driven compressor; complete mining equipment, and camp. **Ore:** Lead-zinc-silver. **Men employed:** Average, 5. **Remarks:** Active throughout the year. Press reports were to the effect that construction work was started on a 50-ton flotation concentrator.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
American	Pierce City	J. M. Porter	Spokane, Wn.
Aurora et al.	Pierce City	Franz Magnus	Orofino
Chloe	Pierce City	A. B. Rhude	Pierce
Collins	Pierce City	J. E. Collins	Pierce
Cow Creek	Pierce City	Jas. Crawford	Grangemont
Deep Placer	Moose Creek	E. J. Hughes	Pierce
Dream, The	Pierce City	Fred Forsman	Pierce
Elsie Lucky et al.	Moose Creek	Hans Ehret	----------
Gold Dust Gr.	Pierce City	Chas. Rogers	Pierce
Gold Island	Pierce City	Lewis Pratt	Pierce
Granite et al.	Ruby Creek	P. A. Hughes	Bovill
Jericho	Burnt Creek	F. A. Losekamp	Elk River
K. H. C. et al.	Ruby Creek	K. Barker	Elk River
Little Joe	Pierce City	Joseph Frank	Orofino
Little Mascot	Pierce City	Earl McHenry	Orofino
Lone Pine et al.	Pierce City	J. R. Crawford	Orofino
Ozark	Pierce City	Chas. Meyers	Greer
Oyama et al.	Pierce City	Agnes M. Kelly	Spokane
Rummel et al.	Pierce City	James Clark	Pierce
Russell Gr.	Pierce City	J. E. Rudersdorf	Pierce
Silver Creek Pl.	Pierce City	Gus Anderson	Pierce
Snake Creek Pl.	Pierce City	G. V. Friedman	Pierce
Trapper et al.	Pierce City	R. E. Willoughby	Pierce
Venus Placer	Burnt Creek	John Pearson	Dent
Victoria et al.	Ruby Creek	Geo. Brady	Bovill
Victory Loan	Pierce City	H. J. Steffey	Pierce
Vida Pl. et al.	Pierce City	J. H. Wells et al.	Pierce
Wendell Placer	Burnt Creek	Walter Wendell	Dent
Wild Rose	Pierce City	John Gaffney	Pierce
Wonder	Pierce City	P. H. Sayles	Lapwai
Yukon et al.	Burnt Creek	Peter Skjarve	Deary

BIBLIOGRAPHY

See pages 71-72-73 for publisher's address, meaning of reference marks, and abbreviations.

Bitterroot Forest Reserve (Idaho-Montana), by R. U. Goode: Nat. Geog. Mag., vol. 9, pp. 387-400, **1898.**§

Geology and water resources of Nez Perce County, Idaho, by I. C. Russell: U. S. Geol. Survey Water-Supply Papers 53 and 54, **1901.**‡*

Mineral deposits of the Bitterroot Range and Clearwater Mountains, by Waldemar Lindgren: U. S. Geol. Survey Bull. 213, pp. 66-70, **1903.***

A geological reconnaissance across the Bitterroot Range and Clearwater Mountains in Montana and Idaho, by Waldemar Lindgren: U. S. Geol. Survey Prof. Paper 27, **1904.***

Central Idaho gold districts, by S. P. Jellum: Northwest Min. News, vol. 3, pp. 83-91, 107-114, 134-139, **1908**; vol. 4, pp. 2-6, 31-37, 66-73, **1909.***
An occurrence of monazite in northern Idaho, by F. C. Schrader: U. S. Geol. Survey Bull. 430, pp. 184-191, **1909.***
Portland cement materials and industry in the United States, by E. C. Eckel, with contributions by E. F. Burchard and others: U. S. Geol. Survey Bull. 522, pp. 135-140, **1913.***
The Orofino coal field, Clearwater, Lewis, and Idaho counties, Idaho, by C. T. Lupton: U. S. Geol. Survey Bull. 621, pp. 99-108, **1915.***
Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 60, art. 3, pp. 1-33, **1921.**‡
Geology and gold resources of north central Idaho, by F. A. Thomson and S. M. Ballard: Idaho Bureau of Mines and Geology Bull. 7, **1924.****

CUSTER COUNTY

Custer County is bounded on the north by Lemhi County, on the east by Butte, on the south by Blaine, and on the west by Boise and Valley counties. Its principal area comprises the drainage basins of the headwaters of the Salmon River, Big Lost River, and Little Lost River. It has an area of 4921 square miles, and was accredited with a population of 3550 in the 1920 census, or 0.7 persons to the square mile. A comparison of the area and density of population with the State of Connecticut, which contains 4845 square miles and a population of 286.4 persons to the square mile, conveys a good idea of the size of Custer County and its lack of population. It is one of the south-central counties, and the area within its borders comprises the greater part of the region known as "Central Idaho's Mineral Empire."

It is principally a mining county and always ranks as one of the principal mineral-producing counties of the State. It is also noted for its agricultural and stockraising industries, particularly sheep, as it is one of the largest sheep raising sections in the State.

The county is served by the Blackfoot-Mackay branch of the O. S. L. Railroad, by the Sawtooth Park and the Lost River State highways and by well-maintained county and Forest Service roads, which extend into all the various mining districts. The roads are kept in good repair and are open to travel during the larger part of the year. Mackay, the terminus of the railroad, is the largest town and the supply point for most of the mines. Challis, which is 60 miles northwest of Mackay, is the county seat and oldest settlement.

The principal mineral resources are lead, silver, copper, gold—placer and lode, zinc, antimony, molybdenum, tungsten, graphite, bentonite, and garnet. The deposits are widely distributed throughout the county, and many of them offer exceptionally favorable opportunities to prospectors and development companies. Excepting the flat land and river bottoms, which are suitable to dredging and which fully justify investigation, practically all the placer mines are exhausted. The diversity of mineralization and the favorable geological conditions are attracting some of the largest organizations in the United States to this county, and many resulting new discoveries fully prove the possibilities that are in store for those who possess a little courage.

The most important event in this county in 1928 was the acquisition of the Empire copper mine at Mackay by the Mackay Metals. After this new company acquired control of the property, the mine and mill plants were entirely rebuilt, the mine rehabilitated, an active mine development campaign was started and operations commenced by a large number of lessees. These were continued without interruption during 1929, the principal work being confined to the 1000-ft. level and the Cossack tunnel. This work was successful in opening a large tonnage of new ore, which is estimated to increase

the life of the property many years. During the year a new 1200-cu.-ft. Nordberg compressor, approximately 4 miles of new air-line, and a large amount of new mining equipment were installed. Production and shipping of crude ore and concentrate, both on company account and by lessees, were maintained without interruption throughout 1929.

At the Camp Bird group near Clayton, which was acquired in 1928 by H. B. Kingsbury of Wallace and Wilbur Greenough of Spokane, a small hydroelectric power plant and a 5-drill compressor were installed, and a small amount of mine development work was performed.

The Livingston Mines Corporation improved and enlarged its mine and mill plants and proved the extent of its ore reserves through additional development at depth and laterally. This company is one of the largest producers of lead and zinc ore and concentrates in southern Idaho and maintains one of the largest payrolls. The Twin Apex Mining Co. on Squaw Creek near Clayton, the Aztec Mining & Milling Co. on Fourth of July Creek, and the Crater Mines Co. on Lake Creek conducted active operations during the summer months. A large amount of new development work was performed at the Phi Kappa group and the Black Rock group, both on the head of Big Lost River, and by the Estes Mountain Gold, Inc., at the Franklin group on Yankee Fork. The Red Bird mine of the Ford Motor Co. was idle throughout the year, while the only operation at the Ramshorn was that conducted by lessees, who produced and marketed a small tonnage of high-grade hand-sorted ore.

AZTEC MINING & MILLING CO.

Office: 839 W. Lander St., Pocatello. **Officers:** D. C. Ray, Pres.; Ben F. Anderson, Sec., both of Pocatello; T. W. Galigher, Mgr., Boise. **Inc.:** May 26, 1917. Capital stock increased Feb. 2, 1925. **Capital:** 50,000 shares; par value $1; 35,180 shares issued. **Property:** Kingfisher group; 3 unpatented claims, Stanley dist.; Stanley. **Development:** Inclined shaft 650 ft. long. Total development, approximately 1750 ft. **Plant:** MINE: 25-h. p. steam-driven hoist. MILL: Partly installed Gibson mill and amalgamation plates. **Ore:** Gold. **Men employed:** Average, 3. **Remarks:** During the summer months the mine and mill buildings were rehabilitated, water line was installed, and a small amount of mine labor performed.

BURNS MINING & MILLING CO.

Office: Meridian. **Officers:** G. W. Parkin, Pres., J. M. Evans, Sec., both P. O. Box 63, Meridian. **Inc.:** May 3, 1911. **Capital:** 500,000 shares; par value $1; 332,819 shares issued. **Property:** Burns group; 7 unpatented claims, Seafoam dist.; Stanley. **Development:** Approximately 750 ft. of workings. **Ore:** Lead-silver, gold. **Remarks:** Annual labor only.

CAMP BIRD GROUP

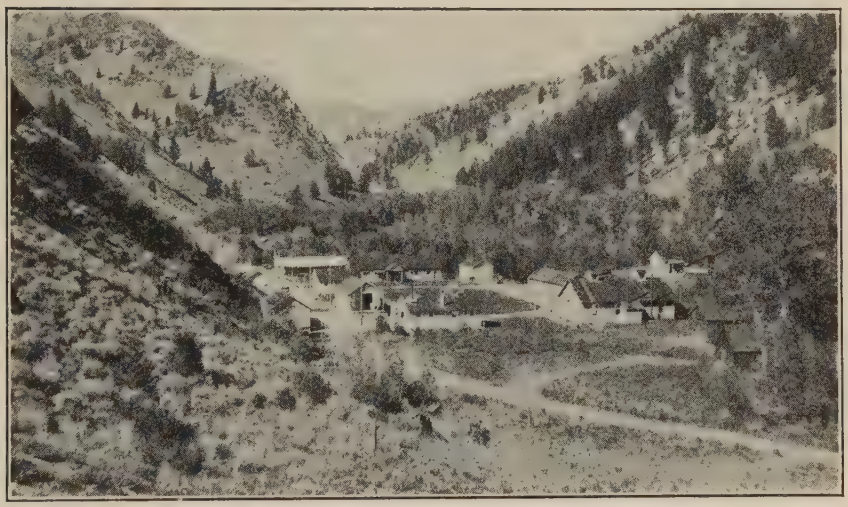
Owners: H. B. Kingsbury, Wallace, and Wilbur Greenough, Spokane, Wash. **Property:** Camp Bird group; 7 unpatented claims, Kinnikinnick Creek; Bay Horse dist.; Clayton. **Development:** Principally by 1 tunnel 800 ft. long. **Plant:** MINE: Small gas-driven Sullivan compressor; complete mining equipment and camp. MILL: Small concentrator. **Ore:** Lead-silver. **Men employed:** Average, 10. **Remarks:** During the summer months pipe-line for small hydroelectric power plant was installed and plant erected. A 5-drill compressor was also installed.

CRATER MINES, INC.

Office: Rigby. **Officers:** Harry S. Thayer, Pres.-Mgr., Idaho Falls; Geo. E. Hill, Sec., Rigby. **Inc.:** Aug. 30, 1927. **Capital:** 1,000,000 shares; par value $1; 875,000 shares issued. **Property:** Crater group; 39 unpatented claims at the head of Slate Creek, Boulder dist.; Mackay; held under lease and option. **Development:** Principally by 1 tunnel 700 ft. long, and an inclined shaft 150 ft. long. **Plant:** Small gas-driven compressor; complete mining equipment and camp. **Ore:** Lead-antimony-silver. **Men employed:** Average, 6. **Remarks:** Active throughout the year.

ESTES MOUNTAIN GOLD, INC.

Office: Mackay. **Officers:** J. L. Bills, Pres.-Mgr.; Mabel Patterson, Sec., both of Mackay. **Inc.:** July 17, 1929. **Capital:** 1,000,000 shares; par value $1; 500,000 shares issued. **Property:** Franklin group; 5 unpatented claims, Yankee Fork dist.; Clayton. **Development:** Principally by 1 tunnel 600 ft. long. **Ore:** Gold. **Men employed:** Average, 3. **Remarks:** Active throughout the year. A small tonnage of exceptionally high-grade ore was extracted and shipped. A stock assessment of ½c was levied on Nov. 25, 1929.



MINE CAMP: FORD MOTOR CO.

FORD MOTOR CO.

Office: Highland Park, Mich. **Officers:** Edsel B. Ford, Pres.; B. J. Craig, Sec., both of Highland Park, Mich. **Inc.:** Filed in Idaho, Jan. 6, 1925. **Capital:** 1,000,000 shares; par value $100. **Property:** Red Bird and Silver Rule groups; 44 patented claims and 6 millsites, Bay Horse dist.; Clayton; R. R. Mackay, 70 miles. **Development:** Principal development on Red Bird group consists of 4 tunnels: No. 1, 500 ft. long; No. 2, 1300 ft. long; No. 4, 510 ft. long; No. 9, 2127 ft. long, giving a total depth of 900 ft. on the vein; total development approximately 23,000 ft. **Plant:** 2 I-R semi-Diesel engines, type POC-2, direct connected to compressors; complete mining equipment including 2 diamond drills; shops and mining camp consisting of 11 buildings. **Ore:** Lead-silver. **Men employed:** 1 watchman. **Remarks:** Idle.

GREYHOUND MINING & MILLING CO., LTD.

Office: Gem Bldg., Boise. **Officers:** W. C. Annett, Pres.; Edward Smith, Sec., both of Boise. **Inc.:** Sept. 2, 1902. **Capital:** 1,500,000 shares; par value $1; 1,483,299 shares issued. **Property:** Greyhound group; 7 patented claims, Seafoam dist.; Stanley. **Plant:** Stamp mill, 10 1050-lb. stamps; crusher; 2 Dorr classifiers; 4 vanners and a small circular blast furnace. **Remarks:** Small tonnage of ore from old dumps was marketed by a lessee during the year.

HORSE SHOE COPPER CO., LTD.

Office: Mackay. **Officers:** L. A. Hansen, Pres.; Geo. L. Morgan, Sec., both of Mackay. **Inc.:** Dec. 10, 1903. **Capital:** 1,000,000 shares; par value $1; 916,150 shares issued. **Property:** Horse Shoe group; 17 unpat-

ented claims, Alder Creek dist.; Mackay. **Development:** This mine is developed principally by 3 tunnels and 1 vertical shaft, 350 feet deep, and a large amount of crosscuts, drifts and raises, totalling over 2000 ft. **Plant:** MINE: Electrically-driven 2-drill compressor and hoist. Complete mine camp. **Ore:** Lead-zinc-silver, copper-silver. **Remarks:** Property under lease and option to Ray Strunk of Mackay.

IDAHO DREDGING CO.

Office: 714 Hutton Bldg., Spokane, Wash. **Officers:** F. N. Johnson, Pres.-Mgr.; D. P. Camp, Sec., both of Spokane. **Inc.:** Oct. 10, 1929. **Capital:** 500,000 shares; par value $1; 41,700 shares issued. **Property:** Valley Creek placers; 7 patented claims, Stanley dist.; Stanley. **Remarks:** The company states: "Program for 1930 will include thorough testing of the ground."

IDAHO HERMIT MINES, INC.

Office: 11 West 42nd St., New York City. **Officers:** Kirby Thomas, Pres.; George Hoy, Sec., both of New York City. **Inc.:** May 16, 1927. Charter forfeited Nov. 30, 1928. **Capital:** 3,000,000 shares; par value $1; 692,500 shares issued. **Property:** Hermit group; 19 unpatented claims, Boulder dist.; Mackay, 65 miles. **Development:** By 2 tunnels: No. 1, 600 ft. long; No. 2, 200 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

IDAHO SILVER & LEAD MINES, INC.

Office: 139 N. Clark St., Chicago, Ill. **Officers:** James R. Howe, Pres.; R. H. Van Meter, Sec., both of Chicago; Dr. C. S. Ellis, Mgr., Challis. **Inc.:** May 10, 1928. **Capital:** 2,000,000 shares; par value $1; all shares issued. **Property:** Vulture group; 13 unpatented claims, Stanley dist.; Obsidian. **Development:** By 2 tunnels: No. 1, 250 ft. long; No. 2. 100 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

IVANHOE MINING CO.

Office: 485 California St., San Francisco, Cal. **Officers:** Harry L. Tevis, Pres.; William Letson, Sec., Both of San Francisco, Cal. **Inc.:** Filed in Idaho, July 28, 1909. **Capital:** 2500 shares; par value $1; all shares issued. **Property:** Badger group; 6 patented claims, Yankee Fork dist.; Clayton. **Remarks:** Idle for many years.

LIVINGSTON MINES CORPORATION

Office: 67 Wall St., New York. **Officers:** A. W. Walker, Pres.-Mgr., Mackay; L. M. Turner, Sec., New York. **Inc.:** July 23, 1923. **Capital:** 2,000,000 shares; par value $1. Capitalization increased on Sept. 21, 1926, to 3,000,000 shares; par value $1; 2,922,012 shares issued. **Property:** Livingston group; 7 patented, 16 unpatented claims, Boulder dist.; Mackay, 62 miles. **Development:** Principally by 7 tunnels, averaging from 200 to 2400 ft. in length; No. 2, or Livingston, tunnel is 2000 ft. long, in which are 3000 ft. of crosscuts and drifts. Total development on Livingston lode, approximately 24,000 ft. **Plant:** MINE: 3 electrically-driven compressors, a 12x14 Sullivan, a 10x10 I-R, and a 12x16 I-R; storage-battery locomotive haulage; complete mining equipment and mine camp; 3-mile aerial tramway connecting Livingston No. 2 tunnel with the mill. MILL: 300-ton concentrator, including flotation, Blake crusher, Symonds disc-crusher, Davis rolls, 2 6-ft. Hardinge ball mills, 6 Wilfley tables, Callow flotation, complete mill camp. POWER PLANT: 380-h. p. hydroelectric power plant, supplemented with a 250-h. p. I-R vertical Diesel engine; 8-mile electric transmission and telephone lines connecting power plant, mill and mine. **Ore:** Lead-silver. **Men employed:** Average, 78. **Remarks:** This company maintained the largest payroll of any mine in southern Idaho throughout the year. In addition to continuous production, it re-designed and rebuilt its mill, performed a large amount of lateral development work, and maintained over 20 miles of its road. During the latter part of the year, the development work was successful in encountering an excellent body of high-grade ore. Ore is hauled by motor trucks from the mill to Mackay by an independent contractor.

LOON CREEK HYDRAULIC PLACER MINING CO., LTD.
Office: Judge Bldg., Salt Lake City, Utah. **Officers:** J. Frank Judge, Pres., John J. Harvey, Sec., both of Salt Lake City; John P. Boyle, Mgr., Stanley. **Inc.:** May 17, 1905. **Capital:** 300,000 shares; par value $1; all shares issued. **Property:** 4 unpatented placer claims, Loon Creek dist.; Stanley. **Plant:** 4000 ft. timber flume, 5 ft. wide and 3 ft. high; two-thirds of a mile of ditch; sawmill, and complete mine camp. **Remarks:** This company owns a large tract of placer ground suitable for hydraulic mining. Annual labor only.

LUCKY STRIKE MINING CO. NO. 1
Office: Hollister. **Officers:** Henry Jones, Pres.; A. F. Craven, Sec.; Ora Jones, Mgr., all of Hollister. **Inc.:** April 27, 1917. **Capital:** 500,000 shares; par value $1; 465,000 shares issued. **Property:** Lucky Strike group; 5 unpatented claims, Joe's Gulch, Stanley dist.; Stanley. **Development:** By 3 tunnels; total development approximately 1000 ft. **Ore:** Gold. **Remarks:** Idle.

MACKAY METALS
Office: Mackay. **Officers:** Chase A. Clark, Pres.; W. E. Narkaus, Sec.-Mgr., both of Mackay. **Inc.:** June 4, 1928. **Capital:** 1,500,000 shares; par value $1. Increased Apr. 13, 1929, to 2,000,000 shares; par value $1; shares issued, unknown. **Property:** Empire Copper group; 19 patented, 20 unpatented claims, Alder Creek dist.; Mackay. **Development:** Over 21 miles of underground workings, the principal entries being the Cossack and Alberta tunnels; the Cossack is 1000 ft. below the Alberta tunnel; the principal shaft, which is in the Alberta tunnel, extends 350 ft. vertically to the 1000-ft. level. **Plant:** MINE: Air-driven hoist; 1500-cu.-ft. Laidlaw-Dunn-Gordon and 1200-cu.-ft. Nordberg compressor, both steam-driven; and an aerial tramway 16,300 ft. long connecting mine with railroad. MILL: 250-ton concentrator, consisting of fine grinding and flotation. **Ore:** Copper-silver-gold. **Men employed:** Average, 108. **Remarks:** During the year new 1200-cu.-ft. Nordberg compressor, approximately 1 mile of 5-in. and 3 miles of 4-in. air-line, and a large amount of new mining equipment were installed. Also active development campaign was maintained throughout the year, the principal work being confined to the 1000-ft. level and the Cossack tunnel. This work was successful in opening a large tonnage of new ore, which is estimated to increase the life of the property many years. Production and shipping of crude ore and concentrate, both on company account and by lessees, were maintained without interruption during the year.

MONTE CRISTO GOLD MINES CO.
Office: Pocatello. **Officers:** C. A. Garrett, Pres.-Mgr.; E. W. Larsen, Sec., both of Pocatello. **Inc.:** March 19, 1917. **Capital:** 1,000,000 shares; par value $1; 680,789 shares issued. **Property:** Monte Cristo group; 10 unpatented claims, Loon Creek dist.; Clayton. **Development:** By 2 tunnels: No. 1, 340 ft. long; No. 2, 780 ft. long. **Ore:** Gold. **Remarks:** Annual labor only.

PIG TAIL PLACER, INC.
Office: Twin Falls. **Officers:** Geo. R. Easley, Pres.-Mgr.; E. M. Sweeley, Sec., both of Twin Falls. **Inc.:** Mar. 30, 1928. **Capital:** 25 shares; no par value; 21 shares issued. **Property:** Pig Tail Placer group; 7 unpatented claims, Stanley dist.; Obsidian. **Ore:** Placer gold. **Men employed:** Average, 3. **Remarks:** Installation of ditch lines and hydraulicking equipment completed during the year.

RAMSHORN MINES CO.
Office: 321 Felt Bldg., Salt Lake City, Utah. **Officers:** O. J. Salisbury, Pres.-Mgr., Salt Lake City, Utah. **Inc.:** July 14, 1919. **Capital:** 150,000 shares; par value $10; all shares issued. **Property:** Ramshorn and Beardsley groups; 14 patented, 2 unpatented claims, Bay Horse dist.; Bay Horse. **Development:** Approximately 6½ miles of underground work-

ings with 10 intermediate levels. **Plant:** MINE: Laidlaw-Dunn-Gordon duplex 13x8x10 compressor, electrically driven; complete mine equipment and camp. MILL: 60-ton fine grinding flotation, gyratory crusher; primary and secondary rolls; ball mill; Dorr classifier; Fagergren and Janney flotation cells; American vacuum filter; dryer. Entire mill electrically driven. **Ore:** Silver-copper, lead. **Men employed:** 10 lessees. **Remarks:** Property operated throughout the year by lessees, who produced and marketed a small tonnage of ore.

SALMON RIVER MINING CO.

Office: c|o Terre Haute Nat'l Bank & Trust Co., Terre Haute, Ind. **Officers:** John T. Beasley, Pres.; William K. Hamilton, Sec., both of Terre Haute, Ind. **Inc.:** July 6, 1910. **Capital:** 500,000 shares; par value $1; 400,000 shares issued. **Property:** Pacific group; 12 patented claims, Bay Horse dist.; Bay Horse. **Remarks:** Idle for 14 years.

SEAFOAM MINES CORPORATION

Office: 265 Fortieth St., Pittsburgh, Pa. **Officers:** J. C. Hungerman, Pres.; George L. Lafbury, Sec., both of Pittsburgh, Pa. **Inc.:** Oct. 17, 1923. **Capital:** 500,000 shares; no par value; 350,000 shares issued. **Property:** 16 patented, 1 unpatented claim, Seafoam dist.; Stanley. R. R. Ketchum, 104 miles. **Development:** Total development approximately 2300 ft., the principal part of which is confined to the Silver King claim, where it opens the vein 200 ft. in depth. **Plant:** MINE: Electrically-driven 8x10 I-R compressor; steel sharpener; complete mining equipment; steam-driven saw-mill; mine camp consisting of a large boarding house, 2 two-story bunkhouses, and 10 residences. MILL: 50-ton amalgamation, including fine grinding and table concentration. POWER PLANT: 230-h. p. hydroelectric power plant, operating under a 270-ft. head through a 3400-ft. flume; 4-mile transmission line. **Ore:** Gold-silver-lead. **Men employed:** Average, 9. **Remarks:** Small amount of development work during the summer months.

STANLEY-FIVE BARS MINING CO.

Office: P. O. Box 1368, Boise. **Officers:** O. O. Haga, Pres.; H. M. Jeffrey, Sec., both of Boise. **Inc.:** Sept. 8, 1925. **Capital:** 25,000 shares; par value $1; 20,000 shares issued. **Property:** Gold Dust group; 4 unpatented placer claims; Stanley.

TWIN APEX MINES CO.

Office: 423 Ness Bldg., Salt Lake City. **Officers:** H. S. Brooks, Pres.; G. F. McGonagle, Sec.; A. G. Gutheil, Mgr., all of Salt Lake City. **Inc.:** Sept. 19, 1925. **Capital:** 1,000,000 shares; par value 5c; 730,000 shares issued. **Property:** Twin Apex group; 4 patented, 11 unpatented claims, on Squaw Creek, Bay Horse dist.; Clayton. **Development:** Principally by 2 tunnels: No. 2, 550 ft. long; No. 3, or crosscut, 1700 ft. long. **Plant:** Gas-driven 8x9 Sullivan compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 5. **Remarks:** Active work throughout the summer months in extending No. 3 tunnel.

WHITE KNOB MINING CO.

Office: Newhouse Bldg., Salt Lake City, Utah. **Officers:** D. D. Muir, Jr., Pres.; W. W. Rager, Sec., both of Salt Lake City, Utah. **Inc.:** Aug. 23, 1919. **Capital:** 500,000 shares; par value $1; 127,510 shares issued. **Property:** White Knob group; 3 unpatented claims, Alder Creek dist.; Mackay. **Development:** Principally by 2 tunnels and 1 vertical shaft 250 feet deep. **Plant:** 40-h. p. gas-driven hoist. **Ore:** Lead-silver. **Remarks:** Operated by lessees who made a number of shipments during the year.

YANKEE FORK PLACER CO., LTD.

Office: 605 Eastman Bldg., Boise. **Officers:** James H. Hawley, Jr., Mgr., Boise. **Inc.:** Apr. 7, 1906. **Capital:** 400,000 shares; par value $1; all shares issued. **Property:** Bonanza group; 5 patented placer claims, 320 acres on Yankee Fork Creek, Yankee Fork dist.; Clayton.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
American et al.	Bay Horse	Ivie Bros.	Mackay
Alto Coppers	Alto	Hannah Donahue	Mackay
Andromeda et al.	Alder Creek	J. S. Taylor	Mackay
Annex et al.	Boulder	A. W. Walker	Mackay
Antler et al.	East Fork	Geo. Z. Blackmon	Clayton
Apex No. 2	Alto	N. B. Bauguess	Mackay
Arcade et al.	Yankee Fork	A. J. Franklin et al.	Stanley
Badger	Stanley	Henry Duffy	Stanley
Baldwin Placer	Yankee Fork	W. P. Fowler	Hailey
Barney Google et al.	Stanley	J. D. Smith	Twin Falls
Basin Creek Placer	Stanley Basin	W. K. Lynch	Stanley
Bellevue	Bay Horse	A. D. Sargent	Challis
Big Ben et al.	Alder Creek	John Bradshaw	Mackay
Big Chief	Alto	J. C. Martin	Mackay
Big Liz	Alder Creek	John Turner	Mackay
Birdie Girl	Seafoam	P. H. Rasche	Stanley
Bisbee et al.	Alder Creek	L. B. Laird	Mackay
Black Daisy	Alder Creek	Geo. R. Morgan	Mackay
Blossom Placer	Yankee Fork	Peter Burch	Bonanza
Blue Bird	Bay Horse	J. D. Sullivan	Clayton
Blue Bird	Alder Creek	W. Darlington, Agt.	Mackay
Blue Jay	Alder Creek	K. E. Barton	Mackay
Bob Cat	Bay Horse	Ralph Gianoli	Clayton
Boise et al.	Bay Horse	J. W. Calvin	Challis
Bristle et al.	Seafoam	E. M. Sweeley	Twin Falls
Broadway Gr.	Boulder	Ed. Hinze	Challis
B. R. S.	Seafoam	F. P. Richards	Mackay
Buckhorn et al.	East Fork	John R. Creist	Clayton
Buckskin	Alder Creek	H. P. Hunter	Mackay
Camp Bird et al.	Bay Horse	Jean E. Clark	Mackay
Camp Bird et al.	Alder Creek	Clyde Fishel et al.	Mackay
Carbonate	Alder Creek	Wm. Stevenson Est.	Mackay
Cash Box	Loon Creek	Geo. Bowden	Bonanza
Cave	Bay Horse	Chris Peterson	Bay Horse
Centennial et al.	Bay Horse	N. J. Churchill	Mackay
Chas. Dickens	Yankee Fork	Chase Clark	Mackay
Clemenson et al.	Alder Creek	H. B. Curtis	Mackay
Cold Spgs. et al.	Stanley	T. R. Green	Stanley
Columbia Standard	Alder Creek	George Manwaring	Salt Lake City, Utah
Consolidated	Alto	Hannah Donahue	Mackay
Copper Basin	Alder Creek	F. A. Stacy	Mackay
Copper Cut	Alto	E. W. Hovey	Mackay
Copper King et al.	Alder Creek	M. B. Jensen	Mackay
Copperopolis	Alder Creek	H. P. Hunter	Mackay
Corn Gressor	Copper Basin	S. W. Anderson	Mackay
Corral et al.	Alder Creek	S. W. Anderson	Mackay
Crescent et al.	Alder Creek	Brown & Nolan	Mackay
Crown Point	Boulder	Antonio Yacomello	Clayton
Daisy et al.	Stanley	John R. Love	Stanley
Deer Trail	East Fork	Geo. Blackman	Clayton
Democrat et al.	Bay Horse	Mrs. Lee Watson	Challis
Dewey	East Fork	Andrew Nielson	Obsidian
Dixie Louise et al.	Alder Creek	E. C. Sims	Mackay
Dougherty	Bay Horse	E. A. Dougherty	Challis
Douglas et al.	East Fork	Evelyn R. Clark	Challis
Dryden	Bay Horse	E. D. Williams	Challis
Dry Hollow	Bay Horse	W. B. Swigert	Challis
East Boulder	Boulder	Ed Hinze et al.	Challis
East Butte	Bay Horse	Moses Le Fever	Clayton
East Star et al.	Alder Creek	Lars W. Johnson	Seafoam

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Ella B. Gr.	Seafoam	A. R. Smith	Stanley
Enterprise	Yankee Fork	I. U. Hager	Mackay
Eureka	Bay Horse	A. M. Wilson	Challis
Flag Staff	Alder Creek	H. E. Gilbert	Mackay
Florence	Stanley	Henry Lund et al.	Stanley
Forest Bell	Yankee Fork	Chase A. Clark	Clayton
Forest Rose	Bay Horse	Pietro Pedrini	Challis
Golden Glow	Stanley	J. E. Smith	Stanley
Gold King	Alder Creek	Ed. Maelzer	Mackay
Gold Star et al.	Yankee Fork	B. W. Clark	Idaho Falls
Golden Gate	Yankee Fork	A. E. Eddy	Salt Lake, Utah
Good Enough	Bay Horse	Campbell & Strom	Clayton
Good Friend et al.	Bay Horse	John Ernst	Clayton
Greenhorn et al.	Seafoam	Chas. H. Smith	Stanley
Grey Copper	Bay Horse	John McConnell	Clayton
Grey Eagle	Yankee Fork	C. L. Kirtley	Challis
Head Light et al.	Bay Horse	Bob Campbell	Clayton
Hidden Treasure	Yankee Fork	J. A. Franklin, Agt.	Custer
Hillside	Bay Horse	Roy Huffman	Challis
Hohmann Placer	Stanley Basin	Walter K. Lynch	Stanley
Home Stake et al.	Bay Horse	Robt. E. Muir	N. Hollywood, Cal.
Horse Shoe	Alder Creek	Chas. Nolan, Adm.	Mackay
Howardy et al.	Boulder	Hitchcock & Bohlin	Clayton
Hummer	Yankee Fork	Chase A. Clark	Clayton
H-Y-U et al.	Alto	F. D. Sherry et al.	Mackay
Idaho Girl	Stanley	Robt. McAllister	Stanley
Idaho Gr.	Seafoam	Wm. Chevier	Stanley
Ideal et al.	Bay Horse	Clyde A. Torrey	Clayton
Independence et al.	Alder Creek	J. R. Kearns et al.	Mackay
International	Alder Creek	Hannah Donahue	Mackay
Iron Bog et al.	Alder Creek	C. H. Atha	Mackay
Joe Gulch	Yankee Fork	F. Georgetta	Clayton
Joe's Gulch Placer	Stanley Basin	W. W. Smith	Stanley
Joker et al.	Alder Creek	Eli & Dan Jonesch	Boise
Josephus Lake	Seafoam	E. H. Hasbrouck	Boise
Josie et al.	Bay Horse	Jack Ferguson	Challis
Katherine	Bay Horse	C. A. Torrey	Clayton
Kelly Gulch Placer	Stanley Basin	Henry Sturkey	Stanley
Keystone	Bay Horse	Wilson & Fox	Challis
Kingfisher et al.	Yankee Fork	Frank G. Fisher	Obsidian
Lake View et al.	Alder Creek	W. H. Warren	Mackay
Last Chance et al.	Bay Horse	L. A. Verbeck	Rupert
Last Resort	East Fork	Rosa V. Carman	Clayton
Left Wing	Bay Horse	E. J. Michael, Agt.	Challis
Little Johnny	Alder Creek	F. A. Stacy	Mackay
Lodge Pole	Alder Creek	J. L. Bell	Mackay
Lone Cabin et al.	Alder Creek	John Pritchett	Mackay
Long Chance	Alder Creek	A. W. Jacobson	Mackay
Lookout	Bay Horse	W. E. Sullivan	Clayton
Lost Eagle	Loon Creek	Carl Malm	Challis
Lost Packer	Loon Creek	Henry Welsh	724 E. 2d St., Salt Lake City
Lucky Boy	Yankee Fork	W. S. McCornick	Salt Lake City, U.
Lucky Strike	Stanley	Henry Jones	Stanley
May Flower	East Fork	D. B. Fisher	Clayton
Monte Carlo	Yankee Fork	Ed Soloman	Challis
Morning Star	Alder Creek	Andrew Park	Mackay
Mountain Girl	Stanley Basin	J. H. Thompson	Stanley
Mt. Sullivan No. 1	Alder Creek	G. W. Stewart	Mackay
Nameless	Bay Horse	J. W. David	Livingston
Niagara	Seafoam	F. P. Richards	Mackay

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Only One	Bay Horse	J. H. Baxter	Mackay
Orelena	Loon Creek	Juanitta Eddy	Salt Lake City, U.
Outlaw et al.	Boulder	R. M. Black	Clayton
Pandora et al.	Alder Creek	D. H. Horton	Mackay
Peerless	Alder Creek	J. E. Campbell	Mackay
Pinion Gr.	Sheep Mountain	J. A. May	Boise
Pilot House	Alder Creek	M. S. Vaught	Mackay
Port Arthur	Bay Horse	Fidele Giampedraglia	Clayton
River Queen	Bay Horse	Phillip Gossi	Clayton
Rob Roy	Bay Horse	Caesar Maraffio	Clayton
Rosemont	Stanley	Henry Lund	Stanley
Rough Creek	Yankee Fork	G. W. Friend	Clayton
Ruby Silver et al.	Bay Horse	Moses Le Fever	Clayton
Rusty Saw et al.	Stanley	P. H. Rasche	Stanley
Sheep Mountain	Seafoam	C. M. Rankin	Salt Lake, Utah
Silver	Yankee Fork	A. J. Franklin	Stanley
Silver Bell	Alder Creek	Johnson & Haney	Mackay
Silver Bell	Bay Horse	Jas. H. Marker	Challis
Singer Gr.	Sheep Mountain	W. H. Brose	Boise
Snowdrift	Yankee Fork	Frank Casto	Challis
Snow Storm et al.	----------	Homer Granger	Centerville
Solon Jr.	Alto	Martin & Clark	Mackay
South Butte	Bay Horse	William McClure	Mackay
Speculator	Alder Creek	H. P. Hunter	Mackay
Square Deal	Bay Horse	M. E. Crawford	Clayton
Sun Rise	Alder Creek	F. A. Stacy	Mackay
Sunrise et al.	Loon Creek	J. T. Metcalf	Clayton
Syrup Can et al.	Alder Creek	S. W. Anderson	Mackay
Taylor Gr.	Alder Creek	Taylor & Munson	Mackay
Tip Top	Alder Creek	Gus Munson	Mackay
Tracy et al.	Seafoam	A. R. Smith	Challis
Turtle	Bay Horse	N. S. Churchill	Mackay
Uncle Ben et al.	East Fork	C. S. Ellis	Challis
Vulture et al.	East Fork	R. H. Van Meter	Challis
Waxahachia	Alder Creek	S. W. Anderson	Mackay
Wedge Fr.	Boulder	A. W. Walker	Mackay
White Elephant	Alder Creek	Daniel Clark	Mackay
Whynot	Yankee Fork	Amos Franklin	Clayton
Woodstick	Bay Horse	Geo. E. Keyser	Challis
Yellow Jacket	Stanley	Ed. Martin	Stanley
Zodiac	Bay Horse	A. D. Sargent	Challis

BIBLIOGRAPHY

See pages 71-72-73 for publisher's address, meaning of reference marks, and abbreviations.

The volcanic tuffs of Challis, Idaho, by A. A. Julian: Trans. New York Acad. Sci., vol. 1, pp. 49-53, **1882.**§

A geological reconnaissance across Idaho, by G. H. Eldridge: U. S. Geol. Survey, Sixteenth Ann. Rept., pt. 2, pp. 217-276, **1895.***

Central Idaho gold field, by Don Maguire: Mines and Minerals, vol. 19, pp. 289-291, February, **1899.***

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey, Twentieth Ann. Rept., pt. 3, pp. 75-256, **1900.***

The deepest mine in Idaho, the Ramshorn at Bay Horse, by R. N. Bell: Mines and Minerals, vol. 21, pp. 174-176, November, **1900.***

An outline of Idaho geology and of the principal ore deposits of Lemhi and Custer counties, by R. N. Bell: Proc. Int. Min. Cong. 4th sess., pp. 64-80, **1901.**§

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Thunder Mountain and Mackay, Idaho, by R. N. Bell: Min. and Sci. Press, vol. 84, p. 62, Feb. 1, **1902.***

An extinct glacier of the Salmon River Range, by G. H. Stone: Am. Geology, vol. 11, pp. 406-409, **1903.***

The Lost Packer copper-gold lode, by E. P. Jennings: Jour. Canadian Min. Inst., vol. 9, pp. 54-57, **1906**; Min. and Sci. Press, vol. 92, pp. 435-436, June 30, **1906**; Salt Lake Min. Review, Mar. 30, **1906.***

The White Knob copper deposits, Mackay, Idaho, by J. F. Kemp and G. G. Gunther: Trans. Am. Inst. Min. Eng., vol. 38, pp. 269-296, **1907.**§

Resources of Custer and Lemhi counties, Idaho: Salt Lake Min. Review, vol. 12, pp. 17-19, Mar. 15, **1911.**§

A preliminary account of the ore deposits of the Loon Creek district, Idaho, by J. B. Umpleby: U. S. Geol. Survey Bull. 530, pp. 66-74, **1911.***

Some ore deposits in northwestern Custer County, Idaho, by J. B. Umpleby: U. S. Geol. Survey Bull. 539, **1913.**‡

The genesis of the Mackay copper deposits, by J. B. Umpleby: Econ. Geology, vol. 9, pp. 307-358, June, **1914.**§

Ore deposits in the Sawtooth quadrangle, Blaine and Custer counties, Idaho, by J. B. Umpleby: U. S. Geol. Survey Bull. 580, pp. 221-249, **1915.**‡

The occurrence of ore on the limestone side of garnet zones, by J. B. Umpleby: University of California publications, Bull. Dept. of Geology, vol. 10, No. 3, pp. 25-37, Oct. 14, **1916.****

Geology and ore deposits of the Mackay region, Idaho, by J. B. Umpleby: U. S. Geol. Survey Prof. Paper 97, **1917.**‡

A reconnaissance of south central Idaho, embracing Thunder Mountain, Big Creek, Stanley Basin, Sheep Mountain, and Seafoam districts, by J. B. Umpleby and D. C. Livingston: Idaho Bureau of Mines and Geology Bull. 3, pp. 13-22, **1920.****

Brannerite, a new uranium mineral (Stanley Basin, central Idaho), by F. L. Hess: Franklin Inst. Jour., vol. 189, No. 2, pp. 225-237, February, **1920**; No. 6, pp. 779-780, June, **1920.****

Ground water in Pahsimeroi Valley, Idaho, by O. E. Meinzer: Idaho Bureau of Mines and Geology Pamphlet 9, **1924.****

The Livingston mine, Custer County, Idaho, by J. B. Stewart: Mining and Metallurgy, vol. 7, No. 233, pp. 223-224, May, **1926.**§

A geologic reconnaissance of Clark and Jefferson, and parts of Butte, Custer, Fremont, Lemhi and Madison counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 19, **1927.****

Ore deposits in Tertiary lava in the Salmon River Mountains, Idaho, by C. P. Ross: Idaho Bureau of Mines and Geology Pamphlet 25, **1927.****

Early Pleistocene glaciation in Idaho, by C. P. Ross: U. S. Geol. Survey Prof. Paper 158-G, **1929.****

ELMORE COUNTY

Elmore is one of the southwestern counties, being bounded on the south by Owyhee, on the west by Ada, on the north by Boise, and on the east by Blaine, Camas, and Gooding counties. A large part of the drainage basin of the Boise River is included within its 2808 square miles, which was accredited with a population of 5087 in the 1920 census. The chief industries are stockraising—principally sheep—farming, and mining.

The southern part of the county is served by the main line of the O. S. L. Railroad and the principal east-west State highway, the Old Oregon Trail; a well built and maintained system of county roads extends into all the various mining districts and sections. Mountain Home is the largest town and county seat.

The principal mineral resources are gold, silver, copper, lead, zinc, arsenic, molybdenum, diatomaceous earth, and potassium nitrate.

In past years this county was a noted producer of high-grade gold-silver ores and placer gold, particularly when the mines in the Atlanta and Rocky Bar districts were being worked. The placer ground which could be hydraulicked has long been exhausted, and the quartz mines have been dormant for years, having been closed down either through litigation, lack of power, or finances. These districts offer many opportunities to development companies and, since power is within easy reach from Featherville, there appears to be no reason why the mines are not receiving more attention.

The Rocky Bar district witnessed no improvement over that of the previous year in the starting of new enterprises, and no work of any importance was performed.

One of the principal and most important new enterprises to start in the State during the year was the commencing of operations at the Boise-Rochester mine near Atlanta by the St. Joseph Lead Co. This company acquired the Boise-Rochester in 1917, but, other than necessary repairs to the buildings and principal tunnels, nothing was done with it. In the latter part of 1929 the Monarch group, which is adjacent to their mine, was acquired and the development of both properties commenced.

APEX GOLD MINING CO.

Office: Box 165, Nampa. **Officers:** Dr. J. C. Lay, Pres., M. A. Cook, Sec., both of Nampa. **Inc.:** Oct. 15, 1926. **Capital:** 400,000 shares; par value $1; all shares issued. **Property:** West Ophir group; 5 unpatented claims; Rocky Bar. **Development:** By 5 tunnels, totaling about 800 ft. **Ore:** Gold. **Remarks:** Annual labor only.

BLACKSTONE MINING CO., LTD.

Officers: Charles W. Mack, Sec., Boise. **Inc.:** Dec. 26, 1899. **Capital:** 1,000,000 shares; par value 10c; shares issued, unknown. **Property:** 5 patented claims, Blackstone dist.; Hill City.

BLACK WARRIOR MINES, INC.

Office: 6 Delkin Bldg., Las Vegas, Nev. **Officers:** Peter Buol, Pres., Los Angeles, Calif.; E. M. Hodgman, Sec., Las Vegas, Nev. **Inc.:** Filed in Idaho Jan. 30, 1929. **Capital:** 2,500,000 shares; par value $1; 1,500,000 shares issued. **Property:** Black Warrior group; 12 unpatented claims, held under lease and option; Black Warrior dist.; Atlanta. **Plant:** Sawmill, hydraulicking equipment, and camp. **Ore:** Placer gold. **Men employed:** Average, 3. **Remarks:** This company is a reorganization of the La Trinidad Mining Co. Annual labor only.

BLAKE'S GULCH GOLD MINING CO.

Office: Mountain Home. **Officers:** Seth Harris, Pres.-Mgr.; C. B. Clays, Sec., both of Mountain Home. **Inc.:** May 11, 1927. **Capital:** 100,000 shares; par value $1; 63,400 shares issued. **Property:** Commonwealth group; 2 unpatented claims, Bear Creek dist.; Rocky Bar. **Development:** By 2 tunnels: No. 1, 227 ft.; No. 2, 600 ft. **Plant:** Gas-driven compressor. **Ore:** Gold. **Men employed:** Average, 2. **Remarks:** Active work throughout the year.

CONSOLIDATED MINES SYNDICATE

Office: 623 First Nat'l Bank Bldg., Boise. **Officers:** Frank E. Johnesse, Pres.-Mgr.; Wm. MacLeod, Sec., both of Boise. **Inc.:** May 6, 1924. **Capital:** 10,000 shares; no par value. On Aug. 15, 1924, the capitalization was changed to 10,000,000 shares, $2.50 par value; and on May 2, 1925, capitalization was decreased to 10,000,000 shares, par value $1; 2,449,004 shares issued. **Property:** Revenue group; 11 unpatented claims, Volcano dist.; Hill City. **Remarks:** Late in the year work was started on driving a tunnel.

FEATHER RIVER GOLD PLACER CO.

Office: 610 Eastman Bldg., Boise. **Officers:** Rupert Winters, Pres.-Mgr., Mountain Home; James H. Hawley, Jr., Sec., Boise. **Inc.:** June 5, 1929. **Capital:** 750,000 shares; par value 20c; 195,003 shares issued. **Property:** 7 unpatented placer claims, Bear Creek dist.; Featherville. **Ore:** Placer gold.

FRANKLIN CONSOLIDATED GOLD MINES CO.
Office: Box 1262, Boise. **Officers:** John J. Stanford, Pres., Spokane, Wash.; Fred T. Kelly, Sec.-Mgr., Boise. **Inc.:** Dec. 22, 1925. **Capital:** 1,250,000 shares; par value $1; 634,400 shares issued. **Property:** Franklin group; 2 patented, 4 unpatented claims, held under lease and option, Pine Grove dist.; Pine. **Development:** Approximately 3000 ft. of underground workings, the principal of which is No. 3 tunnel, 860 ft. in length. **Plant:** An old 10-stamp mill including cyanide equipment. **Ore:** Gold. **Men employed:** Average, 2. **Remarks:** Owing to litigation, only the necessary annual labor was performed.

GAS DOME OIL CO.
Office: 420 First Nat'l Bk. Bldg., Boise. **Officers:** A. Beverly Howard, Pres.-Mgr.; J. W. Robinson, Sec., both of Boise. **Inc.:** June 20, 1927. **Capital:** 500,000 shares; par value $1; 153,125 shares issued. **Property:** Oil and gas leases on patented farm lands near Hammett. **Mineral sought:** Oil and gas.

GEORGE F. ROTH CO.
Office: P. O. Box 147, Rochester, N. Y. **Officers:** Walter J. Duffy, Sec., Rochester, N. Y. **Inc.:** June 17, 1909. **Capital:** 2500 shares; par value $100; 2102 shares issued. **Property:** Homestake group; 7 patented, 3 unpatented claims, Neal dist.; c|o Mayfield Stage, Boise. **Ore:** Gold. **Remarks:** Idle.

IDAHO DELAWARE MINES CORPORATION
Office: Mountain Home. **Officers:** M. H. Kimmel, Pres., Philadelphia, Pa.; Daniel Reber, Sec., Mountain Home. **Inc.:** June 12, 1929. **Capital:** 1,500,000 shares; par value $1; 800,000 shares issued. **Property:** Daley group; 50 unpatented claims, Dixie, unorganized dist.; Bennett. **Development:** Approximately 4500 ft. of underground workings, the principal of which are: A tunnel 1800 ft. long; a vertical shaft 100 ft. deep; and an inclined shaft 460 ft. long with 5 intermediate levels. **Plant:** Two 40-h. p. boilers; steam-driven hoist and compressor; complete mining equipment and camp. **Ore:** Gold-lead-silver. **Remarks:** Annual labor only. A reorganization of the Daley Consolidated Mines Co.

LITTLE QUEEN GROUP
Owner: E. F. Money, 937 N. 34th St., Seattle, Wash. **Inc.:** Not incorporated. **Property:** 4 unpatented claims, Middle Boise dist.; Atlanta. **Development:** Principally by 1 tunnel 100 ft. long. **Plant:** 7-ton Ellis mill and amalgamation. **Ore:** Gold. **Remarks:** Small amount of work during the summer months.

MARSH CREEK MINING CO.
Officers: Roy Y. Bogard, Pres.-Mgr., Burns, Ore.; Curtis F. Pike, Sec., 1317 Idaho St., Boise. **Inc.:** July 9, 1921. **Capital:** 1,000,000 shares; par value $1; 39,935 shares issued. **Property:** 2 unpatented claims on Marsh Creek, Bear Creek dist.; Featherville.

NORTHWESTERN DEVELOPMENT CO.
Office: P. O. Box 1035, Boise. **Officers:** William Williams, Pres.-Mgr.; Geo. L. Fleharty, Sec., both of Boise. **Inc.:** April 30, 1927. **Capital:** 1,500,000 shares; par value $1; 984,425 shares issued. **Property:** 5 groups of unpatented placer claims on Boise River; unorganized dist.. **Ore:** Placer gold.

ROCKY BAR MINING CO.
Office: 1124 Paulsen Bldg., Spokane, Wash. **Officers:** M. G. Martindale, Pres.-Mgr., Spokane, Wash.; R. C. Corbet, Sec., Vancouver, B. C. **Inc.:** Filed in Idaho Sept. 18, 1922. Charter forfeited Nov. 30, 1929. **Capital:** 50,000 shares; par value $1; 18,369 shares issued. **Property:** General Grant group; 5 patented, 7 unpatented claims, Bear Creek dist.; Rocky Bar. **Ore:** Gold.

ST. JOSEPH LEAD CO.

Office: 250 Park Ave., New York City. **Officers:** Clinton H. Crane, Pres.; Leonidas H. Besson, Sec.; R. T. Cornell, Mgr., all of New York City. **Inc.:** Filed in Idaho Apr. 3, 1929. **Capital:** 2,000,000 shares; par value $10; 1,950,509 shares issued. **Property:** Boise-Rochester group, 5 patented, 11 unpatented claims, owned by company; Monarch group, 11 patented, 6 unpatented claims, held under lease and option; Atlanta. **Ore:** Gold. **Men employed:** Average, 18. **Remarks:** In 1917 this company purchased the Boise-Rochester group and, other than necessary repairs to the buildings and principal tunnel, the property has been idle. In the latter part of 1929 the Monarch group was secured under lease and option; provisions and supplies were installed, and development work started.

SOUTH PARK DREDGING CO.

Office: 351 California St., San Francisco, Cal. **Officers:** W. P. Hammon, Pres.; A. L. Dahl, Sec., both of San Francisco, Cal. **Inc.:** Sept. 12, 1921. **Capital:** 50,000 shares; no par value; all shares issued. **Property:** 1100 acres of dredging land on Feather River, Featherville dist.; Featherville. **Remarks:** Operations permanently suspended in 1928.

STANLEY-FIVE BARS MINING CO.

Office: P. O. Box 1368, Boise. **Officers:** O. O. Haga, Pres.; H. M. Jeffrey, Sec., both of Boise. **Inc.:** Sept. 8, 1925. **Capital:** 25,000 shares; par value $1; 20,000 shares issued. **Property:** Five Bars group; 4 unpatented placer claims, Middle Boise dist.; Atlanta.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Ada Elmore Gr.	Bear Creek	Grant McCargo	Pittsburgh, Pa.
Alice et al.	Bear Creek	R. Y. Bogard	Burns, Ore.
Alma Placer Gr.	Bear Creek	R. A. Peck	Rocky Bar
April Fool	Middle Boise	J. C. Birdwell	Atlanta
Avis et al.	Pine Grove	Ray J. Allison	Pine
Badger No. 1	Neal	Chas. Fell	R. D. 5, Boise
Badger et al.	Neal	John T. Hammack	R. D. 5, Boise
Baltimore et al.	Middle Boise	Robt. B. Browne	Atlanta
Bear Gr. et al.	Bear Creek	F. M. Dodge	Rocky Bar
Ben Hur	Bear Creek	E. W. Lothrop	Mountain Home
Benton Gr.	Middle Boise	G. L. Bixby	Atlanta
Big Five et al.	Bear Creek	Frank Bayhouse	Boise
Big Four et al.	Bear Creek	Rupert Winters	Featherville
Big Lode	Middle Boise	Frank T. Wyman	Boise
Bird Gr.	Pine Grove	Mrs. Alice M. Reecy	Mountain Home
Black Diamond	Bear Creek	Clara R. Brassch	Mountain Home
Black Ribbon	Bear Creek	E. C. Helfrich	Mountain Home
Black Warrior	Bear Creek	C. H. Allison	Beverly Hills, Cal.
Bobolink et al.	Bear Creek	Walter Walsh	Rocky Bar
Boise Bar	Middle Boise	Thomas Walker	Atlanta
Boise-Rochester	Middle Boise	Jas. W. Stewart	Atlanta
Bonanza et al.	Bear Creek	Chas. Wyatt	Rocky Bar
Bonaparte Gr.	Bear Creek	Rupert Winters	Featherville
Bonnie Annie Gr.	Pine Grove	B. F. Skelton	Pine
Bowerman	Volcano	M. R. Wood	606 Marion St., Seattle, Wash.
Brooklyn et al.	Bear Creek	Louise A. S. Allen	Rocky Bar
Cabin Claim	Middle Boise	Chester W. Rose	Glenns Ferry
Capital et al.	Middle Boise	John Bell	Atlanta
Cock Robin et al.	Bear Creek	Walter Walsh	Rocky Bar
Colorado et al.	Bear Creek	Francis M. Nixon	Rocky Bar
Cornucopia et al.	Neal	John Hermo	427 Thatcher St., Boise
Debs Gr.	Bear Creek	J. C. Edwards	Rocky Bar
Doolittle Gr.	Bear Creek	Elmer C. Towne	Rocky Bar
Edna et al.	Bear Creek	E. C. Helfrich	Mountain Home
Eureka	Twin Springs	W. L. West	Twin Springs
Evelyn	Bear Creek	Marion House	Mountain Home
Flagstaff et al.	Bear Creek	Francis M. Nixon	Rocky Bar

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Forest King et al.	Bear Creek	Mrs. E. Tregonning	Box 893, Boise
Fourth of July	Middle Boise	Grant Wilson	Atlanta
Gold Bug et al.	Bear Creek	Chas. Wyatt	Rocky Bar
Gold Eagle	Neal	C. C. Anderson	Boise
Gold Gate No. 2	Bear Creek	Irving Brooks	Rocky Bar
Gold Key	Bear Creek	Ah Sing	Rocky Bar
Gold King Gr.	Middle Boise	Harry Teskey	Atlanta
Granby et al.	Middle Boise	G. L. Bixby	Atlanta
Gray Warrior et al.	Middle Boise	P. M. Swan	Atlanta
Greenback	Middle Boise	H. D. Gracey	Atlanta
Gunny Sack Gr.	Middle Boise	John Timmons	Atlanta
Hazel Queen	Middle Boise	L. N. Franke	Atlanta
Humming Bird	Middle Boise	Jas. A. Comer	Atlanta
Jericho Gr.	Middle Boise	Fritz Scholl	Atlanta
Kierman Gr.	Bear Creek	Dan Kirby	Boise
Keystone et al.	Featherville	E. N. Stone	Featherville
Kitty Hicks	Neal	J. F. Wilson	Mayfield
Last Chance	Pine Grove	Chas. V. Price	Pine
Last Chance et al.	Middle Boise	Frank E. Erickson	Atlanta
Last Chance	Twin Springs	Cyrus H. Pickens	Twin Springs
Little Joker Pl.	Featherville	A. W. Stevens	Boise
Middle Boise et al.	Black Warrior	Max Mayfield	Boise
Middle Boise Lode	Middle Boise	Thomas Walker	Atlanta
Midnight Pl.	Snake River	H. S. Olson	Glenns Ferry
Minnehaha Pl.	Bear Creek	Frank Galbraith	Rocky Bar
Monarch	Middle Boise	Dan Kirby	913 Hays St., Boise
Montezuma Pl.	Middle Boise	Dick Miller	Atlanta
Mountain View	Featherville	E. N. Stone	Featherville
Mountain View	Pine Grove	Fred Skelton	Pine
New Century	Middle Boise	Henry Button	Atlanta
Northwestern	Bear Creek	W. N. Nixon	Rocky Bar
Old Oliver Diggins	Middle Boise	A. S. Longwill	Atlanta
Ontario	Bear Creek	Mary A. Lison	Boise
Ophir	Bear Creek	Elmer C. Towne	Rocky Bar
Overland et al.	Bear Creek	S. Howard	Pine
Owens Gr.	Pine Grove	Thos. Potter	Pine
Piney Gr.	Middle Boise	J. C. Birdwell	Atlanta
Pittsburgh Gr.	Bear Creek	Mrs. Emily Frew	Pittsburgh, Pa.
Queen River Pl.	Middle Boise	Fred Felix	Atlanta
Red Warrior	Bear Creek	Frank Pon	Rocky Bar
Rosetta Gr.	Bear Creek	Barnsdale Corp.	Rocky Bar
Silver Horde	Middle Boise	W. T. Burnett	Atlanta
Silver Star Gr.	Pine Grove	May Larson	Pine
Silver Tide et al.	Middle Boise	Frank L. Erickson	Atlanta
Sunrise	Twin Springs	John Vaughn	Twin Springs
Sunrise Gr.	Bear Creek	Wm. H. Stowell	Spokane, Wash.
Sunshine et al.	Bear Creek	E. C. Helfrich	Mountain Home
Sunny Side	Pine Grove	Monroe E. Shraft	Pine
Tahoma No. 3	Middle Boise	W. P. Richards.	Boise
Tekla et al.	Featherville	Paul V. Lambrix	Featherville
Trinity Gr.	Featherville	M. E. Rineback	Featherville
Tumble Bug	Bear Creek	Walter Walsh	Rocky Bar
Uncle Ben	Bear Creek	B. J. Nordyke	Featherville
Uncle Sam Gr.	Pine Grove	May Larson	Pine
Verdun Gr.	Pine Grove	W. R. Deckard	Pine
Vibrator Gr.	Bear Creek	Elmer C. Towne	Rocky Bar
White Bird et al.	Bear Creek	Otis Howard	Rocky Bar
Wide West	Bear Creek	John J. Allen	109 Montague St., Brooklyn, N. Y.
Wonder	Pine Grove	Lou Roberts	Pine
Yuba Gold Chest	Middle Boise	C. W. Joy	Emmett

BIBLIOGRAPHY

See pages 71-72-73 for publisher's address, meaning of reference marks, and abbreviations.

Atlanta district, by J. E. Clayton: Trans. Am. Inst. Min. Eng., vol. 5, pp. 468-473, February, **1887.**§

A geological reconnaissance across Idaho, by G. H. Eldridge: U. S. Geol. Survey, Sixteenth Ann. Rept., pt. 2, pp. 217-276, **1895.***

The Atlanta lode, Idaho, by J. B. Hastings: Eng. and Min. Jour., vol. 59, p. 128, Feb. 9, **1895.**§

Mining districts of the Idaho Basin and the Boise Ridge, Idaho, by Waldemar Lindgren: U. S. Geol. Survey, Eighteenth Ann. Rept., pt. 3, pp. 625-736, **1898.***

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey, Twentieth Ann. Rept., pt. 3, pp. 75-256, **1900.***

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Geology of southwestern Idaho, and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Bull. 217, **1903.**‡

Atlanta gold district, by R. N. Bell: Eng. and Min. Jour., vol. 86, pp. 176-177, July 25, **1908.**§

Rich gold ore found in Idaho, by R. N. Bell: Eng. and Min. Jour., vol. 102, pp. 783-785, Oct. 28, **1916.**§

Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 60, art. 3, pp. 1-33, **1921.**‡

A preliminary reconnaissance of the gas and oil possibilities of southwestern and south-central Idaho, by J. P. Buwalda: Idaho Bureau of Mines and Geology Pamphlet 5, **1923.****

Molybdenite in the Rocky Bar district, Idaho, by F. C. Schrader: U. S. Geol. Survey Bull. 750, pp. 87-99, **1924.**‡

Ground water for irrigation on Camas Prairie, Camas and Elmore counties, Idaho, by A. M. Piper: Idaho Bureau of Mines and Geology Pamphlet 15, **1926.****

Geology and ore deposits of the Rocky Bar quadrangle, by S. M. Ballard: Idaho Bureau of Mines and Geology Pamphlet 26, **1928.****

FREMONT COUNTY

Coal, phosphate rock, oil shale, and asbestos occur in different sections of this county. The occurrence of coal in commercial quantities in the northeastern corner of the county has been reported, but these deposits are too far removed from transportation to be available. The other deposits have never been sufficiently developed to prove their extent.

BIBLIOGRAPHY

See pages 71-72-73 for publisher's address, meaning of reference marks, and abbreviations.

Fifth, Sixth and Eleventh Ann. Repts., U. S. Geol. and Geog. Survey of the Territories, by F. V. Hayden, **1871, 1873,** and **1879.***

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Guidebook of the western United States, by W. T. Lee and others: U. S. Geol. Survey Bull. 612, pp. 114-147, **1915.**‡

Coal in eastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 716, pp. 123-153, **1920.**‡

Oil shale in western Montana, southeastern Idaho and adjacent parts of Wyoming and Utah, by D. D. Condit: U. S. Geol. Survey Bull. 711, pp. 15-40, **1920.**‡

Geology and water resources of the Mud Lake basin, Idaho, by H. T. Stearns and L. L. Bryan: U. S. Geol. Survey Water-Supply Paper 560-D, **1925.**‡

A geologic reconnaissance of Clark and Jefferson, and parts of Butte, Custer, Fremont, Lemhi and Madison counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 19, **1927.****

GEM COUNTY

Gem is one of the smallest counties in area in the State, but one of the largest in population per square mile. Its area is 567 square miles, and the 1920 census credited it with a population of 6427, or 11.3 persons per square mile. The chief industries are fruit growing, farming, and livestock. It is particularly noted for its fruit farming, which is confined to the valley of the Payette River, which flows westerly through the southern end of the county.

It is one of the southwestern counties, being bounded by Ada, Canyon, Payette, Washington, Adams, Valley, and Boise counties. The drainage basin of Squaw Creek and twenty-five miles of the Payette River valley make up the larger part of its area. Emmett, the county seat and only settlement of importance, is near the center of the southern part of the county.

The county is served by a good system of locally maintained roads and by the Nampa-McCall and Payette-Emmett branches of the O. S. L. Railroad.

The Pearl district, once a famous gold-producing camp, and a few undeveloped sections where a small amount of prospecting has been done, are the only mineralized areas in the county. The principal minerals occurring in these districts are gold, silver, lead, zinc, copper, and arsenic. Gold predominates, and occurs in a free-milling quartz and combined with the sulphides of lead, zinc, and iron. The deposits containing the complex sulphide ore are of commercial importance and have not been mined, as transportation and the metallurgical methods in use at the time the Pearl district was active prevented profitable operations. The sulphide ores are amenable to modern flotation methods, and, as there is a large tonnage in many of the old mines that are lying dormant, they will again become profitable operations when properly equipped, financed, and managed.

The only active mines in this county during 1929 were the Lincoln Mine Operating Co., which controls the famous old Lincoln mine at Pearl, and the American Mines Development Co. at the Old Liberty mine near Sweet. The Lincoln Mine Operating Co. maintained a payroll of approximately 30 men and performed a large amount of work on the intermediate levels of the main shaft until October, at which time operations were suspended and the equipment partly dismantled. The American Mines Development Co. acquired the Old Liberty group near Sweet in October. New camp buildings were erected, a small gas-driven compressor installed, and work started under contract in extending the principal tunnel 1000 ft.

In the West View or Pearl district one enterprise, based on high values in rare metals, the presence of which was determined by assayers whose methods have been questioned by the U. S. Bureau of Mines, maintained an active stock-selling campaign throughout the year.

AMERICAN MINES DEVELOPMENT CO. (See Boise County)

Office: 325 Idaho Bldg., Boise. **Officers:** L. S. Honstead, Pres.; C. R. Hanan, Sec., both of Boise. **Inc.:** Mar. 15, 1928. **Capital:** 1,000,000 shares; par value $1; 269,882 shares issued. **Property:** Old Liberty group; 4 patented claims, Squaw Creek dist.; Sweet. Held under lease and option. **Development:** By 1 tunnel 300 ft. long. **Plant:** Gas-driven G. D. compressor; complete mining equipment and camp. **Ore:** Copper-silver. **Remarks:** Property acquired in October; equipment installed, camp buildings erected, and a contract let for extending the tunnel 1000 ft.

COOPERATIVE OIL EXPLORATION FUND
Office: Boise. **Officers:** Paul G. Savic, Trustee, Boise. **Inc.:** Trust agreement. **Property:** Oil and gas leases on approximately 5000 acres of patented land near Letha. **Mineral sought:** Oil and gas. **Remarks:** Idle.

FELIX MINING CO.
Office: Boise. **Officers:** T. J. Jones, Pres.-Mgr., Boise. **Inc.:** July 25, 1917. **Capital:** 500 shares; par value $10; all shares issued. **Property:** Felix group; 5 patented claims, West View dist.; Pearl.

GRANITE STATE CONSOLIDATED MINES CO.
Office: 242 Water St., Augusta, Maine. **Officers:** G. R. Chadbourne, Pres., Augusta, Maine. **Inc.:** June 23, 1914. **Capital:** 3,000,000 shares; par value $1; 2,113,664 shares issued. **Property:** Granite State group; 20 patented, 16 unpatented claims, West View dist.; Pearl. **Development:** Principally by 1 tunnel 2300 ft. long. **Remarks:** Annual labor only on unpatented claims.

HECLA-CHECKMATE MINING & MILLING CO., LTD.
Office: Emmett. **Officers:** H. A. Partridge, Pres., Nampa; E. K. Hayes, Sec., Emmett. **Inc.:** May 7, 1907. **Capital:** 1,2500,000 shares; par value $1; 971,645 shares issued. **Property:** Hecla-Checkmate group; 3 patented claims, West View dist.; Pearl.

JOHNSON MINING CO., LTD.
Office: 1220 N. 11th St., Boise. **Officers:** J. C. Johnson, Pres., Boise, **Inc.:** Dec. 27, 1905. **Capital:** 300,000 shares; par value $1; all shares issued. **Property:** 2 patented claims, West View dist.; Pearl.

LINCOLN MINE OPERATING CO.
Office: Pearl. **Officers:** Wm. I. Phillips, Pres., Miami, Fla.; M. W. Hallam, Sec.; H. P. Taylor, Mgr., both of Pearl. **Inc.:** May 20, 1926. **Capital:** 1,000,000 shares; par value 25c; all shares issued. **Property:** Lincoln group; 3 patented, 6 unpatented claims, held under lease and option from Alexander Lewis, 115 Broadway, New York. West View dist.; Pearl. **Development:** By 2 vertical shafts, one of which is 540 ft. deep; total development, approximately 8000 ft. **Plant:** MINE: 2 electrically-driven hoists, complete mining equipment. MILL: 100-ton concentrator, including flotation. **Ore:** Gold-silver-lead. **Men employed:** Average, 30. **Remarks:** A large amount of exploratory work on the intermediate levels of the main shaft was conducted without interruption until October, at which time operations were suspended and the equipment partly dismantled.

NEW LIBERTY MINING CO.
Office: Box 1368, Boise. **Officers:** E. Sweet, Pres., Sweet. **Inc.:** Jan. 14, 1926. **Capital:** 450,000 shares common, par value $1; 50,000 shares preferred, par value $1; 450,000 shares issued. **Property:** Old Liberty group; 4 patented claims, Squaw Creek dist.; Sweet. **Remarks:** Property under option to American Mines Development Co.

OLD LIBERTY MINING CO.
Office: Box 1368, Boise. **Officers:** E. Sweet, Pres., Sweet. **Inc.:** Sept. 6, 1911. **Capital:** 250,000 shares common, par value $1; 300 shares preferred, par value $100; all shares issued. **Property:** Old Liberty group; 4 patented claims, Squaw Creek dist.; Sweet. **Remarks:** Property under option to American Mines Development Co.

YELLOW GOLD PLACER CO.
Office: Mountain Home. **Officers:** Ernest Tacha, Pres.; Hetta M. Tacha, Sec.; Edward N. Crawford, Mgr., all of Mountain Home. **Inc.:** May 16, 1927. **Capital:** 500,000 shares; par value $1; 280,000 shares issued. **Property:** Owns 320 acres and lease on 320 acres of farm land, West View dist.; Pearl. **Remarks:** Active stock-selling campaign throughout the year. This enterprise is based on high values in rare metals, the presence of which was determined by assayers whose methods have been questioned by the U. S. Bureau of Mines.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Apache	West View	Jas. H. Hawley	Boise
Black Jack	West Mountain	Edgar McFadden	Nampa
Black Pearl	West View	H. W. Dorman Est.	Meridian
Burton Bell	West View	John Ackley	Boise
Checkmate	West View	E. K. Hayes	Emmett
Dark Horse	West View	Ed. H. Peasley	Boise
Dewey	West View	E. H. Dewey	Nampa
Double Eagle Gr.	West View	Mrs. C. N. Boone	Box 1177, Boise
Gem	West View	H. W. Dorman Est.	Meridian
Golden Age	West View	Lot Feltham	Emmett
Hi Henry	West View	C. G. Conn	Elkhart, Ind.
I X L	West View	H. W. Dorman Est.	Meridian
Kentuck	West View	H. W. Dorman Est.	Meridian
King Gr.	West View	H. J. C. Graveley	Boise
King Tut Gr.	West View	Warren L. Mace	Boise
McCarty	West View	Scott Anderson	Boise
Middleman	West View	J. C. Johnson	Boise
Morning Glory	West View	E. J. Thorpe	Pearl
Oxford	West View	J. C. Dunbar	Pearl
Silver Wreath	West View	Fremont Wood	Boise
Virginia Mines	West View	G. L. Loope	Seattle, Wash.
White Sapphire Gr.	West Mountain	Geo. H. Storm	Van Nuys, Calif.
Wolverine	West View	H. B. Williams	Portland, Ore.

BIBLIOGRAPHY

See pages 71-72-73 for publisher's address, meaning of reference marks, and abbreviations.

Description of the Boise quadrangle, by Waldemar Lindgren: U. S. Geol. Survey Geol. Atlas, Folio No. 45, **1898.***

Mining districts of the Idaho Basin and the Boise Ridge, Idaho, by Waldemar Lindgren: U. S. Geol. Survey, Eighteenth Ann. Rept., pt. 3, pp. 625-736, **1898.***

The gold and silver veins of Silver City, De Lamar and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey, Twentieth Ann. Rept., pt. 3, pp. 75-256, **1900.***

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Description of the Nampa quadrangle, by Waldemar Lindgren and N. F. Drake: U. S. Geol. Survey Geol. Atlas, Folio No. 103, **1914.***

A preliminary reconnaissance of the gas and oil possibilities of southwestern and south-central Idaho, by J. P. Buwalda: Idaho Bureau of Mines and Geology Pamphlet 5, **1923.***

GOODING COUNTY

Placer gold, which is found in the gravel bars and sand along the Snake River, constitutes the only mineral resource of this county. These deposits are worked in a limited manner, and generally return the operator a fair profit on his labor.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Big Body Placer	Snake River	John Criswell	Clear Lake
Black Butte Placer	Snake River	A. S. Madalena	Clear Lake
Boulder Hill Placer	Snake River	Charles N. Ingersoll	Bliss
Brown Placer	Snake River	C. E. Jenkins	Hagerman
----------Pl.	Snake River	H. C. Bryant	Hagerman
----------Pl.	Snake River	Hand & Seburn	Hagerman
Zeolite Gr.	Unorganized	Geo. H. Chaffin	Gooding

BIBLIOGRAPHY

See Snake River Gold under General Bibliography.

IDAHO COUNTY

This county occupies a vast region about midway between the northern and southern boundaries of the State, extending from Montana, on the east, to Oregon, on the west. It is bounded on the north by Nez Perce, Lewis, and Clearwater counties, on the east by the State of Montana, on the south by Lemhi, Valley, and Adams counties, and on the west by the State of Oregon. It contains 8539 square miles, or an area which is larger than the combined areas of the States of Rhode Island, Delaware, and Connecticut. The 1920 census accredited it with a population of 11,749, or 1.4 persons to the square mile. The larger part of the population is located on Camas Prairie, a table-land of about 400 square miles. The chief industries are farming, principally wheat, for which Camas Prairie is famous; stockraising, and mining.

The western part of the county is served by the North and South State Highway, which extends from the southern to the northern boundary, and by the Elk City and Lewis & Clark highways, which are partly constructed. Its railroads are the Lewiston-Stites branch of the Northern Pacific Railroad, and the Lewiston-Grangeville branch, which is owned jointly by the Union Pacific and Northern Pacific railroads. Both these railroads serve Camas Prairie, or the northwestern part of the county. Grangeville is the largest town and county seat.

Idaho County is the largest in the State in area, and one of the greatest in diversity of mineral resources and mining opportunities. The principal metals and minerals which occur in sufficient extent to be of commercial importance are gold—placer and lode—silver, copper, lead, zinc, antimony, tungsten, asbestos, molybdenum, talc, and mica.

During the early days of Idaho this county was one of the largest gold-producing districts in the United States, and at the present time it offers more possibilities for profitable gold mining than any other section. Many of the millions produced during those days were won from placer deposits which occur in practically all the 17 mining districts within the county. Excepting the flat land and river bottoms, which are suitable for dredging, and which fully justify investigation, practically all the placer mines are exhausted.

The greatest handicap which the county is compelled to undergo is the lack of transportation, and under present road conditions only the highest grade free-milling ores can be successfully handled. Railroads into the various mining districts are a far removed possibility; however, a good automobile or motor truck road would serve to open many of the districts which are now dormant.

Much of the ore is a free-milling gold, and if not, a high-grade concentrate can be made which will permit a long haul. The latter statement applies particularly to the ores of the Ten Mile, Orogrande, Elk City, Buffalo Hump, and Dixie districts. The highway from Harpster to Elk City up the South Fork of the Clearwater River will make all these districts accessible by a water grade road, and their development will soon follow. This highway is one of the most meritorious projects in the State, and everyone interested in mining in these districts is looking forward to its early completion. In July, 1926, the prospectors and companies holding unpatented claims in the Elk City, Orogrande, Dixie, and Buffalo Hump districts voted to do their annual labor on this road. As a result of their faith in these districts, over six miles of road and a bridge crossing the Red River were constructed on the Elk City end. The lower end of the road was extended a distance of six miles during 1929 to the intersection of the old road between Newsome and Golden at Huston. The completion of the road to this point permitted the discontinuance of the road between Stites, Harpster, and Newsome, and the elimination of that portion over Mt. Baldy, one of the highest divides in the State of Idaho to be crossed by a road. On November 16, 1929, the starting point of the mail route to Elk City was changed from Stites to Grangeville, and now

all traffic into Elk City and environs is using this road from Grangeville to Huston and then the old road from Huston to Elk City. This change has added over two months to the period during which the Elk City region is accessible to motor vehicles, and has greatly reduced the time required for transporting the mail.

A gradual return to more normal conditions, under which gold mining is again becoming profitable, affected this county during the year by a small substantial increase in mining operations, investigations, new enterprises and increased production. The most important of these was the Sherman Howe Mining Co., a new organization in the Marshall Lake district. This company's property adjoins that of the Golden Anchor Mining Co. and covers the western extension of the Holte vein system. Its expenditures were among the largest made by any company in the State during 1929 and consisted of the following: Construction of new camp buildings and mill building; installation of complete new mining and milling equipment; installation of a 250-horsepower Diesel engine, direct-connected to electric generator; and construction of a 3-mile electric transmission line. This company also expended a substantial sum in road building. The Golden Anchor Mining Co., in the same district, was active throughout the year in extending its principal tunnel to a total distance of 1200 feet; this is being driven to intersect the Holte vein at greater depth. In addition to the foregoing, the Marshall Lake district witnessed more prospecting and more small development enterprises than for many years past. The Unity Gold Mines Co. of Warren maintained production operations throughout the year, but performed no new development work.

The Golden or Ten Mile district was one of the most active sections of this county throughout 1929. Prior to this year there were, with one exception, practically no mining operations of any consequence in this district, other than annual labor. On account of the completion of the highway to Huston the district witnessed the influx of many prospectors; the location of a large number of mining claims, both placer and lode, on both sides of the South Fork of the Clearwater River; the incorporation, financing, and starting of work by three new companies; the quarreling of prospectors over property lines on ground which was unlocated two years ago; and the construction of a small four-stamp, steam-driven mill by the Buffalo-Idaho Mining Co. This company also maintained active mine development work and constructed three miles of new road into its property. The construction of a new mill at the Lone Pine mine was projected by F. O. Miiller and son, as a result of exposing a large tonnage of high-grade ore; in addition to maintaining development work throughout the year, they operated their mill during the high-water season and the gold production was of such a substantial amount that this property is considered one of the State's principal gold mines.

In anticipation of the early completion of the highway to Elk City, this district witnessed the visits of a larger number of mining engineers, prospectors, and those seeking new mining enterprises than it had during many years past. These resulted in negotiations being undertaken by a large mining organization to acquire one of the mines, and the decision of another large organization to conduct extensive examinations during 1930.

One of the most important new enterprises in Idaho during 1929 was the acquisition of a newly discovered copper-silver prospect in the Green Mountain district by the Bunker Hill & Sullivan Mining & Concentrating Co. and allied interests. This property is situated near the headwaters of Meadow Creek, a tributary to the Selway River, and is on the ridge connecting Green Mountain and Three Prong Mountain. It is 24 miles east of Elk City, and is reached by a 13-mile pack trail from Red River Hot Springs. In October buildings were erected, supplies installed, and all arrangements completed for conducting active mining operations throughout the winter.

During the entire open season of 1929 the "96" Mining Co., whose headquarters are at Tacoma, Washington, was engaged in prospecting with churn drills the flat-lying placer ground on Red River, American River, and Elk Creek, to ascertain its gold content and dredging feasibility. Their engineer recommended that, in accordance with the drill records, the construction of a large dredge was warranted, and it is reported that plans are now being

formulated to finance its construction. During the summer months the Moose Creek Placers Co. further rehabilitated its ditch, flume lines, and hydraulicking equipment.

The Salmon River or Simpson district in the vicinity of Lucile witnessed a large amount of activity and publicity throughout the year. The principal expenditures were based on the recovery of gold from placer deposits and the publicity resulting from fabulous values reported in rare metals, such as platinum and palladium, by questionable assayers. The Salmon River Development Co. expended a large sum of money in flume and mill-building construction and the installation of elevating, screening, sluicing, and table concentration equipment. The Seelridge Gold Mining Co. erected a mill building and installed drag-line excavating equipment, elevator, conveyors, screens, and concentration tables. In addition to the two foregoing, several smaller organizations and a large number of prospectors gave their attention to placer deposits during the year.

Copper prospects in the Pardee district received a large amount of press mention during 1929; and the discovery of a deposit of high-grade silver ore in the vicinity of Kooskia was reported.

ABBA CORPORATION

Office: 128 Broadway, New York City **Officers:** Henry W. Allen, **Pres.**; Charles H. Suhl, Sec., both of New York City. **Inc.:** Mar. 6, 1926. **Capital:** 50,000 shares; par value $1; 45,750 shares issued. **Property:** 4 patented claims, Warren dist.; Warren. **Ore:** Silver.

ALTA-IDAHO GOLD & COPPER MINING CO.

Officers: M. C. Hetler, Pres., Berwick, Pa.; Mrs. Rachel E. Fine, Sec., Cassadaga, Fla.; Geo. M. Snyder, Mgr., Pardee. **Inc.:** Filed in Idaho June 17, 1903. **Capital:** 1,000,000 shares; par value $1; 756,107 shares issued. **Property:** Empire group; 11 unpatented claims, on South Fork of Clearwater River, Lolo dist.; Pardee. **Development:** Approximately 450 ft. of underground workings, the principal of which is 1 tunnel 250 ft. long. **Ore:** Gold-silver-copper. **Men employed:** 1 watchman.

AMERICAN DEVELOPMENT CO.

Office: Riggins. **Officers:** J. M. Worton, Pres.-Mgr., Whitebird; John H. Clay, Sec., Riggins. **Inc.:** June 21, 1929. **Capital:** 500,000 shares; par value $1; all shares issued. **Property:** 2 unpatented placer claims, Simpson dist.; Riggins.

BLACKTAIL MINING CO.

Office: 1517 E. 9th Ave., Spokane, Wash. **Officers:** R. E. Wakeley, Pres.-Mgr.; N. L. Wakeley, Sec., both of Spokane. **Inc.:** Dec. 3, 1914. **Capital:** 200,000 shares; par value $1; 121,920 shares issued. **Property:** 10 unpatented claims, Harpster dist.; Harpster. **Development:** By 2 tunnels: No. 1, 370 ft. long; No. 2, 70 ft. long. **Ore:** Gold. **Remarks:** Annual labor only.

BLUE RIBBON MINE

Owner: A. W. Boyd, Agent. **Property:** Blue Ribbon group; 5 unpatented claims, Elk City dist.; Elk City. **Development:** 1 tunnel about 400 ft. long; 1 shaft 100 ft. deep. **Ore:** Gold-silver. **Remarks:** One of the principal prospects in the Elk City district in which a large tonnage of ore has been developed.

BUFFALO-IDAHO MINING CO.

Office: 822 Humboldt Parkway, Buffalo, N. Y. **Officers:** Geo. J. Becker, Pres., Buffalo, N. Y.; Ray R. Becker, Sec., Williamsville, N. Y.; Joseph A. Fields, Mgr., Golden. **Inc.:** Nov. 7, 1927. **Capital:** 250,000 shares; par value $1; 168,950 shares issued. **Property:** Mackey group; 11 unpatented claims held under lease and option, Ten Mile dist.; Golden. **Development:** Principally by 1 tunnel 1100 ft. long, in which is a 40-ft. inclined shaft. **Plant:** MINE: Small gas-driven compressor; complete mining equipment and camp. MILL: Steam-driven 4-stamp mill. **Ore:** Gold. **Men employed:** Average, 6. **Remarks:** During the year the mill building was erected, equipment installed, 3 miles of road constructed, and a small amount of mine development work performed.

CENTRAL IDAHO GOLD MINES, INC.

Office: 601 Hutton Bldg., Spokane, Wash. **Officers:** Henry Merritt, Pres., Rosalia, Wash.; Chas. H. Ennis, Sec., Spokane, Wash. **Inc.:** July 20, 1928. **Capital:** 100,000 shares; par value $1; 38,200 shares issued. **Property:** New York group; 29 unpatented claims held under lease and option, Ten Mile dist.; Golden. **Development:** By 10 tunnels, the principal one of which is 1200 ft. long. **Plant:** Water-driven 10-stamp mill, constructed in 1916; complete hand-mining equipment and camp. **Ore:** Gold. **Men employed:** Average, 2. **Remarks:** Annual labor and ordinary repairs.

COMMODORE GOLD MINING CO.

Office: Lewiston. **Officers:** Wm. C. McNutt, Pres.-Mgr.; M. R. Morgan, Sec., both of Lewiston. **Inc.:** Mar. 28, 1921. **Capital:** 1,000,000 shares; par value $1; 432,315 shares issued. **Property:** Commodore group; 38 unpatented claims, at junction of Crooked River and South Fork of Clearwater River, Orogrande dist.; Elk City. **Development:** By 10 short tunnels, totaling approximately 500 ft., and 253 discovery pits. **Ore:** Gold. **Remarks:** Annual labor only.

CONSOLIDATED MINES SYNDICATE (See Camas County)

Property: Blue Jacket group; 7 patented claims, Crooks Corral dist.; Lucile. **Remarks:** Idle.

CROOKS CORRAL MINES, LTD.

Office: Grangeville. **Officers:** Frank McGrane, Pres.; A. F. Parker, Sec., both of Grangeville. **Inc.:** Sept. 13, 1897. **Capital:** 1,000,000 shares; par value $1; 990,000 shares issued. **Property:** 8 patented placer claims, Crooks Corral dist.; Lucile.

DYKE GOLD MINING & MILLING CO.

Office: 174 S. Howard St., Spokane, Wash. **Officers:** S. A. Wells, Pres.-Mgr.; Robert A. Koontz, Sec., both of Spokane, Wash. **Inc.:** June 24, 1929. **Capital:** 2,500,000 shares; par value 10c; 500,000 shares issued. **Property:** Eastern Star and North Star groups; 20 unpatented claims, Elk City dist.; Elk City.

EMPIRE METALS CO.

Office: 174 S. Howard St., Spokane, Wash. **Officers:** Wm. Hogan, Pres.-Mgr.; Robert A. Koontz, Sec., both of Spokane, Wash. **Inc.:** Jan. 20, 1927. **Capital:** 999,000 shares; par value 50c. Increased Mar. 26, 1928, to 5,000,000 shares; par value $1; 2,000,000 shares issued. **Property:** 113 unpatented claims, Elk City and Orogrande dists.; Elk City and Orogrande. **Development:** By large amount of short tunnels and open cuts. **Ore:** Gold. **Men employed:** Average, 5. **Remarks:** Annual labor only.

ESPERANZA GOLD DIKES MINING CORPORATION

Office: 802 Gasco Bldg., Portland, Ore. **Officers:** Edward M. Griffith, Pres., Lewiston; C. W. Twining, Sec., Portland, Ore. **Inc.:** Sept. 14, 1925. **Capital:** 1,000,000 shares; par value 25c; all shares issued. **Property:** Champion group; 18 patented claims, Orogrande dist.; Orogrande. **Development:** Approximately 4000 ft. of old workings. **Ore:** Gold. **Remarks:** Idle throughout the year.

GARNER ELECTRIC RANGE CO.

Office: 2322 E. Sprague Ave., Spokane, Wash. **Officers:** W. C. Garner, Pres.; W. M. Pope, Sec., both of Spokane, Wash. **Inc.:** An association. **Capital:** 1,000,000 shares; par value $1; 450,530 shares issued. **Property:** 80 acres patented farm land near Pollock, held under lease and option; Riggins. **Development:** 1 tunnel 100 ft. long. **Mineral sought:** Talc. **Men employed:** Average, 4. **Remarks:** During the year this company actively developed a talc deposit near Riggins, on the Little Salmon River.

GOLDEN ANCHOR MINING CO.
Office: Boise. **Officers:** J. A. Czizek, Pres.-Mgr.; J. F. Koelsch, Sec., both of Boise. **Inc.:** Apr. 14, 1928. **Capital:** 1,000,000 shares; par value $1; 500,000 shares issued. **Property:** Holte group; 22 unpatented claims. Marshall Lake dist.; Burgdorf. **Development:** Approximately 3200 ft. of underground workings, the principal of which are 4 tunnels: No. 1, 400 ft. long; No. 2, 1860 ft. long; No. 3, 600 ft. long; No. 4, 1200 ft. long; 1 vertical shaft 150 ft. deep. **Plant:** MINE: Electrically-driven compressor, complete mining equipment, sawmill, assay office and complete camp. MILL: 50-ton steam-driven Lane Chilean mill; cyanide plant. POWER: Small hydroelectric power plant; 3-mile transmission line. **Ore:** Gold. **Men employed:** Average, 6. **Remarks:** Active throughout the year in extending No. 4 tunnel.

GOLDEN MINING & POWER CO.
Office: Golden. **Officers:** A. Marcuson, Pres., Exeter, Calif.; R. B. Harris, Sec., Golden. **Inc.:** Nov. 12, 1926. **Capital:** 100,000 shares; par value $1; 52,250 shares issued. **Property:** 1 unpatented placer claim, Ten Mile dist.; Golden.

GOLD ZONE MINING & MILLING CO., LTD.
Office: Grangeville. **Officers:** W. W. Brown, Pres.; M. R. Hattabaugh, Sec., both of Grangeville; J. J. Schoner, Mgr., Elk City. **Inc.:** Sept. 9, 1919. **Capital:** 1,000,000 shares; par value 5c; all shares issued. **Property:** Gold Zone group; 3 unpatented claims, Elk City dist.; Elk City. **Development:** By 1 tunnel 500 ft. long. **Ore:** Gold. **Remarks:** Annual labor only.

GOODENOUGH UNITED MINING & MILLING CO., LTD.
Office: Payette. **Officers:** L. I. Purcell, Pres.-Mgr., Payette. **Inc.:** Nov. 1, 1905. **Capital:** 1,000,000 shares, par value 25c; 535,564 shares issued. **Property:** Goodenough group; 9 patented claims, Marshall Lake dist.; Burgdorf. **Remarks:** Idle for many years.

HOMESTAKE GOLD MINING CO.
Office: 345 Peyton Bldg., Spokane, Wash. **Officers:** Markus Lies, Pres., Cottonwood; W. H. Jones, Sec., Spokane, Wash.; A. W. Boyd, Mgr., Elk City. **Inc.:** Filed in Idaho Jan. 7, 1919. **Capital:** 250,000 shares; par value $1; all shares issued. **Property:** American Eagle and Fish Hawk groups; 26 patented, 10 unpatented claims, Elk City dist.; Elk City. **Development:** By 4 tunnels: No. 1, 340 ft.; No. 2, 1500 ft.; No. 3, 500 ft.; No. 4, 1174 ft. **Plant:** MINE: Steam-driven Sullivan compressor; complete mining equipment and camp. MILL: 10-stamp amalgamation and table concentration, steam-driven. **Ore:** Gold. **Men employed:** 2 watchmen. **Remarks:** Idle. Under option to Seattle American Eagle Mines, Inc.

HOMESTAKE PLACER MINE
Owner: M. Kleiner, Portland, Ore. **Property:** 8 unpatented placer claims, Ten Mile dist.; Golden. **Ore:** Placer gold. **Remarks:** Under lease and option to Russell Webb of Lapwai, who performed a small amount of work during the summer months, consisting principally of installation of hydraulicking equipment.

IDAHO BUSTER MINING CO., LTD.
Office: 1022 Crocker Bldg., San Francisco, Cal. **Officers:** F. W. Bradley, Pres.; J. S. Wallace, Sec., both of San Francisco, Cal. **Inc.:** Dec. 9, 1908. **Capital:** 300,000 shares; par value $1; all shares issued. **Property:** Idaho Buster group; 4 patented claims, Elk City dist.; Elk City. **Remarks:** Idle since November, 1909.

JUMBO MINING & MILLING CO., LTD.
Office: Lewiston. **Officers:** J. C. Jansen, Pres., Lewiston Orchards; Mrs. Alice R. Lydon, Asst. Sec., Lewiston. **Inc.:** Aug. 13, 1902. **Property:** Jumbo group; 5 patented claims, Robins dist.; Orogrande. **Remarks:** Property under lease and option to Copper Chief M. & M. Co., Ltd., of Latah County.

LONE PINE GROUP

Owner: F. O. Miiller, 735 Riverview Blvd., Clarkston, Wash.; S. O. Miiller, Supt., Lewiston. **Property:** Lone Pine group; 4 patented, 10 unpatented claims, Ten Mile dist.; Golden. **Development:** By 6 tunnels, totaling over 1400 ft. **Plant:** 2-stamp mill, 1250-lb. stamps, water-driven. **Ore:** Gold. **Men employed:** Average, 7. **Remarks:** This property is one of the principal gold-producing mines in Idaho County. During the high-water season a substantial tonnage was produced and milled. Active development work was maintained throughout the year. This work resulted in exposing an unknown vein and a large tonnage of high-grade ore.

LUCKY FIVE MINING CO.

Office: P. O. Box 1182, Spokane, Wash. **Officers:** J. F. Hocking, Pres.; C. Clinkenbeard, Sec.-Mgr., both of Spokane. **Inc.:** Never filed in Idaho; form of organization unknown. **Capital:** 1,499,990 shares; par value 10c; 683,540 shares issued. **Property:** Relief Creek placers; 12 unpatented claims, Orogrande dist.; Orogrande. **Ore:** Placer gold. **Remarks:** Annual labor only.

McKINLEY GOLD MINING CO.

Office: Kellogg. **Officers:** P. P. Weber, Pres.; Geo. D. Lamielle, Sec., both of Kellogg. **Inc.:** Dec. 29, 1899. **Capital:** 1,500,000 shares; par value $1; 913,313 shares issued. **Property:** McKinley group; 4 patented, 2 unpatented claims, Simpson dist.; Lucile. **Development:** 4 tunnels: No. 1, 145 ft. long; No. 2, 1020 ft. long. Total development, approximately 1300 ft. **Ore:** Gold. **Remarks:** Annual labor only. A stock assessment of 1 mill was levied on June 5, 1929.

MAMMOTH MINE CORPORATION

Office: Lewiston. **Officers:** R. S. Erb, Pres.; R. G. Bailey, Sec., both of Lewiston. **Inc.:** Feb. 25, 1925. **Capital:** 500,000 shares; par value $1; 290,508 shares issued. **Property:** Mammoth group; 6 unpatented claims, Dixie dist.; Dixie. **Development:** By 14 open cuts and 2 short tunnels. **Ore:** Gold. **Remarks:** Property under option to Mammoth Mining & Development Co.

MAMMOTH MINING & DEVELOPMENT CO.

Office: Dixie. **Officers:** A. C. Carpenter, Pres.; H. R. Flaiz, Sec.-Mgr., both of Dixie. **Inc.:** Apr. 29, 1929. **Capital:** 600,000 shares; par value $1; all shares issued. **Property:** Lease and option on property of Mammoth Mine Corporation. **Men employed:** Average, 2. **Remarks:** Active stock-selling campaign in the State of Washington throughout the year.

MONTE CRISTO MINING CO.

Office: Lewiston Bank Bldg., Lewiston. **Officers:** Fred Johnson, Pres.-Mgr., Troy; A. P. Hagglund, Sec., Lewiston. **Inc.:** Oct. 22, 1927. **Capital:** 200,000 shares; par value $1; 80,000 shares issued. **Property:** Monte Cristo group; 2 unpatented claims, Robins dist.; Waverly; 1 patented claim, Florence dist.

MOOSE CREEK PLACERS CO.

Office: Kellogg. **Officers:** D. Williams, Pres.; Max R. Crosby, Sec.-Mgr., both of Kellogg. **Inc.:** Nov. 22, 1927. **Capital:** 2,500,000 shares; par value 10c; 1,000,000 shares issued. **Property:** Moose Creek placers; 19 unpatented claims, 375 acres, Newsome dist.; Newsome. **Ore:** Placer gold. **Men employed:** Average, 8. **Remarks:** During the summer months ditch and flume lines and hydraulicking equipment repaired and rehabilitated. A stock assessment of 5 mills was levied on Aug. 28, 1929.

"96" MINING CO.

Office: Washington Bldg., Tacoma, Wash. **Officers:** H. A. Henton, Pres.-Mgr.; W. Fish, Sec., both of Tacoma, Wash. **Inc.:** Filed in Idaho Feb. 2, 1929. **Capital:** 2,000,000 shares; par value $1; 1,205,000 shares issued. **Property:** 700 acres placer claims, 590 acres farm land on Red River, American River, and Elk Creek; held under lease and option; Elk City dist.; Elk City. **Plant:** Complete drilling equipment and tools. **Ore:** Placer gold. **Men employed:** Average, 5. **Remarks:** Active churn-drilling operations conducted throughout the year, the results of which were reported to be very encouraging.

NORTH HILL MINING CO.

Office: 617 Hutton Bldg., Spokane. **Officers:** J. M. McLean, Pres.; Ralston McCaig, Sec., both of Spokane. **Inc.:** Apr. 18, 1925. **Capital:** 1,500,000 shares; par value 1c; 742,536 shares issued. **Property:** Summit Flat group; 5 unpatented claims, Orogrande dist.; Orogrande. **Development:** Principally by 1 tunnel, 1150 ft. long. **Plant:** Steam-driven Gardner-Ricks compressor and hoist; camp; complete mining equipment. **Ore:** Gold. **Men employed:** Average, 2. **Remarks:** This company is a reorganization of the Summit Flat Mining Co. A small amount of work was done during the summer months.

OROGRANDE GOLD MINING CO.

Office: 602 Columbia Bldg., Spokane, Wash. **Officers:** J. N. Pickrell, Pres., Colfax, Wash.; J. E. Pickrell, Sec., Spokane, Wash. **Inc.:** March 14, 1919. **Capital:** 3,500,000 shares; par value $1; 1,833,480 shares issued. **Property:** Orogrande group; 5 patented, 29 unpatented claims, Orogrande dist.; Orogrande. **Development:** Approximately 6000 ft. of underground workings and 4000 ft. of surface cuts on all claims. **Plant:** Stamp mill with partly completed cyanide plant; water-driven. **Ore:** Gold. **Men employed:** 1 watchman. **Remarks:** Idle.

RAPID RIVER MINING & MILLING CO., LTD.

Office: Genesee. **Officers:** D. Scharnhorst, Pres.-Mgr.; J. G. Meyer, Sec., both of Genesee. **Inc.:** July 14, 1910. **Capital:** 1,500,000 shares; par value $1; 305,139 shares issued. **Property:** 8 unpatented claims, Rapid River; Pollock.

RECORO GOLD MINING CO.

Office: 418 Idaho Bldg., Boise. **Officers:** Montie C. Reynolds, Pres.-Mgr.; P. E. Cavaney, Sec., both of Boise. **Inc.:** December 20, 1928. **Capital:** 500,000 shares; par value $1; all shares issued. **Property:** Homestake group; 10 unpatented claims, Marshall Lake dist.; Burgdorf. **Development:** By 5 short tunnels. **Ore:** Gold. **Remarks:** Annual labor only.

REVENUE MINING & MILLING CO.

Office: 511 Kuhn Blk., Spokane, Wash. **Officers:** J. E. McCormack, Pres.; Walter Guthridge, Sec.-Treas., both of 511 Kuhn Blk., Spokane, Wash. **Inc.:** April 10, 1912. **Capital:** 500,000 shares; par value $1; 391,693 shares issued. **Property:** Revenue group; 8 patented claims, Elk City dist.; Elk City. **Development:** 2 tunnels: No. 1, 700 ft. long; No. 2, 100 ft. long. **Remarks:** Idle.

SALMON RIVER DEVELOPMENT CO.

Office: Whitebird. **Officers:** I. L. Osterhout, Pres.; H. A. Ellis, Sec., both of Colfax, Wash.; J. M. Worton, Mgr., Whitebird. **Inc.:** Sept. 10, 1927. **Capital:** 500,000 shares; par value $1; 204,031 shares issued. **Property:** 13 unpatented placer claims, 526 acres, held under royalty and option, Simpson dist.; Whitebird. **Plant:** Large mill building, in which is installed elevating, screening, and sluicing equipment, combined with table concentration; electric power generator driven by 110-h. p. semi-Diesel engine; 12,000 ft. of flume. **Ore:** Placer gold. **Men employed:** Average, 20. **Remarks:** Flume, which involved a large amount of heavy construction, was completed; mill building erected; equipment installed; and operations conducted for a few days. Due to ineffectiveness of the plant, which was designed by the manager, and on account of the gold content in the ground which was mined being too low, operations were suspended in August. As a result the company became involved in legal difficulties.

SALMON RIVER MINERS, INC.

Office: P. O. Box 207, Lewiston. **Officers:** C. C. Byers., Pres.-Mgr.; C. D. Cole, Sec., both of Lewiston. **Inc.:** Mar. 26, 1928. **Capital:** 100 shares; par value $100; 60 shares issued. **Property:** 1 unpatented placer claim, Camp Howard dist.; Whitebird. **Ore:** Placer gold. **Remarks:** Small amount of work performed during the summer months by the officers of the company.

SEATTLE AMERICAN EAGLE MINES, INC.

Office: 407 American Bank, Seattle, Wash. **Officers:** Miss A. M. Hoffstater, Pres.; H. H. Hoffstater, Sec., both of Seattle, Wash. **Inc.:** Jan. 30, 1928. **Capital:** 195,000 shares; par value $1; 100,000 shares issued. **Property:** American Eagle group; 26 patented, 10 unpatented claims, Elk City dist.; Elk City. Held under lease and option from Homestake Gold Mining Co. **Development:** By 4 tunnels: No. 1, 340 ft.; No. 2, 1500 ft.; No. 3, 500 ft.; No. 4, 1174 ft.; and a vertical shaft 200 ft. deep. **Plant:** MINE: Steam-driven Sullivan compressor; complete mining equipment and camp. MILL: Steam-driven 10-stamp mill with concentrating tables. **Ore:** Gold. **Men employed:** 2 watchmen.

SEELRIDGE GOLD MINING CO.

Office: Kellogg. **Officers:** P. E. Seelye, Pres.-Mgr., Kellogg; Edwin Smetheran, Sec., Spokane, Wash. **Inc.:** Jan. 18, 1928. **Capital:** 100,000 shares; par value $1; 43,722 shares issued. **Property:** Placer claims held under lease and option, near Freedom, Simpson dist.; Whitebird. **Plant:** Dragline excavation equipment; mill building in which is installed elevator, conveyor, screens, and 2 concentrating tables. **Ore:** Placer gold. **Men employed:** Average, 10. **Remarks:** Mill building was erected and equipment installed during the early months of the year, after which operations were conducted for a few days and then suspended. A stock assessment of 5c was levied on Aug. 21, 1929.

SHERMAN HOWE MINING CO.

Office: Burgdorf. **Officers:** A. W. Walker, Pres., Mackay; J. W. David, Sec.; V. W. Bailey, Mgr., both of Burgdorf. **Inc.:** Mar. 19, 1929. **Capital:** 250,000 shares; par value $1; all shares issued. **Property:** Walker-Wilcox group; 7 unpatented claims, Marshall Lake dist.; Burgdorf. **Development:** By 3 tunnels: No. 1, 120 ft.; No. 2, 245 ft.; No. 3, 900 ft. **Plant:** MINE: I-R compressor; complete mining equipment and camp. MILL: 150-ton, fine grinding, amalgamation, and flotation. POWER: 250-h. p. Diesel engine, direct connected to electric generator; 3-mile transmission line. **Ore:** Gold. **Men employed:** Average, 25. **Remarks:** This company's property adjoins that of the Golden Anchor Mining Co. and covers the western extension of the Holte vein system. This was one of the principal new enterprises to start in the State during 1929, and its expenditures were among the largest. New camp buildings were constructed; mill building erected; compressor and mining equipment installed; power plant and 3-mile electric transmission line constructed; and substantial sum expended on road building.

SLATE CREEK GOLD MINING CO.

Office: Whitebird. **Officers:** G. A. Thomson, Pres.; W. W. White, Sec., both of Whitebird. **Inc.:** Sept. 21, 1925. **Capital:** 600,000 shares; par value 50c; 30,250 shares issued. **Property:** Lease and option on 480 acres patented farm land, Simpson dist.; Lucile. **Development:** By 3 tunnels, with a total of approximately 600 ft. **Ore:** Gold. **Remarks:** Idle.

SPHINX GOLD MINING CO.

Office: 832 Old National Bank Bldg., Spokane, Wash. **Officers:** Sam A. McCoy, Pres.-Mgr.; E. J. Johnson, Sec., both of Spokane, Wash. **Inc.:** May 3, 1923. **Capital:** 500,000 shares; par value $1; all shares issued. **Property:** Sphinx group; 5 unpatented claims, Ten Mile dist.; Newsome. **Ore:** Gold. **Remarks:** Annual labor only.

SPRING BARR PLACER CO.

Office: E. 2417 Fifth St., Spokane, Wash. **Officers:** N. L. Wakeley, Pres.-Mgr.; Geo. W. McCallum, Sec., both of Spokane, Wash. **Inc.:** May 14, 1927. **Capital:** 25,000 shares; par value $1; 15,000 shares issued. **Property:** Spring Barr group; 4 unpatented placer claims, Simpson dist.; Lucile. **Ore:** Placer gold. **Remarks:** Annual labor only.

STOWELL GOLD MINING CO.

Office: 421 Sprague Ave., Spokane, Wash. **Officers:** Wm. H. Stowell, Pres.; Robert A. Koontz, Sec., both of Spokane. **Inc.:** Dec. 4, 1926. **Capital:** 5,000,000 shares; par value 15c; 2,500,000 shares issued. **Property:** South Fork group; 5 patented, 6 unpatented claims, Elk City dist.; Elk City. **Development:** Approximately 3500 ft. of underground workings, the principal of which are: No. 1 tunnel, 1200 ft. long; No. 2, 1050 ft. long; No. 3, 1000 ft. long. **Plant:** 5-stamp mill. **Ore:** Gold. **Remarks:** Annual labor only.

SYLVANITE GOLD-COPPER CO.

Office: 504 Mohawk Bldg., Spokane, Wash. **Officers:** Wesley L. Wakeley, Pres.-Mgr., Lucile; G. E. Lovell, Sec., Spokane, Wash. **Inc.:** Aug. 20, 1919. Charter forfeited Nov. 30, 1929. **Capital:** 100 shares; par value $100; all shares issued. **Property:** Maud Randall group; 5 unpatented claims, 2 of which are held under lease and bond from Joseph Himmelspack of Grangeville; Harpster dist.; Harpster. **Development:** By 2 tunnels: No. 1, 825 ft. long; No. 2, 120 ft. long. **Plant:** Gas-driven Gardner-Ricks 6x6 compressor; complete mining equipment. **Ore:** Copper. **Remarks:** Annual labor only.

THREE STAR MINES CORPORATION

Office: 201 N. Naches Ave., Yakima, Wash. **Officers:** L. L. Iles, Pres.; W. T. Carpenter, Sec., both of Yakima, Wash.; John McDonald, Mgr., Golden. **Inc.:** Oct. 23, 1929. **Capital:** 3,000,000 shares; par value 1c; 500,000 shares issued. **Property:** 17 unpatented claims, Ten Mile dist.; Golden. **Ore:** Gold.

TRI METALLIC MINING CO., LTD.

Office: Pardee, Idaho. **Officers:** Miss Frieda M. Bethmann, Pres.; Miner Bethmann, Mgr., both of Pardee. **Inc.:** Sept. 26, 1917. **Capital:** 250,000 shares; par value $1; 146,866 shares issued. **Property:** Tri Metallic group; 4 unpatented claims, Lolo dist.; Pardee. **Development:** By 3 tunnels: No. 1, 520 ft.; No. 2, 185 ft.; No. 3, 950 ft. **Ore:** Gold-silver-copper. **Remarks:** Annual labor only.

UNA MINE CO.

Office: 617 Hutton Bldg., Spokane, Wash. **Officers:** J. M. McLean, Pres.; Ralston McCaig, Sec.-Mgr., both of Spokane. **Inc.:** Feb. 6, 1925. **Capital:** 1,250,000 shares; par value 1c; 1,074,600 shares issued. **Property:** Una group; 4 unpatented claims, Orogrande dist.; Orogrande. **Development:** By 1 tunnel 1155 ft. long. **Ore:** Gold. **Men employed:** Average, 2. **Remarks:** Active work during the summer months in repairing buildings and tunnel.

UNITY GOLD MINES CO.

Office: 120 Broadway, New York City. **Officers:** Lorren M. Hart, Pres.; J. B. Neumuller, Sec., both of New York City; Granville T. Eyman, Mgr., Warren. **Inc.:** May 25, 1916. **Capital:** 500,000 shares; par value $5; all shares issued. **Property:** Little Giant and Rescue groups; 8 patented 10 unpatented claims, Warren dist.; Warren. **Development:** Over 10,000 ft. of underground workings, the principal of which is the Unity or main crosscut tunnel, which is 5400 ft. in length. **Plant:** MINE: Storage-battery locomotive haulage; one 300-cu.-ft. and one 700-cu.-ft. electrically driven compressor; complete mining equipment. MILL: 10-stamp mill, 1000-lb. stamps, simple amalgamation. POWER PLANTS: A 50-h. p. hydroelectric plant on Warren Creek and a 600-h. p. hydroelectric plant on Elk Creek, the latter consisting of 2 units driven by Pelton impulse water wheel operating under a vertical head of 415 ft.; 9½-mile transmission line connecting power plant and mine. **Ore:** Gold. **Men employed:** 23. **Remarks:** This company refused to file its report as required by law for the year 1929, so it is unknown whether or not the above is true. However, production was maintained throughout the year from ore previously developed, and late in the year it became necessary to acquire funds for development work—possibly the reason for refusal to file the reports required by law.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Ada Brown et al.	Ten Mile	J. H. Lamb	Ephrata, Wash.
Alberta	Elk City	H. T. Thompson	Elk City
American Bar Pl.	Unorganized	Lula M. Unzicker	Cottonwood
American Flag	Elk City	Pat Brennan	Elk City
Americanus	Marshall Lake	Ed Luzadder	Burgdorf
Americus	Cottonwood Buttes	J. W. Bartlett	Greencreek
Anaconda	Unorganized	J. Himmelspak	Grangeville
Annie Laurie et al.	Florence	S. A. Deflong	Grangeville
Apex	Florence	Anderson & Seaberg	Florence
Argonne Gr.	Orogrande	A. C. Spengler	Lewiston
Arles	Warren	Kelley & Patterson	Warren
Bauer Gr.	Elk City	Frank Bauer	Elk City
Bengal	Elk City	Perry Bros.	Elk City
Bevier Pl.	Florence	Wm. D. Bevier	Elk City
Big Buffalo	Robins	M. J. Sweeney	Spokane, Wash.
Big Four	Warren	Patterson Bros.	Warren
Black Bear	Cottonwood Buttes	L. J. Anderson	Woodland
Blanco	Unorganized	J. W. Van Tine	Grangeville
Bluebird	Warren	Walter B. Martin	Warren
Blue Bird Gr.	Ten Mile	John P. Kee	Grangeville
Blue Ribbon	Elk City	J. E. Brown	Elk City
B & M Mine	Elk City	John Montgomery	Elk City
Bolinski Gr.	Elk City	Len Bolinski	Elk City
Bonanza Pl.	Elk City	Frederick Gribi	1546 Toberman St., Los Angeles, Cal.
Bonanza Pl.	Simpson	Hart & Richardson	1078 Stratton St., Portland, Ore.
Brown Gr.	Warren	Frank H. Brown	Warren
Buck Diggins Pl.	Warren	John Becker	Warren
Buckeye Pl. et al.	Unorganized	Henry Meyer	Grangeville
Buck Meadows Pl.	Unorganized	George Davis	Grangeville
Burrel	Ten Mile	J. J. Kowalski	Prosser, Wash.
Buster et al.	Dixie	Oscar Waller	Warren
Buttercup Gr.	Florence	Samuel Dunn	Grangeville
Cape Horn	Camp Howard	C. H. Lyons	Whitebird
Carson Pl.	Warren	Frank Carson	Warren
Carter Gr.	Elk City	Geo. M. Carter	Jackson, Mich.
Center Star	Elk City	Herman Brown	Elk City
Chicago et al.	Elk City	R. Greckwell	Elk City
China Garden	Camp Howard	B. V. Lyons	Grangeville
Clearwater Gr.	Elk City	Geo. L. Esh	Elk City
Cleveland	Elk City	S. W. Smith	Palo Alto, Cal.
Coeur d'Alene	Ten Mile	Peter Proulix	Golden
Columbia	Elk City	John Massam	Elk City
Concord Gr.	Robins	Galen S. Stone	Boston, Mass.
Congress	Elk City	S. W. Smith	Palo Alto, Cal.
Copper King Gr.	Lolo	Daniel Laverty	Pardee
Cornucopia et al.	Simpson	D. A. Hardin et al.	Whitebird
Cove Placers	Clearwater	M. B. Geary	Grangeville
Crescent Pl.	Orogrande	Geo. P. Kelley	Newsome
Crooked River Pl.	Elk City	George Brown	Orogrande
Cuban	Marshall Lake	G. E. Hyatt	Burgdorf
Dandy Pl.	Simpson	E. W. Butcher	Lucile
Davis Gr.	Ten Mile	J. G. Kowalski	Newsome
Deadwood	Elk City	Chas. Forman	Los Angeles, Cal.
Dewey	Harpster	Albert Kincaid	Grangeville
Diamond Hitch	Orogrande	Orin Lamb Est,	Orogrande

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Discovery	Maggie Creek	W. E. Smith	Los Angeles, Cal.
Eagle	Warren	Gus Kupper	Warren
El Toro Gr.	Newsome	L. A. Strong	Fontana, Cal.
Eureka	Unorganized	Geo. A. Cowgill	Grangeville
Evergreen Gr.	Clearwater	Carolyn Wagner	Portland, Ore.
Fall Cr. Pl.	Marshall Lake	H. H. Hackett	Burgdorf
Florence	Florence	A. R. Smith	Spokane, Wash.
Foss Gr.	Elk City	R. E. Foss	Elk City
Fourth of July	Dixie	Thomas Pritchard	Dixie
Franklin	Ten Mile	A. S. Johnson	Golden
Franklin et al.	Robins	P. Klinkhammer	Grangeville
Free Gold	Dixie	Geo. L. Esh Est.	Dixie
Frisco Gr.	Elk City	E. J. Comley	Elk City
Gilt Edge	Ten Mile	Frank Osgood	Seattle, Wash.
Gold Dollar	Warren	M. W. Hubbard	New Meadows
Gold Dove	Elk City	Pat Brennan	Elk City
Gold Drop	Elk City	Geo. W. Widemeyer	Elk City
Gold Hill	Ten Mile	Ed. Bailey	Prosser, Wash.
Gold King	Orogrande	Geo. Peterson	Newsome
Gold Nugget Pl.	Unorganized	A. M. Anderson	Cripple Creek, Colo
Golden Brown	Crooks Corral	Revillo Johnson	Lucile
Golden Placer	Ten Mile	Edward Timm	Golden
Golden Rule	Maggie Creek	O. W. Montgomery	Kooskia
Golden Rule Pl.	Elk City	Chas. Tiedeman	Elk City
Golden Rule Pl.	Maggie Creek	A. E. Davis	Kooskia
Golden Rule Pl.	Warren	A. L. Freehafer	Payette
Grangeville	Elk City	Joe Schoner	Elk City
Great Nugget Pl.	Simpson	Hart & Richardson	Lucile
Great Western Gr.	Crooks Corral	James McCalla	Lucile
Grey Pallor	Warren	W. T. Copenhaver	Warren
Gunboat Pl.	Dixie	R. Burke	Dixie
Haig & Haig	Orogrande	R. McGregor	Elk City
Hawkeye	Warren	J. T. Murphy	Warren
Headlight	Newsome	J. E. Davis	Newsome
Hecla	Elk City	C. E. Skoglar	Elk City
Hercules	Elk City	Alex Hendrie	125 Kent St., Hamilton, Ont.
Hidden Treasure	Unorganized	Peter Solem	Grangeville
Hi-Yu	Florence	Odle Paul	Whitebird
Homestake Gr.	Orogrande	A. W. Boyd	Elk City
Hope Gr.	Elk City	Schuyler Simmons	Elk City
Iola	Orogrande	James H. Colgrave	Spokane, Wash.
Jackson Gr.	Lolo	Othilie C. Jack	Pardee
James Moore	Dixie	James Moore	Dixie
Jim Crow Pl.	Simpson	Jacob Cassett	Lucile
Jumbo	Robins	A. F. Schultz	Lewiston
Jupiter Gr.	Marshall Lake	Chris Arnold et al.	Burgdorf
Keystone	Warren	Anthony Mohr	Warren
Keystone Gr.	Orogrande	Edw. Hansen	Orogrande
Kimberley & Jewel	Marshall Lake	D. L. Roy	Burgdorf
Klondyke	Camp Howard	George J. Burgund	Cottonwood
Knott & Delaware	Warren	James Long	Warren
Lajulla Pl. et al	Camp Howard	R. W. Wyatt	Whitebird
Last Chance	Elk City	James P. Larson	Elk City
Last Chance	Florence	John Lamont	Grangeville
Laughing Water Gr.	Warren	Roy A. Briggs	Council
Laurel Hill	Elk City	P. S. Prichard	Elk City
Liberty	Elk City	Wm. A. Copland	Elk City
Liberty et al.	Florence	J. G. Irvin	Grangeville
Liberty Bell et al.	Robins	E. M. Griffith	Grangeville

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Lick Creek Pl.	Elk City	Wm. Finley	Elk City
Lime Point	Simpson	Marion Kramer	Lucile
Little Johnnie et al.	Marshall Lake	E. Koontz et al.	Mesa
Little Leggat	Orogrande	Simpson & Overman	Newsome
L. & L.	Dixie	Louis Larson	Dixie
Local Option	Ten Mile	Frank McGrane	Grangeville
Lolo	Dixie	Don A. Burpee	Dixie
Loper	Marshall Lake	George Loper	Burgdorf
Lost Lake	Robins	R. McGregor	Elk City
Lost Meadows	Florence	W. A. Paul	Grangeville
Lot Lake et al.	Florence	Claud Flint	Florence
Lucky Ben	Warren	Jay A. Czizek	Warren
Lucky Strike	Warren	Grindle & Curtis	Warren
Lusitania	Cottonwood Buttes	J. W. Bartlett	Green Creek
Mackay & Lamb	Ten Mile	W. A. Harvey	Newsome
Madre d'Or	Elk City	S. W. Litchfield	Elk City
Malone Pl.	Simpson	John Struck	Cottonwood
Mammoth	Newsome	W. H. Baldwin	Stites
Mammoth Gr.	Dixie	C. A. Carpenter	Dixie
Mascot et al.	Elk City	John Massam	Elk City
Mayflower	Warren	Patterson, Morris & Blake	Warren
Miller Creek Pl.	Florence	S. A. Moon	Florence
Mineral Zone et al.	Elk City	G. L. Baskett	Elk City
Minnehaha	Warren	Dr. G. M. Waterhouse	Weiser
Modoc	Marshall Lake	L. W. Wilcox	Burgdorf
Monadnock	Dixie	George O. Trader	Dixie
Monarch	Simpson	C. H. Prescott	Dixie
Monmouth	Dixie	J. L. Hayes	Dixie
Moose Creek Pl.	Newsome	W. H. Giles	Newsome
Mother Lode	Elk City	Geo. Brown	Orogrande
Mount Eureka	Warren	W. G. Cadby	Warren
Mount Marshall Gr.	Marshall Lake	G. A. Green	Grangeville
New Jersey	Elk City	Condit Bros.	Elk City
Newsome Pl.	Newsome	James Surridge	Harpster
New York	Ten Mile	Wm. Huntley	Spokane, Wash.
Nugget Pl.	Orogrande	Geo. Brown	Elk City
Occidental Gr.	Orogrande	Frank A. Bauer	Elk City
Ohio Placer	Orogrande	Geo. Overfield Est.	Orogrande
Old Channel Pl.	Simpson	Currier Bros.	Riggins
Old Kentuck	Marshall Lake	Peterson & Spencer	Burgdorf
Olivia Gulch	Dixie	Henry S. Hazlitt	Dixie
Ore Bend et al.	Marshall Lake	A. J. Callis	Coeur d'Alene
Pacific Gr.	Elk City	Rod Leggett	Butte, Mont.
Paymaster	Ramey Ridge	Chas. Mahan	Edwardsburg
Pioneer Hill	Ten Mile	Timm & Braig	Newsome
Poorman	Dixie	Oscar Eakin	Dixie
Queen Gr.	Elk City	Grant Litchfield	Elk City
Rainier Gr.	Warren	Gus Sindt	Warren
Rapid Creek	Warren	Frank Mitchell	Warren
Red Cloud et al.	Marshall Lake	S. E. Gerber et al.	Payette
Red Horse Pl.	Elk City	Schuyler Simmons	Elk City
Red Warrior	Orogrande	Frank Peck	Orogrande
Rigdon Placer	Warren	Geo. G. Rigdon	Meadows
Rocky Butte et al.	Cottonwood Buttes	J. L. Eckert	Cottonwood
Saturday Pl.	Robins	Wm. Allen	Elk City
Shamrock et al.	Marshall Lake	H. H. Hackett et al.	Burgdorf

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Shissler Creek Pl.	Warren	H. Cook	Warren
Shorty Pl. et al.	Camp Howard	Gus Schilling	Grangeville
Silver King	Warren	Sigo Myers	Savannah, Ga.
Skylark	Warren	Warren D. Smith	Warren
South Fork	Elk City	Martin Heckman	Elk City
Spike Quartz	Elk City	James Hubbs	Elk City
Spokane Pl. et al.	Simpson	Nettie Deasy	Whitebird
Spring Bar Pl.	Simpson	J. A. Carr	Lucile
Star	Florence	W. A. Nicodemus	Spokane, Wash.
Stephenson Gr.	Elk City	Lu Stephenson	Elk City
Subway Gr.	Orogrande	H. W. Harris	Elk City
Sunflower Pl.	Dixie	Monroe Hancock	Shoup
Surprise Gr.	Dixie	J. R. Painter	Dixie
Syringa	Maggie Creek	J. M. Wisdom	Culdesac
Syringa	Orogrande	James Montgomery	Orogrande
Tacoma Pl.	Camp Howard	Chas. Lyons	Whitebird
Thompson Pl.	Warren	Ah Sam	Warren
Three Mile Pl.	Marshall Lake	Jensen Bros.	Burgdorf
Thunder Mt. Gr.	Elk City	E. M. Griffith	Clarkston, Wash.
Tippie Placer	Ten Mile	Geo. R. Curtis	Newsome
Tivola	Elk City	George Braig	Elk City
Trout Gr.	Elk City	Geo. Trout	Elk City
Twin Butte et al.	Orogrande	Frank M. Peck	Orogrande
Two B Bar Pl.	Camp Howard	C. C. Byers	Lewiston
Uncle Sam	Elk City	J. E. Brown	Elk City
Umatilla Gr.	Orogrande	Orin Lamb Est.	Orogrande
Union Gr.	Orogrande	Robert Pulz	Orogrande
University et al.	Marshall Lake	W. L. Lyon	Grangeville
Venture	Robins	A. G. Schultz	Lewiston
Walker & Wilcox	Marshall Lake	E. S. Walker	Burgdorf
Wander Gr.	Ten Mile	G. W. Bassett Est.	Grangeville
War Eagle	Robins	Geo. J. Bancroft	220 Broadway, Denver, Colo.
Wild Rose	Elk City	Denzil Robinett	Kooskia
Wild Rose Pl.	Dixie	J. R. Cunningham	Shoup
Wilson	Newsome	A. E. Carpenter	Newsome
Wizzard Gr.	Robins	Jack Cameron	Orogrande
Yellow Pine	Ten Mile	Miller & Sons	Newsome

BIBLIOGRAPHY

See pages 71-72-73 for publisher's address, meaning of reference marks, and abbreviations.

A geological reconnaissance across Idaho, by G. H. Eldridge: U. S. Geol. Survey, Sixteenth Ann. Rept., pt. 2, pp. 217-276, **1895.***

The Deadwood placer claims, Idaho, by W. H. Hill: Eng. and Min. Jour., vol. 60, pp. 225-226, Sept., **1895.**§

The Little Giant mine, Warren, Idaho, by W. H. Hill: Eng. and Min. Jour., vol. 62, p. 417, **1896.**§

Mining districts of Idaho Basin and the Boise Ridge, Idaho, by Waldemar Lindgren; U. S. Geol. Survey, Eighteenth Ann. Rept., pt. 3, pp. 625-716, **1898.***

Central Idaho gold field, by Don Maguire: Mines and Minerals, vol. 19, pp. 289-291, February, **1899.***

The Buffalo Hump mining camp, Idaho, by C. H. Whittle: Eng. and Min. Jour., vol. 68, pp. 215-216, Aug. 19, **1899.**§

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey, Twentieth Ann. Rept., pt. 3, pp. 75-256, **1900.***

Buffalo Hump, Idaho, by D. G. Doubleday: Mines and Minerals, vol. 21, pp. 296-298, February, **1901.***

Geology and water resources of Nez Perce County, Idaho, by I. C. Russell: U. S. Geol. Survey Water-Supply Papers 53 and 54, **1901.**‡*

Mineral deposits of the Bitterroot Range and Clearwater Mountains, Montana, by Waldemar Lindgren: U. S. Geol. Survey Bull. 213, pp. 66-70, **1903.***
Thunder Mountain, by W. E. L'Hame: Mines and Minerals, vol. 24, pp. 207-209, December, **1903.***
A geological reconnaissance across the Bitterroot Range and Clearwater Mountains in Montana and Idaho, by Waldemar Lindgren: U. S. Geol. Survey Prof. Paper 27, **1904.***
Central Idaho gold district, by S. P. Jellum: Northwest Min. News, vol. 3, pp. 83-91, 107-114, 134-139, **1908**; vol. 4, pp. 2-6, 31-37, 66-73, **1909.***
Asbestos of Kamiah, Idaho, by J. S. Diller: Asbestos in the United States, U. S. Geol. Survey Bull. 470, pp. 519-520, **1910.***
Development of the Elk City district, Idaho, by B. K. Welch: Min. World, vol. 32, pp. 65-66, Jan. 8, **1910.***
Mining and milling in Elk City district, by B. K. Welch: Min. and Eng. World, vol. 37, pp. 391-392, Aug. 31, **1912.***
Buffalo Hump mining district, by A. L. Flagg: Min. and Eng. World, vol. 38, pp. 813-814, **1913.***
The Elk City mining district, Idaho County, Idaho: Trans. Am. Inst. Min. Eng., vol. 45; pp. 113-122, **1913.**§
Geology and ore deposits of the Dixie mining district, Idaho, by D. C. Livingston and C. A. Stewart: Univ. of Idaho School of Mines Bull. 2, vol. 9, **1914.***
The Orofino coal field, Clearwater, Lewis and Idaho counties, Idaho, by C. T. Lupton: U. S. Geol. Survey Bull. 621, pp. 99-108, **1915.***
Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****
A preliminary report on the clays of Idaho, by Frank H. Skeels: Idaho Bureau of Mines and Geology Bull. 2, p. 59, **1920.****
The copper deposits of the Seven Devils and adjacent districts, by D. C. Livingston and F. B. Laney: Idaho Bureau of Mines and Geology Bull. 1, **1920.***
Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 60, art. 3, pp. 1-33, **1921.**‡
Central Idaho—A rugged mining region, by G. J. Bancroft: Eng. and Min. Jour., vol. 113, pp. 438-441, March 18, **1922.**§
Geology and gold resources of north central Idaho, by F. A. Thomson and S. M. Ballard: Idaho Bureau of Mines and Geology Bull. 7, **1924.****
Gold veins of sundry areas in the Idaho batholith, by F. A. Thomson: Eng. and Min. Journal-Press, vol. 118, pp. 533-540, Oct. 4, **1924.**§
Quartz veins of the Buffalo Hump, by R. H. Beckwith: Pan-Am. Geologist, vol. 46, No. 2, pp. 111-120, Sept. **1926.**§

KOOTENAI COUNTY

Kootenai is one of the northern counties and constitutes an important part of the Idaho Panhandle. It is bounded on the west by the State of Washington, on the north by Bonner County, on the east by Shoshone County, and on the south by Benewah County. It contains an area of 1253 square miles and was accredited with a population of 17,878 in the 1920 census. The principal industries are lumbering, dairying, and farming. Its lumbering industry is the most important and the largest in the State.

The county is exceptionally fortunate with respect to transportation facilities. It is served by three State highways, one of which is completed, and the other two partly so; by six railroads, which include main lines or their branches; and by lake boats on Lakes Pend d'Oreille and Coeur d'Alene. Coeur d'Alene is the largest town and county seat.

The principal mining districts are the Little North Fork of the Coeur d'Alene River, Hayden Lake, and isolated sections bordering on Lake Coeur d'Alene, throughout which zinc, lead, silver, copper, gold, arsenic, and high-grade clays occur. A limited amount of development work has been done on some of the veins, with encouraging results, and many others are worthy of further attention.

This county witnessed more development and prospecting in the vicinity of Coeur d'Alene Lake than at any time during the past few years. The principal companies developing prospects in this vicinity are: Silvertip Mining Association, Caribou Mining Co., Ltd., Bluebird Mining Co., Royal Mining Co., Gray Wolf Mining Co., Beauty Bay Mining Co., and Wolf Lodge Mining Co. During the year the necessary contracts were arranged and the Coeur d'Alene-Beauty Bay Mining & Milling Co. was organized for the purpose of concentrating the ore from the mines owned by these companies.

BEAUTY BAY MINING CO.

Office: Coeur d'Alene. **Officers:** John Marshall, Pres.-Mgr.; E. V. Boughton, Sec., both of Coeur d'Alene. **Inc.:** Mar. 31, 1923. **Capital:** 1,000,000 shares; par value 5c; 499,215 shares issued. **Property:** Beauty Bay group; 3 unpatented claims, Wolf Lodge dist.; Coeur d'Alene. **Development:** By 6 short tunnels. **Ore:** Lead-silver. **Remarks:** Annual labor only.

BLUE BIRD MINING CO.

Office: Coeur d'Alene. **Officers:** Harry Phillips, Pres.-Mgr.; Wm. McFarland, Sec., both of Coeur d'Alene. **Inc.:** Sept. 2, 1924. **Capital:** 1,000,000 shares; par value 10c; 358,500 shares issued. **Property:** Blue Bird group; 9 unpatented claims, Beauty Bay and Wolf Lodge districts; Coeur d'Alene. **Development:** About 300 ft. of workings. **Ore:** Arsenic, copper, gold. **Men employed:** Average, 4. **Remarks:** Actively developed during the summer months.

CARIBOU MINING CO., LTD.

Office: Coeur d'Alene. **Officers:** G. R. Scott, Pres.; C. O. Sowder, Sec., both of Coeur d'Alene. **Inc.:** July 15, 1918. **Capital:** 1,500,000 shares; par value 10c; 1,397,395 shares issued. **Property:** Caribou group; 10 unpatented claims, Wolf Lodge dist.; Coeur d'Alene. **Development:** Total development approximately 1350 ft.; consisting principally of No. 2 tunnel, 440 ft. long, and No. 3 tunnel, 755 ft. long. **Plant:** MINE: Gas-driven Gardner-Rix compressor; complete mining equipment. MILL: 75-ton concentrator, gas driven. **Ore:** Lead-silver. **Remarks:** Annual labor only.

COEUR D'ALENE-BEAUTY BAY MINING & MILLING CO.

Office: Coeur d'Alene. **Officers:** Dr. B. A. Loveless, Pres.; C. O. Sowder, Sec., both of Coeur d'Alene. **Inc.:** July 31, 1929. **Capital:** 25,000 shares preferred, par value $10; 10,000 shares common, no par value; 90 shares common issued. **Remarks:** "This company was organized for the purpose of concentrating the ores from properties in Beauty Creek Basin." Press reports late in the year were to the effect that the mill owned by the Caribou Mining Co., Ltd., had been acquired by this company.

COEUR D'ALENE CLAY CO., LTD.

Office: 216 Sherman Ave., Coeur d'Alene. **Officers:** Oscar Nelson, Pres.; H. H. Barton, Sec.-Treas., both of Coeur d'Alene. **Inc.:** Apr. 6, 1912. **Capital:** 100,000 shares; par value $1; 18,882 shares issued. **Property:** 40 acres patented land near Coeur d'Alene. **Plant:** 1 incomplete brick-making machine, 20,000-brick capacity.

COEUR D'ALENE OIL & DEVELOPMENT CO.

Office: Coeur d'Alene. **Officers:** L. T. Severson, Pres.; Alex Barclay, Sec.-Mgr., both of Coeur d'Alene. **Inc.:** Nov. 19, 1927. **Capital:** 100,000 shares; par value $1; 92,760 shares issued. **Property:** 6000 acres patented farm land in the vicinity of Hayden Lake; held under oil and gas leases. **Development:** 2000-ft. well. **Plant:** Armstrong gas-driven rig and drilling equipment. **Men employed:** Average, 3. **Remarks:** Small amount of drilling by contract during the year.

COEUR D'ALENE ROBISH MOUNTAIN MINING CO., LTD.
Office: Coeur d'Alene. **Officers:** Andrew J. Rasor, Pres.; Lawrence L. Lewis, Sec., both of Coeur d'Alene; Wm. M. Hill, Mgr., Spokane. **Inc.:** Oct. 9, 1909. **Capital:** 2,750,000 shares; par value $1; 1,530,800 shares issued. **Property:** 505 acres patented land and 4 unpatented claims; Little North Fork dist.; Linfor. **Development:** Approximately 600 ft. of underground workings. **Remarks:** Annual labor only on unpatented claims.

COEUR D'ALENE-SPOKANE MINING CO.
Officers: C. A. Spaulding, Pres.; Bessie Bryte, Sec., both of Helena, Mont. **Inc.:** Sept. 6, 1918. **Capital:** 1,000,000 shares; par value $1; 500,000 shares issued. **Property:** Strobel group; 3 unpatented claims, unorganized dist.; Lane. **Ore:** Lead-silver. **Remarks:** Annual labor only.

COMMONWEALTH METALS CO.
Office: Coeur d'Alene. **Officers:** Jonas Jessen, Pres.; F. W. Reed, Sec., both of Coeur d'Alene. **Inc.:** Mar. 19, 1924. **Capital:** 2,500,000 shares; par value $1; 367,949 shares issued. **Property:** Commonwealth group; 7 unpatented claims, Hayden Lake dist.; Hayden Lake. **Development:** By 3 tunnels: No. 1, 600 ft.; No. 2, 40 ft.; No. 3, 100 ft.; a vertical shaft 325 ft. deep; and 2 inclined shafts, 150 and 225 ft. deep. **Plant:** Steam-driven I-R compressor; gas-driven hoist; complete mining equipment and camp. **Ore:** Lead-silver-copper. **Remarks:** Annual labor only.

CONNIE MINING & MILLING CO.
Office: 307 Ziegler Bldg., Spokane, Wash. **Officers:** E. C. Gralappe, Pres.; Conrad T. Hartung, Sec., both of Spokane. **Inc.:** July 11, 1927. **Capital:** 4,000,000 shares; par value 10c; all shares issued. **Property:** Chilco group; 11 unpatented claims, Hayden Lake dist.; Hayden Lake. **Development:** By 1 tunnel 725 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** This company is a reorganization of the Chilco Mining & Milling Co. Small amount of development work throughout the year, the funds for which were derived from stock assessments.

ESTELLA METALLURGICAL CO.
Office: Route 5, Coeur d'Alene. **Officers:** W. C. Brower, Pres.-Mgr., Coeur d'Alene. **Inc.:** Feb. 13, 1923. **Capital:** 5,000,000 shares; par value unknown; 3,000,000 shares issued. **Property:** 15 unpatented claims, Wolf Lodge dist.; Coeur d'Alene. **Development:** By 600 ft. of tunnels. **Ore:** Gold-silver-copper. **Remarks:** Annual labor only.

GRAY WOLF MINING CO.
Office: Coeur d'Alene. **Officers:** Paul Schroder, Pres.-Mgr.; E. T. Knudson, Sec., both of Coeur d'Alene. **Inc.:** May 18, 1917. **Capital:** 1,500,000 shares; par value 10c; 671,141 shares issued. **Property:** 8 unpatented claims, Beauty Bay dist.; Coeur d'Alene. **Development:** By 1 tunnel 400 ft. long. **Plant:** Small gas-driven compressor; mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** Active development work throughout the year, funds for which were derived from stock assessments.

HAYDEN LAKE MINING & MILLING CO.
Office: Rathdrum. **Officers:** Fred H. Bradbury, Pres.; Chas. E. Gillespie, Sec., both of Rathdrum. **Inc.:** May 8, 1917. **Capital:** 1,000,000 shares; par value 5c; 868,229 shares issued. **Property:** Bradbury group; 14 unpatented claims, Hayden Lake dist.; Garwood. **Development:** By 2 tunnels: No. 1, 200 ft.; No. 2, 800 ft. **Plant:** Small gas-driven compressor; complete mining equipment. **Ore:** Lead-silver, copper. **Remarks:** Annual labor only.

LITTLE NORTH FORK COPPER MINING & MILLING CO., LTD.
Officers: T. R. Mason, Pres., Kellogg. **Inc.:** Sept. 29, 1903. **Capital:** 1,500,000 shares; par value $1; 1,250,000 shares issued. **Property:** Hand Spike group; 3 patented claims, Little North Fork dist.; Linfor. **Development:** 2 tunnels: No. 1, 1700 ft. long; No. 2, 500 ft. long. **Ore:** Copper.

PALISADE MINING & MILLING CO.
Office: Coeur d'Alene. **Officers:** T. W. Schmidt, Pres.-Mgr., Coeur d'Alene; A. K. Rogers, Sec., E. 1301 Providence Ave., Spokane, Wash. **Inc.:** Jan. 31, 1912. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Palisade group; 16 unpatented claims, unorganized dist.; Kellogg. **Development:** Approximately 1250 ft. of tunnels, the principal of which is No. 2, 1130 ft. long. **Ore:** Silver-lead. **Remarks:** Annual labor only, the funds for which were derived from stock assessments.

RADIO MINING CO.
Office: 811 Riverside, Coeur d'Alene. **Officers:** W. P. Brennan, Pres.-Mgr.; G. M. Palmerton, Sec., both of Coeur d'Alene. **Inc.:** Dec. 13, 1928. **Capital:** 1,500,000 shares; par value 10c; 900,000 shares issued. **Property:** 3 unpatented claims, Wolf Lodge dist.; Coeur d'Alene. **Development:** By 3 short tunnels. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Small amount of work during the summer months.

RED HORSE MINING CO.
Office: Harrison. **Officers:** M. W. Frost, Pres.; J. B. Manifold, Sec., both of Harrison. **Inc.:** July 14, 1904. **Capital:** 1,500,000 shares; par value $1; 540,000 shares issued. **Property:** Red Horse group; 2 unpatented claims, Lake Front dist.; Springston. **Development:** Approximately 2720 ft. of underground workings. **Plant:** MINE: 40-h. p. F-M gas engine driving a 2-drill Sullivan compressor; complete mining equipment and camp. MILL: 5-ton gas-driven concentrator. **Ore:** Copper. **Remarks:** Annual labor only, performed by contract.

RIVERSIDE COPPER MINING CO., LTD.
Office: Kellogg. **Officers:** T. R. Mason, Pres., Kellogg; S. S. Bonham, Sec., Spokane. **Inc.:** Sept. 17, 1906. **Capital:** 1,000,000 shares; par value $1; 900,000 shares issued. **Property:** 5 patented claims, Little North Fork dist.; Linfor. **Development:** 1 tunnel, 530 ft. long. **Ore:** Lead-silver.

ROYAL MINING CO.
Office: Coeur d'Alene. **Officers:** A. H. Moe, Pres.-Mgr.; Soren Simonson, Sec., both of Coeur d'Alene. **Inc.:** Dec. 24, 1910. **Capital:** 1,500,000 shares; par value $1; 665,754 shares issued. **Property:** 7 unpatented claims, Wolf Lodge dist.; Coeur d'Alene. **Development:** By 2 tunnels: No. 1, 160 ft.; No. 2, 56 ft. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Active throughout the year.

SILVERTIP MINING ASSOCIATION
Office: Coeur d'Alene. **Officers:** B. A. Loveless, Pres.; F. W. Reed, Sec., both of Coeur d'Alene. **Inc.:** An association. **Capital:** 128 units. **Property:** Silvertip group; 16 unpatented claims, Wolf Lodge dist.; Coeur d'Alene. **Development:** By 2 tunnels, each 300 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** Active throughout the year. Its funds were derived from monthly unit assessments.

TWIN GULCH MINING CO.
Office: 721 Harrison Ave., Coeur d'Alene. **Officers:** J. O. Holman, Pres.-Mgr.; G. W. Sonnichsen, Sec., both of Coeur d'Alene. **Inc.:** Feb. 2, 1924. **Capital:** 1,000,000 shares; par value 10c; 348,000 shares issued. **Property:** Twin Gulch group; unorganized dist.; Coeur d'Alene. **Development:** By 2 short tunnels. **Ore:** Lead-silver.

WOLF LODGE MINING CO.
Office: 108 N. 4th St., Coeur d'Alene. **Officers:** S. J. Nerdrum, Pres., Seattle, Wash.; Oscar W. Nelson, Sec.; F. N. Kilborn, Mgr , both of Coeur d'Alene. **Inc.:** Nov. 7, 1925. Charter forfeited Nov. 30, 1929. **Capital:** 2,000,000 shares; par value 25c; 821,000 shares issued. **Property:** Varnum group, 6 patented claims; Home Builder group, 45 unpatented claims; Wolf Lodge dist.; Coeur d'Alene. **Plant:** On Varnum group: Steam-driven Sullivan compressor; air-driven hoist; complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 8. **Remarks:** Active throughout the year. Funds were derived from stock assessments.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Commander et al.	Medimont	Albert T. Allen	Medimont
Elizabeth	Unorganized	H. C. Cullom et al	Coeur d'Alene
Fortune	Medimont	Anna M. Blessing	Medimont
Island Quartz	Killarney L.	Max R. Crosby	Kellogg
Joe et al.	Wolf Lodge	Soren Simonson	Coeur d'Alene
Kaiser William et al.	Unorganized	Frank Costin	Coeur d'Alene
Keinwood	Unorganized	R. L. Keinholz	Corbin
Pine et al.	Medimont	W. D. Tuck	Lane
Porcupine et al.	Hayden Lake	Arthur Jacobson	Enaville
Quebeck	Medimont	Achille Fortier	Medimont
Ridge et al.	Burnt Cabin	Adolf V. Johnson	Coeur d'Alene
Ruby	Unorganized	A. Benjamin	Athol
Seven Stubbs et al.	Medimont	R. W. Metler et al.	Rose Lake
Spokane Valley Zinc	Unorganized	H. J. Neely et al.	Spokane, Wash.
Sunset Gr.	Unorganized	G. C. Staggs et al	Athol

BIBLIOGRAPHY

See pages 71-72-73 for publisher's address, meaning of reference marks, and abbreviations.

A geological reconnaissance in northern Idaho and northwestern Montana, by F. C. Calkins, with notes on the economic geology, by D. F. MacDonald: U. S. Geol. Survey Bull. 384, **1909.***

Guidebook of the western United States, by M. R. Campbell and others: U. S. Geol. Survey Bull. 611, pp. 150-156, 160, **1915.**‡

The mining districts of northern Idaho, by E. K. Soper: Min. & Sci. Press, vol. 116, p. 125, **1918.***

Preliminary report on the clays of Idaho, by F. H. Skeels: Idaho Bureau of Mines and Geology Bull. 2, **1920.****

Coeur d'Alene Lake, Idaho, and the overflow lands, by R. W. Davenport: U. S. Geol. Survey Water-Supply Paper 500, **1921.***

Geology of the Latah formation in relation to the lavas of the Columbia plateau near Spokane, Washington, by J. T. Pardee and Kirk Bryan: U. S. Geol. Survey Prof. Paper 140A, **1926.**‡

Some Miocene and Pleistocene drainage changes in northern Idaho, by A. L. Anderson: Idaho Bureau of Mines and Geol. Pamphlet 18, **1927.****

LATAH COUNTY

Latah County is bounded on the north by Benewah, on the south by Nez Perce, on the west by the State of Washington, and on the east by Shoshone and Clearwater counties. It has an area of 1071 square miles, and was accredited with a population of 18,092 in the 1920 census. Moscow is the largest town and county seat, as well as the location of the University of Idaho and the Idaho Bureau of Mines and Geology. The county is recognized primarily as an agricultural community, particularly for wheat raising.

The principal mineral resources are copper, gold, silver, opals, mica, feldspar, and high-grade fire clay. The clay occurs near the town of Troy and two companies are engaged in manufacturing it into brick and refractory products. The principal company is the Idaho Fire Brick Co. and its output is in great demand throughout the entire northwest. The copper, gold, silver, and mica occur in the northern part of the county, north of the towns of Harvard and Vassar, in the Gold Hill, or Blackfoot, Hoodoo, and Avon districts. These districts are served by the Washington, Idaho and Montana Railroad, which connects with the Northern Pacific and the Spokane and Eastern railroads at Palouse, Washington, and the St. Maries-Elk River branch of the Chicago, Milwaukee and St. Paul Railroad at Bovill.

The mica mines have produced a large tonnage of high-grade mica. The resources of the old ones have not been exhausted, many of the prospects justify further development, and there are still many possibilities for the

discovery of new veins. As there are many chances for the development of profitable enterprises, these deposits are worthy of more attention than they have been receiving in the past few years.

The Muscovite Mica Co. reported that it had driven a 340-ft. tunnel to intersect the vein at greater depth, and one other company performed a small amount of work. The most important event in this county during the year was the acquisition of the Mizpah group in the Hoodoo district by Jay P. Graves of Spokane, Wash., and the organization of the Spokane-Idaho Copper Co. The company was incorporated in November, the necessary arrangements completed, and work started on a large development campaign.

ACE MINING CO.

Office: R. F. D. 5, Spokane, Wash. **Officers:** Chas. G. Taylor, Pres.-Mgr., Spokane, Wash.; W. F. Clausen, Sec., Los Angeles, Calif. **Inc.:** Oct. 29, 1926. **Capital:** 1,500,000 shares; par value 10c; 615,860 shares issued. **Property:** 4 patented, 2 unpatented claims, Hoodoo dist.; Harvard. **Development:** By 2 tunnels: No. 1, 300 ft. long; No. 2, 90 ft. long. **Ore:** Gold. **Remarks:** Idle.

CASSIDY GOLD MINING & MILLING CO., LTD.

Officers: N. J. Stockbridge, Sec., Wallace. **Inc.:** Mar. 12, 1899. **Capital:** 600,000 shares; par value 5c; 437,000 shares issued. **Property:** Cassidy; 1 patented claim, Blackfoot dist. **Ore:** Gold.

COPPER CHIEF MINING & MILLING CO., LTD.

Office: Troy. **Officers:** Robert Olson, Pres.; Alex Johanson, Sec., both of Troy. **Inc.:** July 27, 1914. **Capital:** 1,000,000 shares; par value $1; 470,968 shares issued. **Property:** Copper Chief group; 2 unpatented claims and 10 acres of deeded land, unorganized dist.; Troy. **Development:** By 3 tunnels: No. 1, 300 ft. long; No. 2, 500 ft. long; No. 3, 550 ft. long. **Ore:** Copper. **Remarks:** Annual labor only. This company also holds lease and option on property of the Jumbo Mining & Milling Co., Ltd., in Idaho County.

COPPER MOUNTAIN MINING CO.

Office: Palouse, Wash. **Officers:** R. A. Belvail, Pres.; J. C. Northrup, Sec., both of Palouse. **Inc.:** Oct. 29, 1925. **Capital:** 3,750,000 shares; par value 1c; 1,296,765 shares issued. **Property:** Mizpah group; 19 unpatented claims, Hoodoo dist.; Harvard. **Development:** Total development approximately 2600 ft. **Plant:** A 12x14 gas-driven compressor; complete mining equipment, and camp. **Ore:** Copper. **Remarks:** Property under option to Spokane-Idaho Copper Co.

GOLD CREEK METALS CO.

Office: Palouse, Wash. **Officers:** Paul Bockmeir, Pres.-Mgr., Palouse, Wash.; Charles Brown, Sec., Spokane, Wash. **Inc.:** Oct. 30, 1929. **Capital:** 1,500,000 shares; par value $1; no shares issued. **Property:** Mother Lode group; 30 unpatented claims, Gold Creek dist.; Potlatch. **Development:** By 5 tunnels: No. 1, 560 ft.; No. 2, 343 ft.; No. 3, 182 ft.; No. 4, 535 ft.; No. 5, 300 ft. **Ore:** Gold. **Men employed:** Average, 3. **Remarks:** Annual labor only.

GOLD HILL MINING & MILLING CO.

Office: Harvard. **Officers:** K. F. Pinnell, Pres.-Mgr.; May Pinnell, Sec., both of Harvard. **Inc.:** Nov. 6, 1922. **Capital:** 1,000,000 shares; par value 25c; 612,959 shares issued. **Property:** Gold Bug group; 4 patented claims, 65 acres; held under lease and bond from the Garfield Mining & Milling Co., of Garfield, Wash.; Blackfoot dist.; Harvard. **Development:** Approximately 1200 ft. of tunnels and drifts, and 1 vertical shaft 300 ft. deep. **Plant:** Steam-driven hoist and compressor. **Ore:** Gold, silver, copper.

IDAHO CERAMIC MATERIALS CO.

Office: 418 Fernwell Bldg., Spokane, Wash. **Officers:** Carl R. Suksdorf, Pres.-Mgr., Troy; L. P. Mills, Sec., Kellogg. **Inc.:** Sept. 17, 1927. **Capital:** 275,000 shares; par value $1. Increased on Oct. 14, 1929, to 500,000 shares; par value $1; 275,000 shares issued. **Property:** 288 acres of patented farm land near Troy; held under lease and option. **Mineral sought:** Kaolin, silica, mica. **Remarks:** A small amount of development work.

MUSCOVITE MICA CO.

Office: Box 166, Lewiston. **Officers:** Jack Wills, Pres., Kooskia; W. E. Parry, Sec., Lewiston. **Inc.:** Feb. 7, 1927. **Capital:** 5000 shares; par value $100; 1982 shares issued. **Property:** Muscovite Mica group; 2 unpatented claims and 35 acres held under State lease. **Development:** By 1 tunnel 550 ft. long. **Mineral sought:** Mica. **Men employed:** Average, 4. **Remarks:** Active work throughout the year in extending the tunnel.

SPOKANE-IDAHO COPPER CO.

Office: 1103 Paulsen Bldg., Spokane, Wash. **Officers:** Paul H. Graves, Pres.; Will H. Hoppe, Sec., both of Spokane, Wash.; D. C. Livingston, Mgr., Harvard. **Inc.:** Nov. 27, 1929. **Capital:** 3,000,000 shares; par value 25c; 3 shares issued. **Property:** Mizpah group; 19 unpatented claims, Hoodoo dist.; Harvard. Held under lease and option from the Copper Mountain Mining Co. **Ore:** Copper. **Remarks:** A new organization. Property was acquired and company incorporated in November, after which surveys were made for a 16-mile road from Harvard to the mine; new camp buildings were erected, and mining operations commenced.

TROY GOLD & COPPER MINING CO., LTD.

Office: Troy. **Officers:** E. J. Gemmill, Pres.-Mgr.; T. H. Christie, Sec., both of Troy. **Inc.:** May 26, 1909. **Capital:** 1,000,000 shares; par value $1; 510,100 shares issued. **Property:** 20 acres patented farm land, unorganized dist.; **Troy. Ore:** Copper. **Remarks:** Idle.

TROY MICA CO.

Office: Troy. **Officers:** Nels Sundquist, Pres., Troy; Russell Webb, Sec., Lapwai. **Inc.:** Aug. 10, 1926. **Capital:** 150,000 shares; par value $1; 110,000 shares issued. **Property:** Troy Mica group; 6 patented claims, Hoodoo dist.; Avon. **Mineral sought:** Mica.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Anny Gr.	Hoodoo	P. Doffner	Harvard
Avon	Hoodoo	J. H. Nesbit	Deary
Blake Gr.	Hoodoo	M. W. Nelson	Spokane, Wash.
Bonanza Gold Pl.	Gold Creek	Wm. J. Schmidt	Potlatch
Carrico Pl.	Gold Creek	Paul Bockmier	Paulsen Bldg., Spokane, Wash.
Clara Lester Gr.	Gold Creek	James C. Throop	Palouse
Eureka Gr.	Gold Creek	Edwin N. Carrico	Potlatch
Excelsior	Gold Creek	Arthur P. Gilliam	Potlatch
Gold Bug	Gold Creek	Arthur P. Gilliam	Potlatch
Idaho	Hoodoo	G. E. Arrasmith	Harvard
Knapp Bros.	Hoodoo	Harry Knapp	Harvard
Midas	Hoodoo	H. N. Gray	Potlatch
Monday	Hoodoo	V. P. Wiesenthal	Palouse, Wash.

BIBLIOGRAPHY

See pages 71-72-73 for publisher's address, meaning of reference marks, and abbreviations.

Geology and water resources of Nez Perce County, Idaho, by I. C. Russell: U. S. Geol. Survey Water-Supply Papers 53 and 54, **1901.‡***

A geological reconnaissance across the Bitterroot Range and Clearwater Mountains in Montana and Idaho, by Waldemar Lindgren: U. S. Geol. Survey Prof. Paper 27, **1904.***

Mica in Idaho, New Mexico, and Colorado, by D. B. Sterrett: U. S. Geol. Survey Bull. 530, pp. 375-390, **1911.***

A preliminary report of the clays of Idaho, by F. H. Skeels, Idaho Bureau of Mines and Geology Bull. 2, 1920.**

The copper deposits of the Seven Devils and adjacent districts, by D. C. Livingston and F. B. Laney: Idaho Bureau of Mines and Geology Bull. 1, 1920.*

Mica deposits of the United States, by D. B. Sterrett: U. S. Geol. Survey Bull. 740, 1923.‡

Mica deposits of Latah County, Idaho, by A. L. Anderson: Idaho Bureau of Mines and Geology Pamphlet 14, 1925.**

Ground water for municipal supply at Potlatch, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 23, 1927.**

LEMHI COUNTY

Lemhi County is situated in central-eastern Idaho, bounded on the north and east by the State of Montana, on the west by Idaho and Valley counties, and on the south by Custer, Butte, and Clark counties. It has an area of 4597 square miles, which is about equal to the State of Connecticut, and was accredited with a population of 5164 in the 1920 census, or 1.1 persons to the square mile. A provisional county government was organized in July, 1867, and in January, 1869, the Territorial Legislature permanently established the county with Salmon City as the county seat, an honor which it has always retained. The larger part of the population is located in the Lemhi River and Pahsimeroi River valleys, and is engaged in the pursuits of agriculture and stockraising.

It is one of the principal mining counties of the State, and always ranks as one of the largest producers. The extensive and varied mineral resources; the many veins that have been discovered, yet not developed; the many undiscovered veins; the excellent mining conditions; the many producing mines and prospects; and its location, both geographically and geologically, place this county within the area known as Central Idaho's Mineral Empire.

The county is served by the Pittsburg & Gilmore Railroad, which plies between Armstead, Montana, and Salmon, with a branch line from Leadore to Gilmore; by the Sawtooth Park State highway from Challis to Salmon, which follows the Salmon River and which is fully completed; and by a system of county roads which lead into all the outlying settlements and mining districts.

The principal mineral resources are lead, copper, silver, gold, zinc, tungsten, manganese, molybdenum, nickel, cobalt, gypsum, tin, and lignite. The formations in which the various mineral deposits occur range from early sedimentary rocks to late igneous rocks and include all those which are favorable to the deposition of ore in commercial quantities. The deposits are widely distributed throughout the vast mountainous areas which comprise a large part of the county. The wide distribution of the deposits, the diversity of mineralization, the favorable geological conditions, and the many opportunities for the development of profitable enterprises, make this county an exceptionally favorable field for prospectors and development companies.

In point of production and number of men employed, Gilmore for many years has been one of the most active mining camps in Idaho outside of the Coeur d'Alene district. The Pittsburgh-Idaho mine of the United Idaho Mining Co., a subsidiary of the U. S. Smelting, Refining & Mining Co., is the largest mine in this district. During the first part of the year this company performed a large amount of development work and produced and marketed a substantial tonnage of high-grade, direct-shipping ore, some of which was obtained by lessees. About the middle of the year one of the large Diesel engines in the power plant exploded and was completely wrecked. This loss of power necessitated a cessation of operations until additional power was obtained. As the principal owners were unable to arrive at an agreement on the installation of a new power plant, only the men necessary to keep the mine open were employed during the latter part of the year. Late in 1928

the U. S. Smelting, Refining & Mining Co. obtained a lease and option on the Allie mine of the Gilmore Mercantile Co. and commenced developing it through the Transportation tunnel. This work was continued without interruption until the explosion of the power plant of the United Idaho Mining Co. Lack of power facilities was instrumental in curtailing all operations of the U. S. Smelting, Refining & Mining Co. and its subsidiaries in this district, and the lease was surrendered in September. Two small organizations developing prospects in the Gilmore district were active during part of the year.

The Spring Mountain district witnessed a little increase in activity over the previous year, with two organizations shipping a small amount of hand-sorted ore.

Activities in the Nicholia district throughout 1929 exceeded those of any year since production was suspended. Lessees at the old Viola mine produced and marketed a large tonnage of direct-shipping ore. A new road was constructed into the mines, and a new organization, the Lead Mountain Mining Co., acquired the Nicholia group, constructed new mine and camp buildings, installed mining equipment, and commenced active development work.

The only work done in the Leadore district during the year was the necessary annual labor and the commencing of a complete geological survey of this district by the Idaho Bureau of Mines and Geology in cooperation with the U. S. Geological Survey.

In the vicinity of Salmon there was a marked improvement in mining conditions, which was probably brought about by the operations at the Pope-Shenon mine by the Winder-Stillman Copper Co. During the year this company entirely rebuilt its mill and installed new equipment; it also installed a new compressor, performed a large amount of development work, and maintained production. This enterprise is the largest copper-producing mine in Lemhi County, and the development work was successful in opening up a substantial tonnage of new ore. The Harmony Mines Co. installed a 450-horsepower electric generator driven by a Diesel engine at Baker and erected an 8-mile transmission line to the mine. New milling equipment was installed, and a large amount of new mining equipment added. This company has been in almost continuous operation since 1916, and its property is one of the most completely equipped mines in Lemhi County. Its 1929 expenditure was one of the largest in southern Idaho. The stockholders in this company are to be complimented for their fortitude. The Tendoy Copper Queen Mining Co. completed the reconstruction of its mill and operated for a few days. Financial difficulties were encountered and operations temporarily suspended in October.

What appears to be a revival in the Yellow Jacket district was started in 1929. Mrs. H. F. Steen at the Continental group installed a gas-driven compressor and complete mining equipment, and commenced an active development campaign, which consisted in extending the principal tunnel. This work was successful in exposing a large tonnage of commercial copper-silver ore. A small tonnage of high-grade ore was extracted and shipped. During the latter part of the year many of the other old properties in this district were receiving the attention of investigators and promoters.

In the Leesburg district the principal activities were based on hydraulic mining. Three enterprises constructed ditches, dams, and flumes and installed hydraulic mining equipment. These were the Leesburg Bonanza Placer Co.; H. F. Byram at the McNutt placers; and the Montana Mining & Livestock Co. The Clipper-Bullion mine in the Shoup district, which was acquired by H. W. Ingalls and associates of Mullan in 1928, was active throughout the greater part of the year. The Sellers Bros. at the Buckhorn mine on Little Eight-Mile produced and marketed a small shipment of high-grade lead ore.

ALLIE MINE

Office: Gilmore. **Owners:** Gilmore Mercantile Co., Gilmore. **Property:** Allie group; 12 patented claims, Texas dist.; Gilmore. **Development:** Principally by 1 tunnel 6000 ft. long, in which are 2 inclined shafts with 6 intermediate levels, opening the vein 290 ft. below the tunnel. **Plant:** 40-kw. electric generator, driven by Fairbanks-Morse semi-Diesel engine;

2 electrically-driven hoists; 1200-ft. aerial tramway; mine buildings. **Ore:** Lead-silver. **Remarks:** During the latter part of 1928 this property was acquired under lease and option by the United States Smelting, Refining & Mining Co., who commenced developing it through what is known as the Transportation tunnel, which is about 600 ft. under the upper workings. This work was maintained without interruption throughout the greater part of 1929. The company decided to curtail its operations in that district, and the lease was cancelled in September.

BEAVERHEAD LEAD MINES CO.

Office: Cheney Bldg., Reno, Nev. **Officers:** John Salsberry, Pres., Mills Bldg., San Francisco; J. E. Sullivan, Sec., Cheney Bldg., Reno, Nev. **Inc.:** Filed in Idaho, May 12, 1927. **Capital:** 3,000,000 shares; par value 10c; no shares issued. **Property:** Viola group; 1 patented, 1 unpatented claim, Nicholia dist.; Gilmore. **Ore:** Lead-silver. **Remarks:** Operated throughout the year by lessees, who produced and shipped a substantial tonnage of ore.

CHLORIDE EUREKA CO.

Office: Box 71, Salmon. **Officers:** S. E. Bowler, Pres.-Mgr.; Harriet Bowler, Sec., both of Salmon. **Inc.:** Oct. 9, 1928. **Capital:** 500,000 shares; par value $1; shares issued, unknown. **Property:** Chloride group; 5 unpatented claims, Indian Creek dist.; North Fork. **Development:** By 1 tunnel 100 ft. long. **Ore:** Copper-silver-gold.

CONTINENTAL GROUP

Owner: Mrs. H. F. Steen, P. O. Box 1434, Stockton, Calif. **Property:** Continental group; 4 patented claims, Yellow Jacket dist.; Forney. **Development:** Principally by 1 tunnel 420 ft. long. **Plant:** Gas-driven Rix compressor; complete mining equipment and camp. **Ore:** Copper-gold-silver. **Men employed:** Average, 8. **Remarks:** Equipment was installed and an active development campaign, which consisted in extending the principal tunnel, was maintained during the year. A small tonnage of high-grade ore was extracted and shipped. This property is one of the oldest locations in the Yellow Jacket district, and the development work was successful in exposing a large tonnage of commercial ore.

CONTINENTAL STANDARD MINING CO.

Office: Pocatello. **Officers:** C. M. Sonoda, Pres., Pocatello; H. H. Scarbourough, Sec.-Mgr., Idaho Falls. **Inc.:** Jan. 2, 1926. Charter forfeited Nov. 30, 1928. **Capital:** 100,000 shares preferred, 1,000,000 shares common; par value $1; 730,000 shares issued. **Property:** Grizzly Hill group; 18 unpatented claims, Junction dist.; Leadore. **Development:** By 5 tunnels, totaling approximately 1000 ft., and an inclined shaft 175 ft. long. **Plant:** 200-cu.-ft. C. P. compressor, driven by semi-Diesel engine; air-driven hoist. **Ore:** Lead-silver. **Men employed:** Average, 6. **Remarks:** Small amount of work during the summer months.

GOLD FLOTATION DEVELOPMENT CO.

Office: 402 Empire State Bldg., Spokane, Wash. **Officers:** Harold Williams, Pres., Masonia; H. G. Loop, Sec., Spokane, Wash. **Inc.:** May 9, 1927. **Capital:** 1,500,000 shares; par value 10c; 919,050 shares issued. **Property:** Singiser group; 6 patented claims, Gravel Range dist.; Forney. **Ore:** Gold.

GOLDSTONE MINES CORPORATION

Office: 409 Empire State Bldg., Spokane, Wash. **Officers:** Geo. H. Walters, Pres.; O. C. Lapp, Sec., both of Spokane; Andrew Prader, Mgr., Baker. **Inc.:** Apr. 9, 1928. **Capital:** 2,000,000 shares; par value 25c; 1,500,000 shares issued. **Property:** Goldstone group; 9 unpatented claims held under lease and option. **Development:** Principally by 1 tunnel 1000 ft. long. **Plant:** MINE: Steam-driven compressor; complete mining equipment and camp. MILL: 10-stamp mill. **Ore:** Gold. **Remarks:** On September 30 the company reported: "Aside from assessment work and mill repairs, property has been idle for several years."

HARMONY MINES CO.

Office: Box 382, Salmon. **Officers:** A. W. Nieman, Pres.; Mrs. O. K. Mitchell, Sec., both of 5431 Lakewood Ave., Chicago, Ill.; E. F. Nieman, Mgr., Salmon. **Inc.:** Apr. 8, 1916. **Capital:** 3,000,000 shares; par value $1; 2,220,000 shares issued. **Property:** Harmony group; 7 patented, 17 unpatented claims; Eldorado dist.; Baker. **Development:** By 5 tunnels: No. 1, 180 ft.; No. 2, 270 ft.; No. 3, 700 ft.; No. 4, 2500 ft.; No. 5, 2650 ft. Total development, approximately 7500 ft. **Plant:** MINE: 50-h. p. hoist, 800-cu.-ft. I-R compressor, both electrically driven; electric storage-battery locomotive haulage; aerial tramway connecting No. 5 tunnel with the mill; complete mining equipment and camp. MILL: 200-ton fine-grinding flotation concentrator. POWER: 450-h. p. electric generator, driven by Diesel engine; 8-mile transmission line. **Ore:** Copper. **Men employed:** Average, 25. **Remarks:** During the year the power plant was installed at Baker; transmission line to the mine was erected; new milling equipment was installed and a large amount of new mining equipment added. This property is one of the most completely equipped mines in Lemhi County and has been in almost continuous operation since 1916. The stockholders are to be complimented for their fortitude.

HAYNES-STELLITE CO.

Office: 30 E. 42d St., New York City. **Officers:** B. O'Shea, Pres.; A. G. Cornell, Sec., both of New York City; F. P. Gormely, Mgr., Kokomo, Ind. **Inc.:** Feb. 8, 1917. **Capital:** 7500 shares; par value $100; 2250 shares issued. **Property:** Cobalt group; 10 patented, 24 unpatented claims, Blackbird dist.; Leesburg. **Development:** 2 tunnels: No. 1, 440 ft. long; No. 2, 550 ft. long; and numerous crosscuts and raises totaling approximately 3600 ft. **Plant:** MINE: 200-cu.-ft. gas-driven compressor; gravity tramway. MILL: Small steam-driven concentrator. **Ore:** Cobalt. **Remarks:** Idle.

IDAHO MINERALS CO.

Office: Idaho Falls. **Officers:** Simon Martin, Pres.-Mgr.; Louis Saar, Sec., both of Idaho Falls. **Inc.:** Aug. 13, 1919. **Capital:** 500 shares; par value $100; 325 shares issued. **Property:** Red Warrior group; 9 unpatented claims, Spring Mountain dist.; Gilmore. **Development:** By 2 tunnels: No. 1, 180 ft. long; No. 2, 275 ft. long. **Plant:** 50-ton steam-driven concentrator, built in 1921. **Ore:** Lead-silver. **Remarks:** Annual labor only.

IDAHO PREMIER MINES CORPORATION

Office: Kellogg. **Officers:** A. C. Beal, Pres.-Mgr., Spokane, Wash.; Lester S. Harrison, Sec., Kellogg. **Inc.:** Mar. 28, 1927. **Capital:** 1,200,000 shares; par value $1; 470,417 shares issued. **Property:** Leadore group; 36 unpatented claims, Junction dist.; Leadore. **Development:** By 2 tunnels: No. 1, 500 ft. long; No. 2, 876 ft. long. **Plant:** MINE: Small gas-driven compressor. MILL: Small gas-driven concentrator. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Annual labor only.

IMA CONSOLIDATED MINING & MILLING CO.

Office: 608 Deseret Bank Bldg., Salt Lake City, Utah. **Officers:** Oscar W. Moyle, Pres.; Harry W. Rudine, Sec., both of Salt Lake City, Utah. **Inc.:** Dec. 16, 1902. **Capital:** 200,000 shares; par value 1c; 60,000 shares issued. **Property:** Ima group; 21 patented, 4 unpatented claims, Blue Wing dist.; May. **Development:** By 2 tunnels: No. 1, 1250 ft. long; No. 2, 1000 ft. long. **Plant:** MINE: Water-driven compressor; complete mining equipment and camp. MILL: 100-ton water-driven concentrator, constructed in 1915. **Ore:** Silver, copper, tungsten.

LATEST OUT MINING & SMELTING CO., LTD.

Office: Salmon. **Officers:** D. L. Nichols, Sec.-Mgr., Salmon. **Inc.:** May 23, 1910. **Capital:** 500,000 shares; par value $1; all shares issued. **Property:** Latest Out; 1 patented claim, Texas dist.; Gilmore. **Development:** 1 tunnel, 365 ft. long; 2 inclined shafts, totaling 1100 ft., giving a vertical depth on the vein of 700 ft. Total development approximately 32,000 ft. **Plant:** F-M 40-h. p. gas-driven hoist; 145-cu.-ft. I-R gas-driven compressor; gravity tram; complete mining equipment and camp. **Ore:** Lead-silver. **Remarks:** Idle.

LEAD MOUNTAIN MINING CO.

Office: 218 Felt Bldg., Salt Lake City, Utah. **Officers:** George W. Snyder, Pres.-Mgr.; Guy M. Snyder, Sec., both of Salt Lake City. **Inc.:** Aug. 26, 1929. **Capital:** 1,000,000 shares; par value 25c; all shares issued. **Property:** Nicholia group; 25 unpatented claims, Nicholia dist.; Reno. Held under lease and option. **Development:** By 2 tunnels: No. 1, 1000 ft. long; No. 2, 300 ft. long; and an inclined shaft 150 ft. long. **Plant:** Hoist and 2-drill Sullivan compressor, both gas-driven; complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 10. **Remarks:** A new organization. After the property was acquired, the mine buildings were erected, the mining equipment was installed, and active mine development work through the inclined shaft was started and maintained throughout the remainder of the year.

LEADORE-LEMHI COPPER MINING CO.

Office: Leadore. **Officers:** J. D. Pritchett, Pres.-Mgr., Lemhi; J. E. Pritchett, Sec., Salmon. **Inc.:** Aug. 22, 1927. **Capital:** 500,000 shares; par value 10c; 150,000 shares issued. **Property:** Baltimore group; 3 unpatented claims, McDevitt dist.; Leadore. **Development:** By 2 short tunnels. **Ore:** Copper-silver. **Men employed:** Average, 1. **Remarks:** Active during the summer months.

LEESBURG BONANZA PLACER CO.

Office: 611 Isabel St., Los Angeles, Calif. **Officers:** Carl A. Poulson, Pres.-Mgr.; Hans Therkelsen, Sec., both of Los Angeles, Calif. **Inc.:** Apr. 2, 1929. **Capital:** 2,500,000 shares; par value 10c; 186,228 shares issued. **Property:** Bonanza placers; 11 unpatented claims, Mackinaw dist.; Leesburg. **Ore:** Placer gold. **Men employed:** Average, 3. **Remarks:** Small amount of work on hydraulicking equipment was performed during the summer months. This company is a reorganization of the Bonanza Placer, Inc.

LEMHI MINING CO.

Office: Winchester, Ind. **Officers:** Albert Warren, Pres., Cleveland, Ohio; A. L. Nichols, Sec., Winchester, Ind.; R. E. Lee Ramey, Mgr., Forney. **Inc.:** Jan. 16, 1924. **Capital:** 5000 shares; no par value; 4942 shares issued. **Property:** Rabbit Foot group; 8 unpatented claims, Gravel Range dist.; Forney. **Development:** By 3 tunnels, the principal one of which is 1700 ft. long. **Plant:** MINE: Steam-driven hoist. MILL: 10-stamp amalgamation. **Ore:** Gold. **Remarks:** Annual labor only.



PLACER MINING IN LEMHI COUNTY

McNUTT PLACER

Lessee: H. F. Byram, Route 8, Portland, Ore. **Property:** McNutt placer; 2 patented, 3 unpatented claims, Leesburg dist.; Leesburg; held under lease from John E. Mullen, Salmon. **Plant:** Hydraulic equipment. **Ore:** Placer gold. **Men employed:** Average, 3. **Remarks:** Small amount of hydraulicking was performed during the spring months.

MONTANA MINING & LIVESTOCK CO.

Office: 1037 S. Flower St., Los Angeles, Calif. **Officers:** C. A. Devlan, Pres.-Mgr.; E. H. Devlan, Sec., both of Los Angeles, Calif. **Inc.:** Mar. 8, 1919. **Capital:** 5,000,000 shares; par value 10c; 715, 665 shares issued. **Property:** Leesburg group; 9 unpatented placer claims, Mackinaw dist.; Leesburg. **Plant:** Steam-driven hoist and 100-cu.-ft. I-R compressor; complete mining and logging equipment; saw mill; complete camp and buildings. **Ore:** Placer gold. **Remarks:** Small amount of work during the summer months.

NORTHWESTERN DEVELOPMENT CO., LTD.

Office: Ashland, Ky. **Officers:** C. E. Williams, Pres.; Thomas Boggess, Sec., both of Ashland, Ky. **Inc.:** Aug. 28, 1916. **Capital:** 500,000 shares; par value $1; 239,840 shares issued. **Property:** Primrose group; 6 patented claims, Eldorado dist.; Salmon. **Plant:** Gas-driven compressor; complete mining equipment and mine camp. **Ore:** Gold-silver-copper. **Remarks:** Idle.

POCATELLO-LEMHI MINING & EXPLORATION CO.

Office: Ross Bldg., Pocatello. **Officers:** W. E. Magnuson, Pres.; Roy Weatherford, Sec., both of Pocatello; C. N. Friday, Mgr., Leadore. **Inc.:** Oct. 23, 1926. **Property:** Jamieson group; 13 unpatented claims, Junction dist.; Leadore. **Development:** By 6 tunnels. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Small amount of development work during the summer months.

PORTLAND MINING CO.

Office: Butte, Mont. **Officers:** E. J. Carleton, Pres., N. Y. Life Bldg., Minneapolis, Minn.; W. S. Shaw, Sec., Butte, Mont. **Inc.:** Aug. 11, 1920. **Capital:** 500,000 shares; par value $1; all shares issued. **Property:** Portland group; 3 patented, 12 unpatented claims, Texas dist.; Gilmore. **Development:** By 1 tunnel 1700 ft. long. **Remarks:** Annual labor only.

RESCUE GOLD MINES CO.

Office: P. O. 624, Pasadena, Calif. **Officers:** Chas. Mushrush, Pres.; Willis H. Brown, Sec., both of Pasadena, Calif. **Inc.:** Apr. 25, 1919. Charter forfeited Nov. 30, 1926. **Capital:** 90,000 shares; par value $1; 13,303 shares issued. **Property:** Rescue group; 23 patented claims, Dahlonega dist.; Gibbonsville. **Ore:** Gold. **Remarks:** Idle.

SPRING MOUNTAIN MINING CO., INC.

Office: Gilmore. **Officers:** E. G. Carlson, Pres., Gilmore; A. S. Weiss, Sec., Newhall, Calif. **Inc.:** Filed in Idaho, Dec. 19, 1927. **Capital:** 1000 shares; par value $100; all shares issued. **Property:** Big Windy group; 8 patented claims. Spring Mountain dist.; Gilmore; held under lease and option. **Development:** By 2 tunnels: No. 1, 550 ft.; No. 2, 150 ft. **Plant:** Sullivan compressor, driven by semi-Diesel engine; complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 6. **Remarks:** Active development throughout the summer months.

TENDOY COPPER QUEEN MINING CO.

Office: Salmon. **Officers:** Lewis Brown, Pres., Defiance, Ohio; H. T. Rosacrans, Sec., Maumee, Ohio. **Inc.:** Feb. 14, 1928. **Capital:** 200,000 shares common, par value $1; 2000 shares preferred, par value $25; 86,666 shares common, 378 shares preferred issued. **Property:** Copper Queen group; 3 patented, 11 unpatented claims, held under lease and option, McDevitt dist.; Tendoy. **Development:** By 3 tunnels and a 300-ft. shaft. **Plant:** MINE: Gas-driven compressor; complete mining equipment and camp. MILL: 50-ton gas-driven concentrator. **Ore:** Copper-gold. **Men employed:** Average, 12. **Remarks:** During the year the mill was rehabilitated and operated a few days. Financial difficulties were encountered, and operations were temporarily suspended in October.

UNITED IDAHO MINING CO.

Office: No. 1, State St., c|o U. S. Smelting, Refining & Mining Co., Boston. **Officers:** C. A. Hight, Pres.; F. W. Batchelder, Sec., both of Boston; D. D. Muir, Jr., Mgr., Newhouse Bldg., Salt Lake City. **Inc.:** Oct. 18, 1924. **Capital:** 10,000 shares common, no par value; 10,000 shares preferred, par value $10; 7053 shares common issued. **Property:** Pittsburg-Idaho group; 5 patented claims, Texas dist.; Gilmore. **Development:** 4 tunnels: No. 1, 600 ft. long; No. 2, 950 ft. long; No. 3, 1600 ft. long; No. 4, 1300 ft. long, in which is an inclined shaft 1200 ft. long, which gives a vertical depth of 950 ft. on the vein. **Plant:** MINE: 1 200-kw. Allis-Chalmers Diesel engine with generator, 1 I-R electrically-driven 9x8, and 1 C. P. gas-driven compressor; 100-h.p. electrically-driven double-drum hoist; complete mining equipment, camp, and buildings. MILL: 50-ton gas-driven concentrator. **Ore:** Lead-silver. **Men employed:** Average, 16. **Remarks:** During the early part of the year this mine was the largest lead-silver mine in southern Idaho and maintained the second largest payroll; during this time a large tonnage was produced and marketed, part of which was extracted by lessees. About the middle of the year one of the large Diesel engines in the power plant exploded and was completely wrecked. This loss of power necessitated a cessation of operations until additional power was obtained. As the principal owners were unable to arrive at an agreement on the installation of a new power plant, only the men necessary to keep the mine open were employed during the latter part of the year.

UTANA MINING CORPORATION

Office: 205 Felt Bldg., Salt Lake City, Utah. **Officers:** W. H. Penner, Pres.-Mgr.; Web Greene, Sec., both of Salt Lake City. **Inc.:** Aug. 4, 1921. **Capital:** 1,000,000 common, par value 10c; 100,000 preferred, par value $1; 119,000 shares issued. **Property:** Big Dyke group; 22 unpatented claims, Freeman dist.; Salmon. **Development:** Approximately 1600 ft. of underground workings. **Plant:** Steam-driven compressor; complete mining equipment and camp; complete machinery and equipment for a cyanide plant. **Ore:** Lead, silver, copper, zinc. **Remarks:** Annual labor only.

VIRGINIA GOLD MINING & MILLING CO.

Office: 1462 S. 9th E., Salt Lake City, Utah. **Officers:** W. A. Shaw, Pres.; L. M. Byers, Sec., both of Salt Lake City. **Inc.:** Aug. 21, 1925. **Capital:** 2,500,000 shares; par value 1c; 1,700,332 shares issued. **Property:** Virginia group; 9 patented, 13 unpatented claims, Eureka dist.; Baker.

WINDER-STILLMAN COPPER CO.

Office: Salmon. **Officers:** R. H. Winder, Pres., Salt Lake City; J. W. Jones, Sec.-Mgr., Salmon. **Inc.:** Filed in Idaho, Mar. 2, 1928. **Capital:** 1,000,000 shares; par value 1c; 560,382 shares issued. **Property:** Pope-Shenon group; 12 patented claims, Eureka dist.; Salmon. **Development:** 6 tunnels: No. 1, 70 ft. long; No. 2, 80 ft. long; No. 3, 400 ft. long; No. 4, 450 ft. long; No. 5, 800 ft. long; No. 6, 1000 ft. long. Total development approximately 3000 ft. of underground workings. **Plant:** MINE: 2 12x10 I-R electrically- driven compressors; Sullivan steel sharpener; complete mining equipment and camp. MILL: 60-ton electrically-driven concentrator, including fine grinding and flotation. **Ore:** Copper. **Men employed:** Average, 25. **Remarks:** During the year the mill was entirely rebuilt and new equipment installed; a new compressor was installed, a large amount of development work performed, and production maintained. This enterprise is the largest copper-producing mine in Lemhi County, and the development work was successful in opening up a substantial tonnage of new ore.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
A. D. & M.	Gibbonsville	A. B. Post	Gibbonsville
Alex Stevens	Texas	Wm. Howard	Gilmore
Anaconda Gr.	Eldorado	J. H. Adams Est.	Salmon
Anaconda et al.	Blackbird	A. C. Ludwig	Salmon
Andy Lee	Gravel Range	F. M. Pollard	Los Angeles, Cal.
Arnett Creek Pl.	Mackinaw	Christ Stuckey	Leesburg

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Baby Joe Gr.	Junction	W. F. Stone	Leadore
Belcher	Gibbonsville	Chas. Goff	North Fork
Big 8-Mile	Junction	J. D. Pritchett	Leadore
Big Windy	Spring Mountain	Joe Jugovich	Gilmore
Blue Bird	McDevitt	E. G. Lynch	Digby, N. S.
Boulder Gulch	Mineral Hill	John Brittain	Salmon
Brown Bull	Texas	E. C. Ross	Gilmore
Bryn Mawr et al.	Indian Creek	Davis Davies	North Fork
Buck-a-roo	Silverton	W. J. Shoup	Salmon
Buckhorn	Junction	Sellers Bros.	Salmon
Cabin	Unorganized	Frank G. Worthing	Reno, Idaho
California Pl.	Mackinaw	A. C. Ludwig	Salmon
Carrie Cody	Texas	H. S. Knight	222 Kearns Bldg., Salt Lake City, U.
Castle Rock	Blue Wing	C. B. Graves	Patterson
Clara Morris Gr.	Gibbonsville	Largey Est.	46 E. Broadway, Butte, Mont.
Clipper Bullion	Mineral Hill	E. S. Suydam	North Fork
Columbia	Yellow Jacket	A. C. Ludwig	Salmon
Copper Glance	Yellow Jacket	Chas. Anderson	Leesburg
Copper King	Mackinaw	Earl R. Galbraith	Salmon
Daly Creek	Mackinaw	John M. Smith	Salmon
.....	Indian Creek	W. W. Smith	Ulysses
Democrat	Texas	Thos. Grooms	Gilmore
Diamond Gulch	Eureka	Geo. Matics	Salmon
Dig More No. 1	Junction	Rouche & Pottle	Leadore
Dreamer Gr.	Junction	Dr. I. B. Keller	Meridian
Dunton Placer	Gibbonsville	Fred Dunton	Gibbonsville
Eagle Mine	Gibbonsville	Alfred Anderson	Gibbonsville
Elmira	Junction	Jas. Corcoran	Salmon
Enterprise	Nicholia	Milo W. Zook	Gilmore
Florence	Eight Mile	Fred Chase	Leadore
Forney Gr.	Gravel Range	R. E. Lee Ramey	Forney
Gladstone	Pratt Cr.	Mrs. Isadore Gies	Great Falls, Mont.
Golden Rule	Eureka	W. B. Horn	Salmon
Goldfield Gr.	Gibbonsville	A. W. Beason	Salmon
Gold Star	Mackinaw	J. A. Fry	Leesburg
Gold Stone Gr.	Pratt Creek	Mrs. Isadore Gies	Great Falls, Mont.
Governor	Gibbonsville	F. C. Nohle	Gibbonsville
Grace	Mackinaw	Thos. Pope	Salmon
Greenhorn Mines	Eureka	F. S. Wright,	Salmon
Grizzly Hill	Junction	W. F. Stone	Leadore
Grunter Gr.	Mineral Hill	M. M. McPherson	Pacific Grove, Cal.
Hard Carbonate	Spring Mountain	P. H. Clarke	Gilmore
Hawkeye Gr.	Blackbird	South & Weidner	Salmon
High Ball	Junction	Sellers Bros.	Salmon
High Ore	Spring Mountain	J. W. Spiers	Gilmore
Hockensmith	Mackinaw	Chas. Goff	Leesburg
Hughes Creek Pl.	Gibbonsville	Justin Finch	Helena, Mont.
Inspiration	McDevitt	Ray Pierce	Tendoy
Iron Mask	Spring Mountain	F. L. Clark	Gilmore
Italian	Mackinaw	J. A. Herndon	Salmon
King Solomon	Eureka	Henry Pobst	Salmon
Last Chance	Mackinaw	Grant Rood	Leesburg
Last Chance	Gibbonsville	Henry Schreiber	Gibbonsville
Liberty Bell	Pratt Creek	Jasper Lyne	Tendoy
Liberty Bond Gr.	McDevitt	R. F. Morphey	Leadore
Lloyd Gr.	Junction	Chas. F. Lloyd	Dillon, Mont.
Lone Star	Eureka	Geo. Matics	Salmon
Lone Star	Pratt Creek	Mrs. Jennie Turnblade	Salmon
McCarty et al.	Gibbonsville	Percy Anderson	Salmon

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
McKinley Gr.	Eureka	Geo. Coronkrite	Salmon
Mahogany	Mineral Hill	A. C. Amonson	Salmon
Maine Silver Moon	Texas	J. A. Nash	Gilmore
Maryland	Junction	A. C. Amonson	Salmon
Mayflower	Mackinaw	Earl R. Galbraith	Salmon
Miser's Dream	Mineral Hill	R. A. Joseph	Gilmore
Moonshine	Silverton	W. W. St. Clair	Salmon
Modock Chief	Gibbonsville	J. Rathbun	Carmen
Moose Creek	Eureka	John E. Mullen	Salmon
Mountain Boy	Texas	Hugh Ferguson	512 W. Pearl St., Butler, Pa.
Mountain View	Eldorado	J. H. Smith et al.	Pocatello
Murphy Gr.	Texas	Joe Denton	Gilmore
Musgrove Mine	Blackbird	E. E. Edwards	Salmon
Never Sweat Pl.	Mackinaw	Thos. Hungate	Leesburg
Patton Gr.	Junction	A. J. Smith, Mgr.	Leadore
Pope Gr.	Mackinaw	Thos. Pope	Salmon
Quartz Porphyry	Blackbird	A. C. Ludwig	Salmon
----------	Spring Mountain	Oakley & Ellis	Dubois
Rabbit Foot	Gravel Range	R. E. Lee Ramey	Forney
Rainbow	Eureka	William Swan	Salmon
Ramshorn	Junction	Thompson Bros.	Salmon
Ranger	Eldorado	Camele Rock	Salmon
Rasmason	Junction	Mrs. Minnie Rasmason	Salt Lake City
Rattler	Kirtley Creek	Homer Harris	Salmon
Ready Cash	Mineral Hill	Peter Wasescha	Shoup
Red Cross Gr.	Unorganized	J. T. Pugh	Salmon
Red Gravel	Mackinaw	Ah Moon	Leesburg
Richardson Pl.	Mackinaw	Will Shoup	Salmon
Ring Bone Cayuse	Mackinaw	Fred Brough	Salmon
Road Agent	Junction	Dick Roach	Leadore
Robinson Lode	Blackbird	Chas. S. Miller	Leesburg
Rosebud	Texas	Rock Vezina	Leadore
Rose & Bohannon	Blackbird	Bohannon Est.	Salmon
Roxie	Silverton	Lemm Cummings	Salmon
Roy	Junction	W. F. Stone	Leadore
Royal Gold	Eureka	Blanche G. Williams	1059 Lexington Av., New York
Ruby	Eldorado	Alfred Erickson	Baker
Silver Glance	Spring Mountain	Chas. J. Elg	Idaho Falls
Silver Moon	Texas	J. H. Lanyon	Gilmore
Sky Scraper	Junction	P. C. Sellers	Leadore
Smuggler et al.	Texas	Mac Carson	Gilmore
Speculation	Mineral Hill	Dave Sandilands	Salmon
Standard Placer	Eureka	Harry Kelly	Salmon
Sunbeam	Blackbird	Chas. Schultz	Salmon
Sunnyside	Texas	Jas. Sims	Salmon
Sunset	Mackinaw	Crist Stuckey	Leesburg
Tempest Gr.	Spring Mountain	Joseph G. Sims	Salmon
Tendoy	Unorganized	S. A. Matthews	Salmon
Tormey Gr.	Unorganized	Dr. F. S. Wright	Salmon
Uncle Sam	Spring Mountain	J. A. Nash	Gilmore
Union	Spring Mountain	James Sims	Salmon
Vaughn Placer	Mackinaw	T. Hungate	Leesburg
Verdun	Unorganized	Dr. F. S. Wright	Salmon
Vimedii	Carmen Creek	Burt W. Simer	Salmon
Viola	Nicholia	A. F. Shear	Reno
Walkover Placer	Hughes Creek	O. P. Kimmell	Salmon
White Horse	Spring Mountain	O. M. Perkins	Gilmore
Wickham & Bleness	Eureka	R. E. Wickham	Salmon
Yellow Jacket Pl.	Yellow Jacket	J. M. Burkhart, Jr.	Salmon

BIBLIOGRAPHY

See pages 71-72-73 for publisher's address, meaning of reference marks, and abbreviations.

A geological reconnaissance across Idaho, by G. H. Eldridge: U. S. Geol. Survey, Sixteenth Ann. Rept., pt. 2, pp. 217-276, **1895.***

Central Idaho gold field, by Don Maguire: Mines and Minerals, vol. 19, pp. 289-291, February, **1899.***

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey, Twentieth Ann. Rept., pt. 3, pp. 75-256, **1900.***

The Hayden Creek, Idaho, meteoric iron, by W. E. Hidden: Am. Jour. Sci., 4th ser., vol. 9, pp. 367-368, **1900.**§

An outline of Idaho geology and of the principal ore deposits of Lemhi and Custer counties, by R.N.Bell: Proc. Int. Min.Cong.,4th sess., pp.64-80 **1901.**§

An extinct glacier of the Salmon River Range, by G. H. Stone: Am. Geology, vol. 11, pp. 406-409, **1903.**§

Mineral deposits of the Bitterroot Range and Clearwater Mountains, Montana, by Waldemar Lindgren: U. S. Geol. Survey Bull. 213, pp. 66-70, **1903.***

A geological reconnaissance across the Bitterroot Range and Clearwater Mountains in Montana and Idaho, by Waldemar Lindgren: U. S. Geol. Survey Prof. Paper 27, **1904.***

A complicated fault system (Gibbonsville, Idaho,) by H. C. Bacon: Eng. and Min. Jour., vol. 79, p. 324, Feb. 16, **1905.**§

Vein structure in the Monument mine, by H. C. Carr: Min. and Sci. Press, vol. 98, pp. 557-558, Apr. 17, **1909.***

Resources of Custer and Lemhi counties, Idaho: Salt Lake Min. Review, vol. 12, pp. 17-19, Mar. 15, **1911.**§

The Yellow Jacket mine, Idaho, by G. L. Sheldon: Eng. and Min. Jour., vol. 93, pp. 221-222, Jan. 27, **1912.**§

Gold deposits at Gibbonsville, Idaho, by F. C. Lincoln: Min. and Sci. Press, vol. 105, pp. 47-49, July 13, **1912.***

Lead-silver mines of Gilmore, Idaho, by Ralph Nichols: Trans. Am. Inst. Min. Eng., vol. 46, pp. 937-939, August, **1913.**§

Geology and ore deposits of Lemhi County, by J. B. Umpleby: U. S. Geol. Survey Bull. 528, **1913.***

Idaho placer operations, by Julius Hornbein: Eng. and Min. Jour., vol. 103, pp. 95-97, Jan. 13, **1917.**§

Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****

Note on cobalt-bearing veins, Lemhi County, Idaho (abstract), by F. L. Hess: Washington Acad. Sci. Journal., vol. 9, No. 16, p. 501, October 4, **1919.**§

Mining experiences in Idaho in the nineties, by G. L. Sheldon: Eng. and Min. Jour., vol. 110, pp. 1212-1214, Dec. 25, **1920.**§

The volatilization process at the Pope Shenon mine, by R. H. Bradford: Min. and Sci. Press, vol. 123, pp. 263-266, August 20, **1921.***

A new copper district near Salmon, Idaho, by C. P. Ross: Eng. and Min. Jour. Press, vol. 118, pp. 205-208, Aug. 9, **1924.**§

A glacially transported mine, by R. T. Walker: Eng. and Min. Jour.-Press, vol. 118, pp. 295-296, Aug. 23, **1924.**§

Ground water in Pahsimeroi Valley, Idaho, by O. E. Meinzer: Idaho Bureau of Mines and Geology Pamphlet 9, **1924.****

The copper deposits near Salmon, Idaho, by C. P. Ross: U. S. Geol. Survey Bull. 774, **1925.**‡

Geology and water resources of the Mud Lake Basin, Idaho, by H. T. Stearns and L. L. Bryan: U. S. Geol. Survey Water-Supply Paper 560-D, **1925.**‡

A geologic reconnaissance of Clark and Jefferson, and parts of Butte, Custer, Fremont, Lemhi and Madison counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 19, **1927.****

Ore deposits in Tertiary lava in the Salmon River Mountains, Idaho, by C. P. Ross: Idaho Bureau of Mines and Geology Pamphlet 25, **1927.****

Geology and ore deposits of the Birch Creek district, Idaho, by P. J. Shenon: Idaho Bureau of Mines and Geology Pamphlet 27, **1928.****

LEWIS COUNTY

Lewis is one of the northern counties, being bounded on the north and west by Nez Perce, on the northeast by Clearwater, and on the east and south by Idaho County. Containing an area of but 470 square miles, and a population of 12.4 persons to the square mile, it is one of the smallest counties in the State in area and one of the largest in density of population. Excepting the small area occupied by Craig Mountains, practically all the county is tillable, and the principal industries are wheat raising and lumbering.

The county is served by the North and South State highway, by the Lewiston-Stites branch of the Northern Pacific Railroad, by the Lewiston-Grangeville branch, which is owned jointly by the Union Pacific and Northern Pacific railroads, by the Nez Perce & Idaho Railroad from Craigmont to Nez Perce, the county seat, and by the Craig Mountain Railroad from Reubens to Winchester.

The principal mineral resources are copper, gold, silver, marble, and limestone. Veins containing copper, gold, and silver have been discovered and developed in the Craig Mountains, principally along Deer Creek. At one time this section received considerable attention, and a small mill was constructed at one of the mines. The marble and limestone occur on Mission Creek near the Nez Perce County line. The marble occurs in all shades, colors, and diagrams familiar to the marble industry; it is exceptionally adaptable to commercial use.

The Winchester Copper Mining & Smelting Co., which acquired the Forest group of copper claims on Deer Creek in 1926, was active throughout the summer months.

CRAIG MOUNTAIN MINING & MILLING CO.

Office: Lewiston. **Officers:** Ben L. Schultz, Pres.-Mgr., Lewiston; W. W. Burr, Sec., Genesee. **Inc.:** Nov. 30, 1925. **Capital:** 600,000 shares; par value $1; 475,000 shares issued. **Property:** Craig Mountain group; 29 unpatented claims, Deer Creek dist.; Winchester. **Development:** Total development, approximately 5000 ft. **Plant:** Old mining and milling plant and equipment, installed in 1915. **Ore:** Copper. **Remarks:** Annual labor only.

WINCHESTER COPPER MINING & SMELTING CO.

Office: Winchester. **Officers:** D. Nicholson, Pres.; W. M. Nicholson, Sec., both of Winchester. **Inc.:** Aug. 7, 1926. **Capital:** 1,500,000 shares; par value 10c; 1,228,239 shares issued. **Property:** Forest group; 11 unpatented claims, Deer Creek dist.; Winchester. **Development:** By 2 tunnels: No. 1, 820 ft. long; No. 2, 125 ft. long. **Plant:** Gas-driven Sullivan compressor; complete mining equipment and camp. **Ore:** Copper-silver. **Men employed:** Average, 4. **Remarks:** Active throughout the summer months.

BIBLIOGRAPHY

See pages 71-72-73 for publisher's address, meaning of reference marks, and abbreviations.

A geological reconnaissance across the Bitterroot Range and Clearwater Mountains in Montana and Idaho, by Waldemar Lindgren: U. S. Geol. Survey Prof. Paper 27, **1904.***

Central Idaho gold districts, by S. P. Jellum: Northwest Min. News, vol. 3, pp. 83-91, 107-114, 134-139, **1908**; vol. 4, pp. 2-6, 31-37, 66-73, **1909.***

The Orofino coal field, Clearwater, Lewis, and Idaho counties, Idaho, by C. T. Lupton: U. S. Geol. Survey Bull. 621, pp. 99-108, **1915.***

A preliminary report on the clays of Idaho, by F. H. Skeels: Idaho Bureau of Mines and Geology Bull. 2, p. 59, **1920.****

The copper deposits of the Seven Devils and adjacent districts, by D. C. Livingston and F. B. Laney: Idaho Bureau of Mines and Geology Bull. 1, **1920.***

NEZ PERCE COUNTY

Nez Perce is one of the principal northern counties, bounded on the south and east by Idaho and Lewis counties, on the north and east by Clearwater and Latah counties, and on the west by the States of Washington and Oregon. It has an area of 851 square miles and was accredited with a population of 15,253 in the 1920 census. It is primarily an agricultural county, and Lewiston, the largest town and civic center of north-central Idaho, is the county seat. The county was originally organized under an act of the Legislature of Washington Territory before the Territory of Idaho was organized, and Lewiston was first settled in 1861, consequent to the discovery of, and as a supply point for, the placer mines in Clearwater and Idaho counties.

Lewiston is at the junction of the Snake and Clearwater rivers; steamboats can reach it from Portland, Oregon, although they are not used as a means of transportation from that point, and both rivers are navigable for boats of light draft. In addition to river boats, the county is served by the Union Pacific and Northern Pacific railroads, and by the North and South, and Lewis and Clark State highways.

The principal mineral resources are copper, silver, gold, marble, and limestone. The metals occur in isolated sections of the county and have never received much attention. The limestone, which is adaptable to Portland cement, occurs on the Snake River north of Lewiston, but the deposits have never been developed. The marble, which is of excellent grade and quality, occurs on the Clearwater River near Agatha. A little attempt has been made to exploit the marble deposits.

BONANZA GOLD MINING & MILLING CO.

Office: Lewiston. **Officers:** Geo. C. Ettershank, Pres.; Earl Parks, Sec., both of Lewiston. **Inc.:** Apr. 21, 1928. **Capital:** 250,000 shares; par value $1; 50,000 shares issued. **Property:** Bonanza group; 3 unpatented claims, unorganized dist.; Cove Gulch; Lewiston. **Development:** By 2 tunnels: No. 1, 250 ft. long; No. 2, 105 ft. long. **Ore:** Copper-silver-gold. **Men employed:** Average, 2. **Remarks:** Small amount of work during the summer months.

INDEPENDENT MARBLE & LIME CO.

Office: Lewiston. **Officers:** F. S. Johnson, Pres., Nez Perce; P. R. Bevis, Sec., Lewiston. **Inc.:** Jan. 25, 1926. **Capital:** 1,000,000 shares; par value $1; 250,000 shares issued. **Property:** 220 acres held under lease and option; on Mission Creek. **Mineral sought:** Limestone.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Gold Standard	Cave Gulch	G. C. Ettershank	Lewiston
Homestead Entry	Clearwater	G. H. Gibbs	R. F. D. No. 2, Juliaetta
Iron Cap	Peck	W. H. Rugg	Peck
Montana	Unorganized	Frank Cole	Lewiston

BIBLIOGRAPHY

See pages 71-72-73 for publisher's address, meaning of reference marks, and abbreviations.

Geology and water resources of Nez Perce County, Idaho, by I. C. Russell: U. S. Geol. Survey Water-Supply Papers 53 and 54, **1901.‡***

A geological reconnaissance across the Bitterroot Range and Clearwater Mountains of Montana and Idaho, by Waldemar Lindgren: U. S. Geol. Survey Prof. Paper 27, **1904.***

Central Idaho gold districts, by S. P. Jellum: Northwest Min. News, vol. 3, pp. 83-91, 107-114, 134-139, **1908**; vol. 4, pp. 2-6, 31-37, 66-73, **1909.***

Portland cement materials and industry in the United States, by E. C. Eckel, with contributions by E. F. Burchard and others: U. S. Geol. Survey Bull. 522, pp. 135-140, **1913.***

Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 60, art. 3, pp. 1-33, **1921.‡**

ONEIDA COUNTY

The only known mineral resources of this county are: Bentonite; various clays of excellent quality; and the reported occurrence of copper-lead ores carrying gold and silver. During 1929 the exploitation of the bentonite deposits was started; and the Blue Jay Mining Co. was organized for the purpose of developing one of the copper-lead prospects.

BLUE JAY MINING CO.

Office: R. F. D. No. 1, Malad. **Officers:** David M. Williams, Pres.-Mgr.; T. E. Ray, Sec., both of Malad. **Inc.:** Nov. 6, 1929. **Capital:** 2,500,000 shares; par value 10c; 30 shares issued. **Property:** Blue Jay group; 6 unpatented claims, unorganized dist.; Malad. Held under lease and option from David M. Williams. **Development:** By 1 tunnel 600 ft. long and 2 short inclined shafts. **Ore:** Lead-copper-gold-silver. **Men employed:** Average, 2. **Remarks:** Active throughout the year.

OWYHEE COUNTY

Owyhee is one of the historic counties of Idaho. It is situated in the southwestern portion of the State, and is bounded on the north by Canyon, Ada and Elmore counties, on the east by Twin Falls County, on the south by the State of Nevada, and on the west by the State of Oregon. Its area is 7956 square miles, being larger than the State of New Jersey, and its population according to the 1920 census was only 4694, or 0.6 persons to the square mile. The principal industries are farming, stockraising, and mining. Silver City, one of the oldest towns in the State, is the county seat.

The history of this county dates back to the discovery of placer gold and the rich veins of War Eagle Mountain in 1863. The first quartz mill was constructed in 1864, and for many years thereafter Owyhee was the principal mining county. The ores which occur in this county are the richest gold-silver ores ever discovered in the State, and many tons which were either milled or sent directly to smelter had a phenomenal value. Early statistics are not very reliable, but from the best sources available, an estimated production of over $40,000,000 is conservative.

The principal mineral resources of the county are silver, gold, copper, lead, zinc, antimony, diatomaceous earth, opals, manganese, and nitrates. The diversity of mineralization, the favorable geological conditions, and the wide distribution of the deposits throughout the county make it an exceptionally favorable field for prospectors and development companies, particularly because all the high-grade ore in the old mines has not been exhausted, nor have all the veins been discovered.

The new dredge of the American Gold Dredging Corporation, which was of the flume type, was completed and placed in operation in January, 1928; operations were continued until freezing weather interrupted, and were then resumed for a short period in the spring of 1929. They were then suspended and the dredge was converted from flume type to table type, with revolving screens and a new stacker added. Shortage of water prevented a resumption of operations after new construction was completed. During the year two new development enterprises were started, and a large number of investigations by those seeking gold mines were conducted in the vicinity of Silver City.

One of the largest and most important new mining enterprises to be started in the State during 1929 was the Exploration Co. of California. The property was acquired in October by Messrs. Charles Butters and Thomas J. Barbour of San Francisco on the recommendation of Mr. Oscar H. Hershey, geologist for the Bunker Hill & Sullivan M. & C. Co., Mr. F. W. Bradley, and others, through the assistance of Mr. M. G. Sacrider of Mountain Home. The property covers the west half of the South Mountain district, a mineralized zone over two and a half miles long, which can be attacked by tunnels from many different points. This zone is on a contact of lime and granite. The east half or Cock's Mountain area of the district, which contains many excellent showings of lead-zinc-copper-silver ores, is owned by other interests. Mr.

Hershey estimated over 54,000 tons of known ore in the Laxey tunnel, which is only partially developed, and that the cost of the development work necessary to fully prove the extent of the ore zones prior to building a mill and equipping the property would be about $250,000. This work will require approximately two years' time. Mining operations were commenced in November; at that time new camp buildings were erected; an additional compressor was installed; a contract for 2000 feet of tunnel at two different points was let; and sufficient supplies were put in to maintain operations throughout the winter.

AFTERTHOUGHT MINING CO.

Office: 434 First Nat'l Bank Bldg., Boise. **Officers:** E. V. Orford, Pres.; S. L. Tipton, Sec., both of Boise. **Inc.:** Feb. 15, 1927. **Capital:** 400,000 shares common, 100,000 shares preferred; par value $1; 165,030 shares common, 3300 shares preferred issued. **Property:** Afterthought group; 1 patented, 4 unpatented claims, French dist.; Silver City; held under lease and option from E. V. Orford, Boise. **Development:** Principally by a vertical shaft 470 ft. deep, in which there are 5 intermediate levels. **Ore:** Silver-gold. **Remarks:** Annual labor only.

AMERICAN GOLD DREDGING CORPORATION

Office: 4817 W. Vernon Highway, Detroit, Mich. **Officers:** Walter J. Long, Pres.-Mgr., 8th St. & Garden Ave., Boise; L. H. Marvill, Sec., Detroit, Mich. **Inc.:** Filed in Idaho, Jan. 2, 1926. **Capital:** 300,000 shares common, 200,000 shares preferred; par value $1; 163,100 shares common, 172,200 shares preferred issued. **Property:** Meadow Creek group; 18 unpatented placer claims, containing 360 acres, part of which are held under lease and option; Steele dist.; Triangle. **Plant:** Electrically-driven table-type Yuba dredge with 2½-cu.-ft. buckets close connected. **Ore:** Placer gold. **Men employed:** Average, 15. **Remarks:** During 1927 this company constructed its dredge, new mine camp, and 4-mile electric transmission line. Dredging operations were commenced in January, 1928, continued until freezing weather interrupted, and were then resumed for a short period in the spring of 1929, after which operations were suspended and the dredge was converted from flume type to table type, with revolving screens and new stacker added. Shortage of water prevented a resumption of operations after new construction was completed.



AMERICAN GOLD DREDGING CORPORATION'S DREDGE

BANNER MINING & MILLING CO.
Office: Robt. Noble Bldg., Boise. **Officers:** Peter Steele, Pres.-Mgr., Silver City; F. S. Heer, Sec., Boise. **Inc.:** June 15, 1905. **Capital:** 1,500,000 shares; par value $1; 1,200,000 shares issued. **Property:** Banner group; 10 patented, 12 unpatented claims, Carson dist.; Silver City. **Development:** Over 11,000 ft. of underground workings. **Remarks:** Idle since 1923.

BIG FOUR DEVELOPMENT CO.
Office: Box 1061, Boise. **Officers:** C. C. Zumwalt, Pres.-Mgr., Boise; M. H. Eustace, Sec., Caldwell. **Inc.:** Apr. 2, 1924. **Capital:** 500,000 shares; par value $1; 260,000 shares issued.

COSMOPOLITAN MINING CO., LTD.
Office: Murphy. **Officers:** Fred L. Barlow, Pres., Nampa; Oscar Brunzell, Sec., Murphy. **Inc.:** Nov. 17, 1923. **Capital:** 500,000 shares; par value $1; 127,327 shares issued. **Property:** Hammond group; 5 unpatented claims, Carson dist.; Silver City. **Development:** By 1 tunnel 700 ft. long. **Men employed:** Average, 3. **Ore:** Antimony-silver. **Remarks:** Active during the summer months.

E. B. MINING CO.
Office: Mountain Home. **Officers:** E. Dollemeyers, Pres., Lisle, Ill.; O. G. Crook, Sec., Grandview; J. N. Barnhart, Mgr., Glenns Ferry. **Inc.:** Nov. 5, 1929. **Capital:** 250,000 shares; par value $1; 20 shares issued. **Property:** Illinois group; 6 unpatented claims, Rough Mountain dist.; Grandview. **Ore:** Silver. **Remarks:** A small amount of work during the summer months in rehabilitating the principal tunnel.

EMPIRE MINES CO.
Office: Robt. Noble Bldg., Boise. **Officers:** Peter Steele, Pres.-Mgr., Silver City; F. S. Heer, Sec., Boise. **Inc.:** Sept. 15, 1923. **Capital:** 2,500,000 shares; par value $1; 900 shares issued. **Property:** Trade Dollar group; 37 patented, 6 unpatented claims, Carson dist.; Silver City **Remarks:** Part of mine under lease to the Hoosier Leasing Co. and part to the Trade Dollar Leasing Co.

EXPLORATION COMPANY OF CALIFORNIA
Office: 351 California St., San Francisco, Calif. **Officers:** Charles Butters, Pres.; A. L. Dahl, Sec., both of San Francisco, Calif. **Inc.:** Filed in Idaho Nov. 12, 1929. **Capital:** 200,000 shares; no par value; 7765 shares issued. **Property:** Golconda group; 15 patented, 9 unpatented claims, South Mountain dist.; Jordan Valley. Held under lease and option from Golconda Group Mining Co. and M. G. Sacrider. **Plant:** 2 gas-driven compressors; complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Men employed:** Average, 40. **Remarks:** Property was acquired and company organized in October. In November new camp buildings were erected, an additional compressor and complete mining equipment installed, and contract was let for driving 2000 feet of tunnel.

GOLCONDA GROUP MINING CO.
Office: N. 610 Washington St., Spokane, Wash. **Officers:** G. A. Sonneman, Pres.-Mgr.; E. W. Sonneman, Sec., both of Spokane, Wash. **Inc.:** Jan. 11, 1908. **Capital:** 1,500,000 shares; par value 1c; all shares issued. **Property:** South Mountain group; 15 patented claims, South Mountain dist.; Jordan Valley, Ore. **Plant:** Small gas-driven compressor. **Ore:** Lead-zinc-silver. **Remarks:** Under option to Exploration Co. of California.

GREAT WESTERN MINES CO.
Office: Room 169, Republican House, Milwaukee, Wis. **Officers:** A. J. Kraemer, Pres., Menomonee Falls, Wis.; F. H. Mayhew, Sec., Milwaukee, Wis.; T. W. Galigher, Agent, 915 N. 21st St., Boise. **Inc.:** Nov. 29, 1920. **Capital:** 1,500,000 shares; par value 1c; 1,369,046 shares issued. **Property:** Quaker group; 10 unpatented claims, French dist.; Silver City. **Development:** By 2 tunnels: No. 1, 2600 ft. long; No. 2, 2800 ft. long. **Plant:** Electrically-driven 10x10 compressor; complete mining equipment and camp. **Ore:** Gold. **Men employed:** Average, 3. **Remarks:** Active development work throughout a large part of the year.

HOOSIER LEASING CO.

Office: Silver City. **Officers:** Charles A. Hackney, Pres.; Peter Steele, Mgr., both of Silver City; Victor Shawe, Sec., Boise. **Inc.:** Nov. 16, 1926. **Capital:** 100,000 shares; par value $1; 35,793 shares issued. **Property:** Lease on Alpine vein from Empire Mines Co.; Carson dist.; Silver City. **Development:** Operations conducted through Blaine tunnel. **Ore:** Gold-silver. **Men employed:** Average, 4. **Remarks:** A small amount of high-grade ore was produced and marketed during the early part of the year.

IDAHO GOLD & PLATINUM MERGER MINES CO.

Office: Box 150, Bruneau. **Officers:** H. O. Milner, Pres., Twin Falls; E. A. Thom, Sec.; Phil Thom, Mgr., both of Bruneau. **Inc.:** Filed in Idaho Oct. 30, 1928. **Capital:** 5,000,000 shares; par value 10c; 3,385,489 shares issued. **Property:** 10 unpatented claims, 1380 acres, unorganized dist.; Little Valley; Bruneau. **Plant:** 30-h. p. gas-driven hoist; steam-driven compressor; complete mining equipment and camp. **Ore:** Platinum. **Men employed:** Average, 8. **Remarks:** This company's enterprise is based on the presence of platinum in a volcanic glass sand lying at a depth of about 250 ft. in an artesian basin. During the summer months equipment was installed and work started in sinking a vertical shaft lined with concrete.

IMPERIAL MINING & MILLING CO., LTD.

Office: 1025 Foster Bldg., Denver, Colo. **Officers:** B. M. Webster, Sec., Denver, Colo. **Inc.:** Mar. 13, 1903. **Capital:** 500,000 shares; par value $1; all shares issued. **Property:** Imperial Lode; 1 patented claim, French dist.; Silver City.

NEVER SWEAT MINING CO.

Office: Nampa. **Officers:** Windsor J. Lloyd, Pres.; D. L. Rhodes, Sec., both of Nampa. **Inc.:** July 6, 1922. **Capital:** 50,000 shares; par value $10; 27,000 shares issued. **Property:** Never-Sweat group; 12 unpatented claims, French dist.; Silver City. **Development:** By 2 tunnels: No. 1, 2200 ft. long; No. 2, 1100 ft. long, in which is a vertical shaft 50 ft. deep. **Plant:** MINE: Electrically-driven compressor and complete mining equipment. MILL: 50-ton mill; fine grinding, amalgamation plates, and concentrating tables. Complete mine camp. **Ore:** Silver-gold. **Remarks:** Mill operated for a few days on ore which was extracted by 2 lessees.

OWYHEE GOLD MINING CO.

Office: Nampa. **Officers:** M. D. Polk, Pres.; V. C. Belknap, Sec., both of Nampa; John B. Platts, Mgr., Wallace. **Inc.:** Sept. 3, 1925. **Capital:** 500,000 shares; par value $1; 353,000 shares issued. **Property:** Mountain Chief group; 3 unpatented claims, French dist.; Silver City. **Development:** Principally by 3 tunnels: No. 1, 200 ft.; No. 2, 175 ft.; No. 3, 850 ft. total depth of 400 ft. **Plant:** 50-ton amalgamation mill. **Ore:** Gold. **Remarks:** During 1927 a complete new mine camp was constructed, mill building erected, and during the early part of 1928 milling machinery was installed and the mine operated for a short period, after which operations were suspended.

OWYHEE SILVER MINES CO.

Office: Mountain Home. **Officers:** W. C. Dodge, Pres.; Frank Dodge, Sec.; Charles Sayko, Mgr., all of Mountain Home. **Inc.:** June 2, 1928. **Capital:** 2,500,000 shares; par value 10c; 1,585,000 shares issued. **Property:** Lucky Day group; 7 unpatented claims, Rough Mountain dist.; Grandview. **Development:** By 1 tunnel 300 ft. long. **Plant:** Gas-driven hoist; 10-stamp mill and amalgamation. **Ore:** Silver. **Men employed:** Average, 2. **Remarks:** Small amount of work during the summer months.

ROOSTER COMB-SUNNYSIDE MINING CORPORATION

Office: Boise. **Officers:** Victor Shawe, Pres.-Mgr.; Fern Birch, Sec., both of Boise. **Inc.:** Oct. 8, 1929. **Capital:** 1,500,000 shares; par value $1; 563,240 shares issued. **Property:** Bergh-Sunnyside group; Carson dist.; Murphy. **Development:** By 2 tunnels: No. 1, 1350 ft. long; No. 2, 600 ft. long; and a vertical shaft 50 ft. deep. **Plant:** MINE: Gas-driven hoist and compressor; complete mining equipment. MILL: 30-ton amalgamation.

TRADE DOLLAR LEASING CO.

Office: Robert Noble Bldg., Boise. **Officers:** M. M. Hanson, Pres.-Mgr., Silver City; F. S. Heer, Sec., Boise. **Inc.:** Sept. 11, 1928. **Capital:** 40,000 shares; par value $1; 36,678 shares issued. **Property:** Lease on part of Trade Dollar group from Empire Mines Co. **Remarks:** Active throughout the year.

WAR EAGLE CONSOLIDATED MINING CO.

Office: 919 Real Estate Trust Bldg., Philadelphia, Pa. **Officers:** Frank S. Lewis, Pres.; Edwin H. Lewis, Asst. Sec., both of Philadelphia. **Inc.:** Apr. 22, 1907. Charter forfeited Dec. 1, 1912. **Capital:** 60,000 shares preferred, 240,000 shares common; par value $50; all shares issued. **Property:** South Oro Fino and Mahogany groups; 8 patented, 2 unpatented claims, French dist.; Silver City. **Remarks:** Company operations suspended in 1923, since which time occasional lessees have performed a little work.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Addie Group	French	F. M. Orem	Salt Lake City, U.
American Eagle et al.	Carson	Idawa Gold Mng. Co.	Boise
Browney	Carson	Henry Hugg	Silver City
Chief	Unorganized	Mrs. Lois Steen	Oreana
Daly Group	Carson	J. W. Daly	Silver City
De Lamar	Carson	W. R. Helm	Jordan Valley, Ore.
Deluge et al.	Carson	John Grete	Silver City
Demming et al.	Steele	Demming Ex. Co. Trst	Nampa
Dubuque et al.	Carson	Elisha Lewis	Silver City
Gold Bug	French	Charles Cook	Silver City
Gold Hen et al.	Carson	H. P. Cox	Murphy
Gold Mile et al.	Carson	V. Richardson	Silver City
Golden Gate	Carson	Asher A. Getchell	Twin Falls
Happy Boy	Unorganized	A. T. Evans	Mountain Home
Henrietta	Carson	C. L. Norcross	168 Dartmouth St., Boston, Mass.
Home et al.	Carson	W. J. Stoddard	Silver City
Homestake	French	Mrs. George Schlack	Silver City
Lindy et al.	Carson	H. H. Bonnell	Silver City
Little Chief	Carson	James Carrolan	De Lamar
Meadow Lark	Carson	Willenegger Bros.	De Lamar
Mountain Chief	Carson	F. Robinson	Nampa
Nellie Ann No. 1	Carson	W. W. Jones, M. D.	Jordan Valley, Ore.
Ontario	Carson	Mrs. J. Mattenson	Boise
Owyhee et al.	Carson	Emma Brumbaugh	Silver City
Pauper	Carson	R. H. Leonard	Silver City
Perseverance	Flint	R. V. Thurston	Payette
Poorman	French	Fred Grete	Silver City
Potosi	Carson	Jack Stoddard	Silver City
Rich Gulch	Carson	Sam Williams	Tulsa, Okla.
Roosevelt et al.	Carson	R. Noble Est.	Boise
Rose et al.	Carson	James McNally	De Lamar
Ruth	French	Geo. Westlake	Hailey
San Juan et al.	French	Mary Grete Est.	Silver City
Silver Leaf et al.	French	N. C. Chapman	Boise
Snow Storm et al.	French	Lafe Boone	Boise
Star Gr.	Carson	Lewis Bros.	Silver City
Sugar Loaf	French	A. P. Nugent	Silver City
Sunnyside	Carson	I. E. Barber, Trus.	Boise
Tango et al.	Carson	A. J. Swan	Nyssa, Ore.
Tennesse et al.	Carson	John Nemanic	Silver City
Village Blacksmith	Carson	Duncan & Lackey	Silver City
Wennerstein Gr.	Carson	Andrew Wennerstein	Nampa
War Eagle Gr.	French	Wm. Healy	Boise

BIBLIOGRAPHY

See pages 71-72-73 for publisher's address, meaning of reference marks, and abbreviations.

Precious stones; opal, by G. F. Kunz: U. S. Geol. Survey Mineral Resources, **1893**, p. 698.*

A geological reconnaissance across Idaho, by G. H. Eldridge: U. S. Geol. Survey, Sixteenth Ann. Rept., pt. 2, pp. 217-276, **1895.***

An Idaho silver-gold camp (Florida Mountain district), by F. G. Corning: Eng. and Min. Jour., vol. 60, p. 244, Sept. 14, **1895.**§

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey, Twentieth Ann. Rept., pt. 3, pp. 65-256, **1900.***

Some Idaho mining districts, by Arthur Lakes: Mines and Minerals, vol. 22, pp. 203-206, December, **1901.***

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, pp. 42, 71 and 173, **1902.***

Notes on geology of southwestern Idaho and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Bull. 217, **1903.**‡

Preliminary report on artesian basins in southwestern Idaho and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Water-Supply Paper 78, **1903.**‡

Description of the Silver City quadrangle, by Waldemar Lindgren: U. S. Geol. Survey Geol. Atlas, Folio No. 104, **1904.***

Description of the Nampa quadrangle, by Waldemar Lindgren: U. S. Geol. Survey Geol. Atlas, Folio No. 103, **1904.***

South Mountain, Idaho, by R. N. Bell: Eng. and Min. Jour., vol. 83, pp. 283-284, Feb. 9, **1907.**§

The De Lamar mine of southwest Idaho, by H. S. Brown and F. G. Mudgett: California Jour. Tech., vol. 12, pp. 35-41, **1908.****

Some gold deposits of the Northwest, by F. C. Lincoln: Eng. and Min. Jour., vol. 92, p. 408, Aug. 26, **1911.**§

Nitrate deposits in southern Idaho and eastern Oregon, by G. R. Mansfield: U. S. Geol. Survey Bull. 620, pp. 19-44, **1915.***

Reopening of old De Lamar mine under way, by R. N. Bell: Eng. and Min. Jour., vol. 110, pp. 538-539, Sept. 11, **1920.**§

An occurrence of naumannite in Idaho, by E. V. Shannon: Am. Jour. Sci., 4th ser., vol. 50, pp. 390-391, November, **1920.**‡

A preliminary reconnaissance of the gas and oil possibilities of southwestern and south-central Idaho, by J. P. Buwalda: Idaho Bureau of Mines and Geology Pamphlet 5, **1923.****

Geology and water resources of the Bruneau River basin, Owyhee County, Idaho, by A. M. Piper: Idaho Bureau of Mines and Geology Pamphlet 11, **1924.****

Discovery of a Balkan fresh-water fauna in the Idaho formation of Snake River valley, Idaho, by W. H. Dall: U. S. Geol. Survey Prof. Paper 132-G, **1924.**‡

Geology and metalliferous resources of the region about Silver City, Idaho, by A. M. Piper and F. B. Laney: Idaho Bureau of Mines and Geology Bull. 11, **1926.***

The geology and ore deposits of the South Mountain mining district, Owyhee County, Idaho, by R. E. Sorenson: Idaho Bureau of Mines and Geology Pamphlet 22, **1927.****

PAYETTE COUNTY

The only known mineral resources of this county are diatomaceous earth; various clays of excellent quality; and gas, which has been developed at Payette.

Late in 1926 the Idaho Petroleum Co. at Payette acquired the property and equipment owned by the Idaho Oil & Gas Co., whose well was 1100 feet deep. Work was then started sinking the well to a further depth and was carried on intermittently throughout 1927, until a total depth of 1800 feet

was gained. The encountering of gas was reported at the depths of 1485 and 1550 feet. During 1928 the assets of the Idaho Petroleum Co. were acquired by the Idaho-Oregon Petroleum Corporation through an exchange of stock; and an additional well was sunk to a depth of 1180 feet to further prove the extent of the gas. No operations were conducted during 1929.

IDAHO-OREGON OIL & GAS CO.

Office: Payette. **Officers:** L. Haarmann, Pres.-Mgr., Payette; J. H. Forbes, Sec., Caldwell. **Inc.:** May 12, 1923. Charter forfeited Nov. 30, 1928. **Capital:** 10,000 shares; par value $10; 5574 shares issued. **Property:** Oil and gas leases on patented farm land, Little Willow Creek; Payette. **Plant:** Complete small well-drilling equipment. **Mineral sought:** Oil and gas.

IDAHO-OREGON PETROLEUM CORPORATION

Office: Payette. **Officers:** L. V. Patch, Pres.-Mgr.; C. A. Smith, Sec., both of Payette. **Inc.:** Dec. 1, 1927. **Capital:** 5000 shares; no par value; 135 shares issued. **Development:** 2 wells: one 1800 ft. deep and one 1180 ft. deep. **Plant:** Complete well-drilling equipment, steam-driven. **Mineral sought:** Oil and gas. **Remarks:** Idle throughout the year. This company absorbed the assets of the Idaho Petroleum Co. through an exchange of stock.

BIBLIOGRAPHY

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Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Notes on geology of southwestern Idaho and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Bull. 217, **1903.**‡

Description of the Nampa quadrangle, by Waldemar Lindgren and N. F. Drake: U. S. Geol. Survey Geol. Atlas, Folio No. 103, **1904.***

Gas and oil prospects near Vale, Oregon, and Payette, Idaho, by C. W. Washburne: U. S. Geol. Survey Bull. 431, pp. 26-55, **1909.***

Oil and gas possibilities of eastern Oregon, by J. P. Buwalda: Oregon Bureau of Mines and Geology, vol. 3, No. 2, **1921.***

A preliminary reconnaissance of the gas and oil possibilities of southwestern and south-central Idaho, by John P. Buwalda: Idaho Bureau of Mines and Geology Pamphlet 5, **1923.****

POWER COUNTY

The most active development work done in this county during the year was that of the Independent Mining Co. at its lead-silver prospect near Rockland. The oil development companies were practically idle throughout the year.

A few placer mines along the Snake River produced and marketed a small amount of placer gold.

ARBON VALLEY OIL CO.

Office: Pocatello. **Officers:** D. C. Ray, Pres.; L. B. Evans, Sec., both of Pocatello. **Inc.:** Feb. 20, 1923. **Capital:** 250,000 shares; par value $1; 222,500 shares issued. **Property:** Oil leases on patented farm land which have been assigned to Gem State Petroleum Co.

GEM STATE PETROLEUM CO.

Office: Pocatello. **Officers:** H. C. Harris, Pres.-Mgr.; S. G. Baker, Sec., both of Pocatello. **Inc.:** Oct. 2, 1923. **Capital:** 300,000 shares; par value $1; 299,851 shares issued. **Property:** Oil and gas leases on 15,000 acres of farm land in Arbon Valley. **Development:** 10-inch well, 3450 ft. deep. **Mineral sought:** Oil and gas. **Remarks:** "Depth of well May 31, 1927: 2550 ft. Depth of well May 31, 1928: 2810 ft. Depth of well May 31, 1929: 3450 ft."

IDAHO RESEARCH AND DEVELOPMENT CO.

Office: 810 S. 4th Ave., Pocatello. **Officers:** Geo. Williams, Pres., Pocatello; Geo. Stoll, Sr., Sec.-Mgr., 3152 Fuhrman Ave., Seattle, Wash. **Inc.:** Aug. 2, 1920. **Capital:** 200,000 shares; par value $5; 123,504 shares issued. **Property:** Oil and gas leases on 8000 acres in Arbon Valley. **Plant:** 15-h. p. steam-driven well-drilling rig and equipment. **Mineral sought:** Oil and gas. **Remarks:** Idle throughout the year. Leases assigned to Gem State Petroleum Co.

INDEPENDENT MINING CO.

Office: Rockland. **Officers:** G. B. Geswaldi, Pres.-Mgr., Kellogg; E. J. Peterson, Sec., Rockland. **Inc.:** Oct. 24, 1925. **Capital:** 2,000,000 shares; par value 25c; 1,061,543 shares issued. **Property:** Independent group; 16 unpatented claims, unorganized dist.; Rockland. **Development:** By 1 shaft 230 ft. deep. **Plant:** Gas-driven 8x10 Sullivan compressor; small air-driven hoist; complete mining equipment. **Ore:** Lead-silver. **Remarks:** Small amount of work during the summer months.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Bannock Peak	Unorganized	Frazier & McClandon	American Falls
Diamond et al Pl.	Snake River	Wm. M. Main	Aberdeen
Golden Clift Pl.	Snake River	Geo. J. Wheeler	American Falls
.....Pl.	Snake River	M. Launsberry	Minidoka
.....Pl.	Snake River	L. N. Rosencrans	American Falls
.....Pl.	Snake River	J. O. Payne	American Falls
.....Pl.	Snake River	Wm. & C. Wagstaff	American Falls

BIBLIOGRAPHY

See pages 71-72-73 for publisher's address, meaning of reference marks, and abbreviations.

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

A preliminary report on the clays of Idaho, by F. H. Skeels: Idaho Bureau of Mines and Geology Bull. 2, **1920.****

Geography, geology, and mineral resources of the Fort Hall Indian Reservation, Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 713, **1920.**‡

Possibilities of petroleum in Power and Oneida counties, Idaho, by A. M. Piper: Idaho Bureau of Mines and Geology Pamphlet 12, **1924.****

SHOSHONE COUNTY

Shoshone County lies in the northern part of the State, and is bounded on the east by the State of Montana, on the south by Clearwater County, on the west by Latah, Benewah, and Kootenai counties, and on the north by Bonner County. In area it is one of the largest counties in the State covering 2597 square miles. Lying approximately in the geographical center of the county is the famous Coeur d'Alene mining district, which contains an area of approximately 400 square miles, and which is known throughout the world as one of the largest lead-silver producing regions of the United States.

The entire county is mountainous, containing but a very small area of agricultural land, and is entirely dependent upon the mining and timber industries, particularly mining. These industries are well established, and it is to them that credit must be given for making this county one of the wealthiest in the State, as well as the county having the smallest public debt, one of the lowest tax levies, and the greatest per capita wealth.

It is the largest and most important mining county in the State, and for many years has produced 90 per cent of the lead and 85 per cent of the silver that has been derived from Idaho mines. Its importance can be better judged from the fact that Idaho ranks second in the United States in the production of lead and third in the production of silver. In addition to its production of lead and silver, Shoshone is the principal zinc producing county in the State, and

one of the most important gold producers. The other metals which occur in commercial quantities are copper, antimony, and tungsten. At one time copper was one of the principal metal products and the largest copper mines ever developed in the State were those near Mullan.

The county is served by the O.-W. R. & N. and Northern Pacific railroads, by the Coeur d'Alene-Yellowstone State highway, which is paved between Mullan, Wallace, and Kellogg, and by well-maintained county roads, which reach the principal mines. Wallace is the largest town, the county seat, and the civic and business center.

During 1929 this county witnessed much new development work, the starting of many new enterprises, more new profitably operating mines, more new dividend-paying companies, a larger payroll, and a greater production, with increased dividends, than in 1928. Two new producers reached the step that places them in the list of mines with an assured future, and four others rapidly approached that position. All the large mines conducted active development work throughout the year which proved the extent of their ore bodies at increased depth and laterally. The increased ore reserves and the improvements added to mine, mill, and smelter plants, together with the new Sullivan zinc plant and the Hercules custom mill, have greatly enhanced the physical condition and future life of the mines, as well as assuring a long period of prosperity for the Coeur d'Alene district.

The thought and attention that all of the large operators are giving to safety conditions and safety supervision were reflected in the very small number of fatal accidents. Working conditions throughout the Coeur d'Alene district are exceptionally favorable. All the mines are well ventilated, and the operators devote much time and thought to making the mines safe and keeping them in such condition that the men can do a full day's work without expending the energy that is necessary in poorly ventilated mines. Both attention and money have been devoted to this phase of the operations, and it can safely be said that these are the best ventilated mines in the country. Serious attention is given not only to ventilation, but to safety, recreation, and general welfare. The value of the welfare work to company employees was further demonstrated during the year by the outstanding contribution of the Bunker Hill & Sullivan M. & C. Co. in the installation of its solarium.

The principal producing mines in which the ore reserves were increased by new development work, the most important new construction, new mine plant installations, new enterprises, and outstanding development work can best be reviewed by companies:

The extensive development work in the Bunker Hill mine greatly increased its resources. The completion of the shaft to the 1900-foot level and the opening of the ore bodies at that depth, where the ore and geological conditions were found to be normal, added much to the life of the mine which is estimated in decades instead of in years. The Bunker Hill & Sullivan M. & C. Co., because of the magnitude of the Bunker Hill mine, has become more of a manufacturing than a mining operation, and with its smelter, mills, experimental plants, and organization, is one of the largest of its kind in the world. This company maintained its usual production record and increased its dividends during the year, while the many plant betterments which were added greatly increased the efficiency of the enterprise. The principal betterments were the remodeling of all mills to conform with the most recent developments in flotation, many of which have been evolved under this company's direction; enlargements and improvements at the mine surface plants; and the doubling of the capacity of the lead smelter, in anticipation of the termination on February 1, 1930, of the company's smelting contract with the American Smelting & Refining Co., to whom the Bunker Hill was obliged to ship one-half of its production. This work, in addition to the many other plant improvements, constituted the largest expenditure in new plant betterments made in the State during the year. The Crescent or Hooper tunnel, which was started late in 1928, was completed to a distance of 5000 feet, where it intersected the Crescent vein at a depth of approximately 500 feet below the upper workings. The ore exposed by this tunnel at the intersection was one of the largest and most important disclosures of new ore made in the



BUNKER HILL SMELTER

State for a long period of years. In addition to extensive development work in the Bunker Hill and Crescent mines, this company was actively engaged in prospecting and developing other properties throughout the Coeur d'Alene district, in Valley County, and in Nevada, Alaska, and Canada.

The Hecla Mining Co., which is recognized as one of the principal lead-silver producing companies of the United States, greatly increased its ore reserves and resources in the Hecla mine. The vein was further explored on the 2800-ft. level and work in sinking the main shaft and cutting the station on this level was completed. The mill plant was enlarged and improved, and the mine maintained in first-class condition. In addition to this, the installation of two new electrically operated hoists was completed; these hoists constitute one of the largest and most expensive installations in the United States. This company was actively engaged in developing two other properties in the Coeur d'Alene district, and installed a new mill and complete mine camp at the Union mine in British Columbia. Also, an active scouting and investigation campaign in the search for additional properties was maintained throughout the year.

The Morning mine of the Federal Mining & Smelting Co., which is one of the oldest in the Coeur d'Alene district in point of continuous production, as well as one of the largest lead-silver-zinc mines in the United States, was maintained at capacity production throughout a large part of the year. The number of years that this record will continue is unknown, as development work on the 3250 and 3450-foot levels has proved the ore bodies to be larger and more extensive than on any of the upper levels, and the ore on the 3450-foot level was found to be richer in metal content than on any of the levels above it. During the year the 3250 and 3450-foot levels were opened to the full length of the ore, and work was started on extending the shaft to the 3650-foot level. The mine and mill plants were greatly enlarged, and the mill was improved to conform with recent developments in flotation practice. In addition to the ore mined under company operation, a large tonnage was extracted from the upper levels by a number of lessees; the most important of these is the Sheridan Lease, which employs over 100 men.

The Page mine of the Federal Mining & Smelting Co., in Government Gulch near Kellogg, was operated throughout 1929 on a profitable basis, a large amount of development work was performed, and the ore bodies were fully opened on the 1200-foot level, at which point they proved to be of greater extent and higher grade than on any of the upper levels. New mine and camp buildings were erected, a new 2550-cubic-foot compressor and a large amount of new mining equipment installed, and the mill was enlarged and improved. The success of this operation can be accredited entirely to flotation, because with the old milling methods it was impossible to mine and mill such low-grade ore at a profit.

The Sullivan Mining Co., which in 1927 suspended production at its Star mine pending completion of its new electrolytic zinc plant at Kellogg, resumed production in February, 1929, in addition to maintaining underground development work throughout the year. The 4000-foot level of the Star mine is connected with the 2000-foot level of the Hecla mine by the Star crosscut, which is 8900 feet long. This crosscut made a blind connection with the Star vein at a point 2800 feet below the Star tunnel. A vertical operating raise and a vertical shaft, which were driven to connect the crosscut and the upper Star tunnel, were completed during the year. The zinc plant, which was fully described, with flow sheet and illustrations, in the 1927 Report of the Mining Industry of Idaho, was completed and formally placed in operation in June, 1928, and the first metallic zinc was produced on August 3, 1928. The metal produced by this plant is of exceptionally high grade and is finding a ready market at an increase in price over that of any other zinc metal. During the year this plant was further enlarged and improved; many new homes for the employees were constructed; and a cadmium recovery unit, which represented a large expenditure, was added. The zinc plant of the Sullivan Mining Co. now constitutes one of the largest and most important enterprises in the Pacific Northwest, and one which assures the perpetuation of the mining industry in Shoshone County.



SULLIVAN ELECTROLYTIC ZINC PLANT

One of the largest expenditures made by any company in the Coeur d'Alene district during the year for mine development, new mine plant installation, and mill improvements was that of the Sunshine Mining Co. The principal haulage level (No. 5) was entirely rebuilt; the inclined shaft was sunk to the 1300-foot level, and raised to the No. 5 tunnel level. This improvement obviates the transfer on No. 5 shaft level and the use of the vertical shaft, and permits direct operation throughout the mine. A large boarding house was erected, an additional compressor and much new mining equipment installed, and the mill was rebuilt and enlarged. In addition to the foregoing, the company maintained throughout the year an active development campaign, which was successful in greatly increasing the known ore reserves, particularly on the lower levels, where the ore proved to be of higher grade and greater extent.

One of the large and active development campaigns conducted during the year, including mine improvement, was that of the Dayrock Mining Co., formerly Strattons Mines Co., at the Stratton mine. A large amount of development work was performed on the 200, 300, and 400-foot levels; new mine buildings were erected; and a new compressor was installed. The development work greatly increased the known ore reserves, and production was maintained throughout the year. This mine is fast developing into one of the important producers of the Coeur d'Alene district, and entered the ranks of dividend-paying mines during 1929.

In addition to maintaining production throughout the year, the Golconda Lead Mines greatly enlarged and improved its surface plant and mine. The new main shaft was raised from the 1400-foot level to the 1000-foot level, where it connects with the haulage tunnel. The station and skip pockets were cut and the necessary connections driven preparatory to installing a large new hoist. The company also maintained development work on the 1200 and 1400-foot levels, where the ore was proved to be of greater extent than on the 1000-foot level. These improvements involved the expenditure of a large amount of money, which was obtained from mine profits. In addition to this, the company began the payment of dividends, and two dividends were declared during the year.

One of the principal mines which was placed on a profitable operating basis during 1929 was the Sherman Lead Co., whose property is on Canyon Creek east of the Tamarack & Custer. Its mine is connected with the No. 5 tunnel of the Hercules mine through the Humming Bird workings; its mine plant is leased from the Hercules Mining Co.; and the ore is taken to the Hercules custom mill at Wallace for reduction. In addition to maintaining production throughout the greater part of the year, a large amount of development work was performed. This work resulted in greatly increasing the known ore reserves of the mine.

The Jack Waite Consolidated Mining Co. greatly enlarged its mine plant, enlarged and improved its mill, and produced and marketed a large tonnage of ore and concentrate, in addition to maintaining an active mine development campaign, which consisted principally of extending the No. 2 or lower tunnel. This work was successful in opening one of the largest and most important ore bodies disclosed in the Coeur d'Alene district for many years.

At the Galena mine of the Callahan Zinc-Lead Co. an extensive development campaign was maintained throughout the year and the mill operated on a one-shift basis on ore extracted in development work. The principal work consisted of crosscutting to and drifting on the 600-foot level on the new south vein, which was discovered by diamond drilling in 1928; and a large amount of drifting and raising was performed on the 600 and 800-foot levels in the former workings. The work resulted in exposing such a substantial amount of new ore that this company is fast becoming re-established as one of the principal producing mines of the Coeur d'Alene district. As the Galena is located in the so-called "dry belt", or south side of the district, the success it is attaining has been an important factor in stimulating development throughout this area.

At the Sidney mine, operated by the Sidney Leasing Co., an additional compressor was installed; the main shaft extended 250 feet; a large amount of development work performed; and capacity production maintained throughout the year. The new development work was successful in opening up an immense tonnage of new ore, particularly on the lower shaft level, where the lead content greatly exceeded that in the upper levels. The dividends paid by both the Sidney Mining Co., which owns the property, and the Sidney Leasing Co., which operates it, were increased over those of the previous year. The fact that this mine, located on Pine Creek, is being operated at a substantial profit and its ore improving in grade and extent as depth is gained, is significant in proving that this section of the Coeur d'Alene district is not without merit, and the success of this enterprise is greatly stimulating mine development in this part of the district.

The Humming Bird Mining Co. was active during the early part of the year, and produced a substantial tonnage of ore, which was transported to the Hercules custom mill at Wallace for treatment.

The expenditure made during the year by the Constitution Mining & Milling Co., whose mine is on Pine Creek, was one of the largest in the Coeur d'Alene district. The station, ore pockets, and connections for the new shaft were completed; the shaft was extended from the 400-foot level to the 600-foot level; and a large amount of development work was performed on the 400-foot level. This work resulted in greatly increasing the ore reserves of the mine. In addition to the foregoing, the installation of a large new electrically driven hoist was completed, new compressor installed, and the mill remodeled. The activities of this company and the increase of the ore bodies as depth is gained are adding greatly to the stimulus of mining in the Pine Creek section.

The Gold Hunter Mines, Inc., at Mullan, one of the oldest mines in Shoshone County in point of continuous production, maintained capacity output and an extensive development campaign during nine months of the year. The destruction by fire of the surface plant in January caused a suspension of operations. New buildings were erected, new compressor and equipment installed, and operations resumed in March. The development work greatly increased the ore reserves and added much to the future life of the mine.

The Tamarack & Custer Consolidated Mining Co., which operates one of the substantial producing mines of the Coeur d'Alene district, maintained a

steady output and an extensive mine development campaign during ten months of the year. In September operations were suspended and all mine machinery and equipment moved from the No. 6 tunnel on Nine Mile Creek and reinstalled at No. 7 tunnel on Canyon Creek. The mine camp at No. 6 tunnel was abandoned, and all operations were transferred to No. 7 tunnel, which was converted into the principal outlet in 1928. From it the ore is transported in railroad cars to the Hercules custom mill at Wallace, which treats the entire output from this mine.

The Douglas Mining Co., Ltd., whose property is located on Pine Creek near the Constitution, maintained an active development campaign throughout the year and shipped a substantial tonnage of crude ore to the Sweeny mill of the Bunker Hill & Sullivan M. & C. Co. for experimental purposes. The development work consisted principally of extending the main shaft from the 170-foot level to the 330-foot level, and drifting on the 300-foot and intermediate levels of the shaft. The new ore developed by this work was one of the most important disclosures in the Coeur d'Alene district during the year.

The Atlas Mining Co. was active throughout the year in extending the Carbonate Hill drift to a distance of 3000 feet from its principal crosscut, which is 7000 feet long. This work was successful in encountering the ore zone which had been proved in the upper workings. The new ore was considered one of the substantial developments of the district for the year.

In the early part of the year machinery and equipment were removed from No. 2 tunnel to No. 3 tunnel of the Little Pittsburg mine on Pine Creek; new buildings were erected; and an extensive mine development campaign was commenced. This work resulted in proving a substantial tonnage of commercial ore. In November this enterprise was incorporated as the Pine Creek Lead-Zinc Mining Co. and work started on the construction of a new 250-ton flotation concentrator. The activities of this company and its new ore exposures were among the principal events in Shoshone County during the year.

The Cedar Creek Mining & Development Co., Ltd., completed adjustments on its new mill and commenced milling operations in May. Its entire mine surface plant was destroyed by fire in August. New buildings were erected; a new compressor was installed; and operations were resumed in October. A limited amount of development work was performed in the mine and a small tonnage of concentrates produced and shipped.

The Coeur d'Alene Mines Corporation, a new organization at the Mineral Point mine near Osburn, erected new mine and camp buildings, constructed a power line, and installed a compressor and complete mining equipment during the early part of the year, after which an active development campaign was maintained without interruption.

In May fire destroyed the hoist and compressor of the Dickens Consolidated Mines Co., after which new buildings were erected, machinery rebuilt, a small amount of mine development work performed, and the mill operated for a few days. Five one-cent stock assessments were levied during the year, and all operations were suspended in December.

The Delaware Mines Corporation at its Red Monarch tunnel installed a two-drill compressor, and maintained active work throughout the year in the extension of this tunnel.

The Evolution Mining Co. extended its inclined shaft a distance of 500 feet, installed new pumps and much new mining equipment, and performed a large amount of drifting on the 200 and 300-foot levels of the shaft.

The General Mines Corporation at its property on Pine Creek erected new mine buildings, installed a small compressor and complete mining equipment, and late in the year commenced development operations.

The Inspiration Lead Co., Inc., a new organization on the Moe property near Mullan, erected new mine buildings and new gallows frame, installed a 550-cubic-foot compressor, hoist, and complete mining equipment, and placed the mine in condition to commence sinking a 400-foot shaft; the first part of this work consisted in raising the shaft 80 feet from the lower tunnel. In addition to the foregoing, a substantial amount of development work was performed in drifting and crosscutting in this tunnel.

The Keystone Mining Co., a reorganization of the Florence Mining & Milling Co., Ltd., on Big Creek, erected a new building and installed a new compressor and additional mining equipment.

The Lookout Mountain Mining & Milling Co. installed a new 12x12 compressor and maintained an extensive development campaign throughout the year, part of which consisted in extending for an additional 100 feet the shaft which is in the lower tunnel.

The New Jersey Consolidated Mines Co. at the King of Pine Creek mine erected four new mine buildings and a head-frame, installed two large electrically-driven compressors and electrically-driven hoist, and maintained active work throughout the greater part of the year. This consisted of sinking a vertical shaft 220 feet deep and performing a large amount of crosscutting and drifting, which resulted in proving a substantial increase in ore mineralization as depth was obtained on the vein. After this work was completed, sinking of the shaft an additional 200 feet was started. This company's expenditures were among the largest in the Pine Creek section during 1929.

The Savage Mining Co., a new organization on Nine Mile Creek near the Dayrock, erected new mine buildings and installed a power line and complete mining equipment in January, in addition to contracting the driving of a 1000-foot crosscut. In June fire destroyed the entire surface plant, which was immediately reconstructed, and operations were continued without interruption.

The Stratton Silver Summit, Inc., installed electrically-driven compressor and complete mining equipment and maintained operations without interruption throughout the year. This work consisted in extending its projected 4000-foot crosscut a distance of 2640 feet during the year to a total distance of 3040 feet. This company is one of the important new enterprises of the Coeur d'Alene district and its expenditure was one of the largest.

The Wolverine Mining Co., whose property adjoins the Alhambra on Big Creek, installed a new electrically-driven hoist and compressor, extended its shaft 150 feet to the 500-foot level, and performed a large amount of drifting on this level, which resulted in opening a substantial showing of new ore.

The Western Mines, Ltd., which is operating under lease and option the property owned by the Bell of the West Mining Co. on Nine Mile Creek, erected new camp buildings and installed a new compressor and complete mining equipment.

One of the principal new development enterprises to start in the Coeur d'Alene district during the year was the Ambergris Consolidated Mining Co., a consolidation of the Ambergris Mines Co., the Guelph Mining & Milling Co., Ltd., and the Honolulu Mining Co., Ltd., which included a right-of-way through the Hercules No. 5 tunnel. After the consolidation was completed, an active development campaign was maintained throughout the year.

Companies which employed more than five men and which conducted development work throughout the year were as follows:

The Alameda Mining Co., whose property adjoins the Success mine on Nine Mile Creek, further explored the vein by drifts and raises. The Ajax Mining Co. performed a large amount of development work on the 400-foot level of its shaft during the early part of the year, after which these operations were suspended and all development work transferred to the Bixby tunnel level. The Bobby Anderson Group Mining Co. employed ten men and performed over 1200 feet of lateral development work. The Blue Eagle Mining Co., whose property is on Pine Creek, further extended its principal tunnel. The Bismarck Mining Co. extended its crosscut 300 feet to a total distance of 1400 feet. The Consolidated Independent Calumet Mining Co. further explored its property through the lower tunnel of the National Copper Mining Co., Ltd. The Coeur d'Alene Mining & Smelting Co. extended its principal tunnel over 500 feet. The Hypotheek Mining & Milling Co. maintained an extensive development campaign on the 700 and 900-foot levels. The Hecla Extension Mining Co. performed a large amount of development work on the 600-foot level; part of this was diamond drilling. The Independence Lead Mines Co. extensively developed the Independence vein near the east end-line of the Morning mine; press reports were to the effect that this work encountered a good

showing of lead-silver ore. The Little Sunshine Mining Co. further extended its principal tunnel. The Mutual Mines Development Co. installed a new hoist and pumps and maintained an extensive development campaign, part of which consisted of sinking a new shaft. The North Star Mining & Development Co. extended its principal tunnel 400 feet. The St. Joe Lead and Silver Mines Co. extended its principal tunnel 500 feet under contract. The Teddy Mining & Milling Co., Ltd., extended its principal tunnel 600 feet under contract.

AETNA MINES CORPORATION

Office: Empire State Bldg., Spokane, Wash. **Officers:** Peter Reid, Pres.; Geo. H. Walters, Sec., both of Spokane, Wash. **Inc.:** Apr. 22, 1927. **Capital:** 1,000,000 shares; par value 25c; 800,000 shares issued. **Property:** Lucky Stone group; 2 patented, 21 unpatented claims, Evolution dist.; Wallace. **Development:** By numerous crosscuts and tunnels, the longest of which is No. 4 tunnel, 1000 ft. in length. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Press reports were to the effect that this company was merged with the Bear Top Lead Mines as Merger Mines, Inc. A stock assessment of 5 mills was levied on March 18.

AETNA MINING & MILLING CO., LTD.

Office: Wallace. **Officers:** P. J. Maggy, Pres.; W. A. Devan, Sec., both of Wallace. **Inc.:** March 9, 1915. **Capital:** 1,500,000 shares; par value 10c; all shares issued. **Property:** 4 unpatented claims, Lelande dist.; Burke. **Development:** By 2 tunnels: No. 1, 250 ft. long; No. 2, 762 ft. long. **Remarks:** Annual labor only. A stock assessment of 1 mill levied on July 25.

AJAX MINING CO.

Office: 714 W. 14th Ave., Spokane. **Officers:** F. Moriarity, Pres.; J. A. Havighorst, Sec., both of Spokane, Wash.; A. G. Anderson, Mgr., Burke. **Inc.:** Oct. 20, 1902. **Capital:** The capital stock was increased to 2,000,000 shares on July 6, 1925; par value $1; 1,613,022 shares issued. **Property:** 17 patented, 3 unpatented claims, Lelande dist.; Burke. **Development:** Principally by 3 tunnels and 3 shafts. Total development approximately 29,500 ft. Main or Bixby tunnel is located in Gorge Gulch a short distance above the town of Burke. This tunnel intersects the Ajax vein at a distance of 6000 ft., at which point is a 400-ft. vertical shaft with over 2000 ft. of drifting at the 200 and 400-ft. levels. **Plant:** MINE: Type-10 I-R 550-cu.-ft. electrically-driven air compressor; I-R No. 50 steel sharpener; Hoar shovel. **Ore:** Lead-silver. **Men employed:** Average, 13. **Remarks:** During the early part of the year a large amount of drifting and crosscutting was performed on the 400-ft. level of the shaft, after which all shaft operations were suspended and the development work transferred to the Bixby tunnel. Stock assessments were levied during the year as follows: Jan. 5, 1c; June 8, 1c; Oct. 10, 1c.

ALAMEDA MINING CO.

Office: Wallace. **Officers:** O. W. Lewis, Pres.; James A. Wayne, Sec.-Mgr., both of Wallace. **Inc.:** Feb. 14, 1910. **Capital:** 1,500,000 shares; increased on Sept. 20, 1929, to 2,000,000 shares; par value $1; 1,500,000 shares issued. **Property:** Alameda group; 8 patented, 7 unpatented claims, Lelande dist.; Wallace. **Development:** By 2 tunnels: No. 1, 500 ft. long; No. 2, 3600 ft. long. **Plant:** Electrically-driven I-R compressor and complete mining equipment. **Ore:** Lead-zinc-silver. **Men employed:** Average, 5. **Remarks:** This company's property adjoins the famous old Success mine on Nine Mile Creek. During the year a large amount of development work was performed in the Marra level, which is 130 ft. above No. 2 tunnel level, to which it is connected by a raise. Stock assessments were levied during the year as follows: May 29, 5 mills; Oct. 18, 5 mills.

ALHAMBRA MINING CO., LTD.

Office: 504 Empire State Bldg., Spokane, Wash. **Officers:** W. J. C. Wakefield, Pres., Peyton Bldg., Spokane, Wash.; William A. Corey, Sec., Spokane, Wash. **Inc.:** Dec. 26, 1898. **Capital:** 1,000,000 shares; par value $1; 987,399 shares issued. **Property:** Alhambra group; 23 patented claims,

Yreka dist.; Kellogg. **Development:** Approximately 13,200 ft. **Ore:** Lead-silver. **Plant:** MINE: 12x12 Laidlaw-Dunn Gordon electrically-driven compressor, complete mining equipment. **Remarks:** Property operated under lease by the Bunker Hill & Sullivan M. & C. Co. The 75-ton flotation concentrator which was on this property was destroyed by fire early in 1927. The lessee then rebuilt the mill formerly owned by the Big Creek Mining Co., Ltd., now known as the Crescent mill, for the treatment of ore from the Alhambra and Crescent mines. During the latter part of 1928 equipment was installed and contract let for a tunnel 1 mile in length which will open the property at a greater depth. This tunnel, known as the Hooper tunnel, was completed during 1929 to a distance of 5000 ft., where it intersected the Crescent vein.

ALICE MINING CO.

Office: Wallace. **Officers:** James F. McCarthy, Pres.; Leo J. Hoban, Sec., both of Wallace. **Inc.:** July 30, 1902. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** 21 patented, 2 unpatented claims, Hunter dist.; 3½ miles east of Wallace. **Development:** 10,000 ft. of underground workings. **Plant:** MINE: Complete mine camp and buildings. MILL: Partly dismantled 125-ton concentrator. **Ore:** Lead-silver. **Remarks:** Idle.

ALMA RAY MINING CO.

Office: Kellogg. **Officers:** Elmer E. Brown, Pres.-Mgr.; C. B. Forbes, Sec., both of Kellogg. **Inc.:** April 21, 1917. **Capital:** 1,500,000 shares; par value 25c; 800,000 shares issued. **Property:** Alma Ray group; 5 unpatented claims, Yreka dist.; Kellogg. **Development:** Principally by 2 tunnels: No. 1, 300 ft. long; No. 2, 480 ft. long. **Ore:** Lead-silver, copper. **Men employed:** Average, 2. **Remarks:** Small amount of work by contract during the year. A stock assessment of 1 mill was levied on Apr. 29, 1929.

ALPENA COPPER MINING CO., LTD.

Office: Wallace. **Officers:** C. W. Beale, Pres.; A. H. Featherstone, Sec.; J. C. Purcell, Mgr., all of Wallace. **Inc.:** Aug. 9, 1900. **Capital:** 1,000,000 shares; par value 10c; all shares issued. **Property:** Alpena group; 6 unpatented claims, St. Joe dist.; Adair. **Ore:** Copper-gold. **Remarks:** Annual labor only.

AMAZON MANHATTAN MINING CO.

Office: Wallace. **Officers:** P. J. Maggy, Clerk, Wallace. **Inc.:** A partnership. **Property:** Amazon Manhattan group; 9 patented claims, Beaver dist.; Carbonite. **Development:** By 3 tunnels: No. 1, 510 ft.; No. 2, 1180 ft.; No. 3, 3856 ft. **Ore:** Lead-zinc-silver. **Remarks:** Idle.

AMBERGRIS CONSOLIDATED MINING CO.

Office: Wallace. **Officers:** Harry L. Day, Pres.; W. B. Heitfeld, Sec., both of Wallare. **Inc.:** Dec. 14, 1928. **Capital:** 3,500,000 shares; par value $1; 3,176,324 shares issued. **Property:** Ambergris, Guelph, and Honolulu groups; 13 patented, 8 unpatented claims, Lelande & Placer Center dists.; Burke. **Development:** Mine opened and operated through No. 5 Hercules tunnel, in addition to which there are 8 intermediate tunnels and 3 shafts; total development, approximately 19,000 ft. **Plant:** Mine plant and equipment leased from Hercules Mining Co. **Ore:** Lead-silver. **Remarks:** This is a consolidation of the Ambergris Mines Co., the Guelph Mining & Milling Co., Ltd., and the Honolulu Mining Co., Ltd. After the consolidation was completed, an active development campaign was maintained throughout the year.

AMERICAN LEAD MINES, LTD.

Office: 323 Lindelle Block, Spokane. **Officers:** R. L. Brainard, Pres., Kellogg; Matt Baumgartner, Sec.-Mgr., Spokane. **Inc.:** Feb. 2, 1925. **Capital:** 1,000,000 shares; par value 10c; 661,550 shares issued. **Property:** Crescent group; 10 unpatented claims on the West Fork of Big Creek, Yreka dist.; Kellogg. **Development:** By 1 tunnel 650 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 1. **Remarks:** Annual labor only. A stock assessment of 4 mills was levied on March 27, 1929.

AMERICAN MINING CO., LTD.

Office: Wallace. **Officers:** T. Sheppard, Pres.; W. E. Stache, Sec., both of Wallace. **Inc.:** Nov. 1, 1899. **Capital:** 1,000,000 shares; par value 10c; 158,933 shares issued. **Property:** American group; 2 unpatented claims, Placer Center dist.; Wallace. **Development:** 3 tunnels: No. 1, 65 ft. long; No. 2, 80 ft. long; No. 3, 410 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of 2 mills was levied on March 29, 1929.

ANACONDA COPPER MINING CO.

Office: 25 Broadway, New York City. **Officers:** C. F. Kelley, Pres.; A. H. Melin, Sec., both of New York City. **Inc.:** Filed in Idaho, Apr. 10, 1916. **Capital:** 12,000,000 shares; par value $50; 5,415,266 shares issued. **Property:** Sunset group; 3 patented, 3 unpatented claims, Beaver dist.; Wallace. **Development:** By 1 tunnel 3600 ft. long and a vertical shaft 800 ft. deep with 4 intermediate levels. Total development, approximately 10,000 ft. **Ore:** Lead-silver-zinc. **Remarks:** Property purchased from Clark-Montana Realty Co. in September, 1928.

ANCHOR MINING CO.

Office: 825 Seventh Ave., Spokane, Wash. **Officers:** G. B. Chamberlin, Pres.; J. L. Prickett, Sec., both of Spokane, Wash. **Inc.:** Nov. 18, 1897. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Anchor group; 8 patented claims, Lelande dist.; Burke. **Development:** Principally by one tunnel 6000 ft. long and one vertical shaft 210 ft. deep. **Plant:** 20-h. p. hoist and 3-drill I-R compressor, both electrically driven. **Ore:** Lead-silver. **Remarks:** Property under option to Hecla Extension Mining Co.

ARCTIC MINING & MILLING CO., LTD.

Office: Kellogg. **Officers:** Henry Lalonde, Pres., Wallace; Geo. H. Heller, Sec., Kellogg. **Inc.:** July 5, 1907. **Capital:** 1,500,000 shares; par value $1; 519,720 shares issued. **Property:** Arctic group; 5 unpatented claims, Placer Center dist.; Wallace. **Development:** By 1 tunnel 900 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

ARGENTA MINING CO., LTD.

Office: Wallace. **Officers:** W. E. Richardson, Pres.-Mgr., Mullan; C. D. Brock, Sec., St. Maries. **Inc.:** Dec. 10, 1906. **Capital:** 1,500,000 shares; par value $1; 1,182,000 shares issued. **Property:** Argenta group; 3 patented claims, Hunter dist.; Mullan. **Development:** 2 tunnels: No. 1, 900 ft. long; No. 2, 250 ft. long. **Ore:** Lead-silver. **Remarks:** Idle throughout the year.

ATLANTIC MINING CO.

Office: Wallace. **Officers:** Herman J. Rossi, Pres.; Otto A. Olsson, Sec.-Mgr., both of Wallace. **Inc.:** June 11, 1897. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Atlantic group; 7 unpatented claims, Beaver dist.; Prichard. **Development:** Principally by 1 tunnel 340 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

ATLAS MINING CO.

Office: Mullan. **Officers:** Thomas F. Keeley, Pres., 516 E. 28th St., Chicago; Charles K. Cartwright, Sec.; W. Earl Greenough, Mgr., both of Mullan. **Inc.:** Mar. 4, 1924. **Capital:** 2,000,000 shares; par value $1; all shares issued. **Property:** Atlas group; 19 patented, 19 unpatented claims, Hunter dist.; Mullan. **Development:** 7 tunnels and 2 inclined shafts; the principal of which is the Horseshoe tunnel 7030 ft. long, at the end of which is the Carbonate Hill drift 3000 ft. long. **Plant:** Electrically-driven compressor, and complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 12. **Remarks:** The property of the Atlas Mining Co. is a consolidation of three properties, the Carbonate Hill, Idaho Giant, and Boulder Creek, on which has been done approximately 10,500 ft. of tunneling, drifting, crosscutting, and sinking. Active throughout the year in extending the Carbonate Hill drift. This work was successful in encountering the ore zone which had been proved in the upper workings. This disclosure was considered as one of the substantial developments in the Coeur d'Alene district for the year. Stock assessments were levied during 1929 as follows: March 6, 1c; Aug. 19, 1c; Dec. 18, 1c.

ATLAS X CO.
Office: Mullan. **Officers:** James A. Wayne, Pres.; M. M. Yeoman, Sec., both of Wallace; W. Earl Greenough, Mgr., Mullan. **Inc.:** Nov. 24, 1906, as Carney Copper Co., Ltd. Name changed Jan. 7, 1928. **Capital:** 1,500,000 shares; par value $1; 746,042 shares issued. **Property:** Carney group; 9 unpatented claims; Mullan. **Development:** By 3 tunnels: No. 1, 500 ft. long; No. 2, 1600 ft. long; No. 3, 1050 ft. long. **Remarks:** Control of stock in this company is held by the Atlas Mining Co.

AULBACH GROUP
Owner: Adam Aulbach, Murray. **Property:** Aulbach group; 5 patented, 1 unpatented claim, Coeur d'Alene dist.; Murray. **Development:** By 3 tunnels, the longest of which is No. 2, 450 ft. long. **Ore:** Lead-silver. **Remarks:** This property is one of the oldest locations in the Coeur d'Alene district and has been held almost continuously by the present owner.

BASIN MINING CO.
Office: Wallace. **Officers:** Jerome J. Day, Pres.; P. J. Maggy, Sec., both of Wallace. **Inc.:** June 22, 1915. **Capital:** 1,500,000 shares; par value 5c; 1,000,000 shares issued. **Property:** Basin group; 5 patented claims, Lelande dist.; Burke.

BEAR PLACER MINING CO.
Office: 608 Empire State Bldg., Spokane, Wash. **Officers:** F. R. Clark, Pres.; G. M. Johnson, Sec., both of Spokane. **Inc.:** Aug. 5, 1924. **Capital:** 10,000 shares; par value $10; 7191 shares issued. **Property:** Bear Placer group: 2 unpatented placer claims, unorganized dist.; on St. Joe River; Superior, Mont. **Ore:** Placer gold. **Men employed:** Average, 5. **Remarks:** Small amount of hydraulic equipment was installed and development work performed during a period of 5 months.

BELL MINING CO.
Office: 504 Empire State Bldg., Spokane, Wash. **Officers:** Robert C. Moffitt, Pres., Seattle; Charles Hussey, Sec., Spokane, Wash. **Inc.:** Oct. 17, 1898. **Capital:** 500,000 shares; par value 25c; 495,500 shares issued. **Property:** 9 patented claims, Lelande dist.; Wallace. **Remarks:** Under development by the United Metals Co.

BELL OF THE WEST MINING CO.
Office: Wallace. **Officers:** George R. Trask, Pres.-Mgr.; M. E. Trask, Sec., both of Wallace. **Inc.:** Oct. 23, 1899. **Capital:** 1,500,000 shares; par value 5c; all shares issued. **Property:** Bell of the West group; 2 patented, 5 unpatented claims, Placer Center dist.; Wallace. **Development:** 2 tunnels: No. 1, 250 ft. long; No. 2, 1000 ft. long with 300 ft. of crosscuts. **Ore:** Lead-silver. **Remarks:** A stock assessment of 1 mill was levied on July 30, 1929. This company's property is under option to Western Mines, Ltd.

BELMONT MINING CO., LTD.
Office: Wallace. **Officers:** James H. Taylor, Pres.-Mgr.; L. W. Defenbach, Sec., both of Wallace. **Inc.:** Mar. 26, 1900. **Capital:** 1,000,000 shares; par value $1; 330,000 shares issued. **Property:** Belmont group; 14 unpatented claims, Evolution dist.; Osburn. **Development:** Principally by 1 tunnel 1500 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

BENTON MINING CO., LTD.
Office: Wallace. **Officers:** Mary Callahan, Pres., Spokane, Wash.; E. G. Gnaedinger, Sec.-Mgr., Wallace. **Inc.:** Feb. 14, 1903. **Capital:** 1,500,000 shares; par value $1; 1,250,000 shares issued. **Property:** Benton group; 5 patented claims, Lelande dist.; Burke. **Development:** By 6 tunnels, the principal one of which is 2500 ft. long, and one vertical shaft 200 ft. deep. **Ore:** Lead-silver. **Men employed:** Average, 1. **Remarks:** Work in extending principal tunnel was conducted for 6 months. A stock assessment of 3 mills was levied on April 30, 1928.

BIG DIVIDE MINING CO., LTD.
Office: Sanger, Calif. **Officers:** Frank P. Markwell, Pres., Los Angeles, Calif.; J. F. Markwell, Sec., Sanger, Calif. **Inc.:** Aug. 23, 1904. Charter forfeited Nov. 30, 1928. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Big Divide group; 10 patented, 5 unpatented claims, Lelande dist.; Wallace. **Plant:** Large air compressor driven by 150-h. p. electric motor. **Ore:** Lead-silver. **Remarks:** Small amount of work by a lessee.

BIG ELK MINING CO., LTD.
Office: Wallace. **Officers:** Peter Peterson, Pres.-Mgr., Saltese, Mont.; A. H. Featherstone, Sec., Wallace. **Inc.:** April 26, 1909. **Capital:** 2,000,000 shares; par value $1; all shares issued. **Property:** Big Elk group; 17 unpatented claims, St. Joe dist.; Delage. **Ore:** Copper-gold. **Remarks:** Annual labor only.

BIG IT MINING & MILLING CO.
Office: Kellogg. **Officers:** H. S. Davenport, Pres., Enaville; M. L. Pratt, Sec.-Mgr., Kellogg. **Inc.:** Dec. 5, 1916. Charter forfeited Dec. 1, 1920. **Capital:** 1,500,000 shares; par value 10c; 1,058,573 shares issued. **Property:** Big It group; 13 unpatented claims, Yreka dist.; Masonia. **Development:** By 2 tunnels: No. 1, 270 ft.; No. 2, 850 ft. **Ore:** Lead-zinc-silver. **Men employed:** Average, 2. **Remarks:** Annual labor only. A stock assessment of 2 mills was levied on Jan. 3, 1929.

BIG THREE MINING CO.
Office: Wallace. **Officers:** William Tyler, Pres., Burke; Therrett Towles, Sec., Wallace. **Inc.:** Sept. 14, 1929. **Capital:** 1,500,000 shares; par value 25c; 578,000 shares issued. **Property:** 6 patented, 2 unpatented claims, patented land being held under lease and option; Lelande dist.; Burke. **Development:** By 2 tunnels: No. 1, 90 ft. long; No. 2, 600 ft. long. **Ore:** Lead-silver. **Remarks:** After organization was completed, development work was started.

BISMARCK MINING CO.
Office: Wallace. **Officers:** E. J. E. Lange, Pres., Amsterdam, Holland; W. H. Herrick, Mgr., Wallace. **Inc.:** Jan. 18, 1924. **Capital:** 1,250,000 shares; par value 10c; all shares issued. **Property:** Bismarck group; 3 unpatented claims, Big Creek, Yreka dist.; Kellogg. **Development:** By 1 tunnel 1400 ft. long. **Plant:** Gas-driven compressor; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 4. **Remarks:** Principal tunnel extended 300 ft. during the year.

BITTER ROOT MOUNTAIN MINING CO.
Office: 939 S. Cowley St., Spokane, Wash. **Officers:** W. P. Flood, Pres.; Mrs. F. A. Noteware, Sec., both of Spokane, Wash. **Inc.:** May 6, 1901. **Capital:** 1,500,000 shares; par value 5c; all shares issued. **Property:** Lookout group; 3 patented claims, Hunter dist.; Mullan. **Development:** Principally by 1 tunnel 1000 ft. long. **Ore:** Lead-silver. **Remarks:** Inactive since 1900.

BLACK BEAR MINES CO.
Office: Wallace. **Officers:** C. A. Hagan, Pres., Moscow; A. G. Kennedy, Sec., Wallace. **Inc.:** Feb. 24, 1917. **Capital:** 2,000,000 shares; par value 20c; 1,388,051 shares issued. **Property:** Black Bear group; 5 patented, 2 unpatented claims, Lelande dist.; Wallace. **Development:** Principally by 1 tunnel 4100 ft. long. **Plant:** 750 cu. ft. electrically-driven compressor; complete mining equipment. **Ore:** Lead-zinc-silver. **Remarks:** Under option to the United Metals Co.

BLACK HAWK MINING & DEVELOPMENT CO., LTD.
Office: Wallace. **Officers:** Frederick Burbidge, Pres.-Mgr.; A. W. Hoover, Sec., both of Wallace. **Inc.:** Aug. 19, 1901. **Capital:** 1,500,000 shares; par value 10c; 1,332,352 shares issued. **Property:** Black Hawk group; 13 patented claims, Yreka dist.; Kellogg. **Development:** By 2

tunnels: Black Hawk, 2920 ft. long; Page, 2600 ft. long. **Ore:** Silver-lead-zinc. **Remarks:** Property under lease to the Federal M. & S. Co., which operated it throughout the year in conjunction with the Page mine, which see.

BLAINE & EMMETT MINING CO., LTD.

Office: Kellogg. **Officers:** Merrill Heblethwaite, Pres.-Mgr., Murray; R. W. Skeman, Sec., Kellogg. **Inc.:** Dec. 20, 1909. **Capital:** 1,000,000 shares; par value $1; 485,312 shares issued. **Property:** Blaine & Emmett group; 4 unpatented claims, Eagle dist.; Prichard. **Development:** 2 tunnels: No. 1, 300 ft. long; No. 2, 650 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

BLUE EAGLE MINING CO.

Office: Kellogg. **Officers:** Ed McCarty, Pres.; C. B. Forbes, Sec., both of Kellogg. **Inc.:** Apr. 18, 1925. **Capital:** 1,500,000 shares; par value 1c. Increased Dec. 8, 1928, to 3,000,000 shares; par value 10c; 1,375,000 shares issued. **Property:** Blue Eagle group; 15 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 2 tunnels: No. 2, 285 ft. long; No. 3, 500 ft. long. **Plant:** Electrically-driven 8x9 I-R compressor; complete mining equipment. **Ore:** Lead-zinc-silver. **Men employed:** Average, 2. **Remarks:** Active work throughout the year in extending No. 3 tunnel. A stock assessment of 2 mills was levied on July 23, 1929.

BLUE RIBBON MINING CO.

Office: 601 N. Monroe St., Spokane, Wash. **Officers:** Al Harris, Sec., Spokane, Wash. **Inc.:** Oct. 22, 1914. **Capital:** 1,500,000 shares; par value 10c; 388,556 shares issued. **Property:** Blue Ribbon group; 9 unpatented claims, Hunter and Lelande dists.; Burke. **Development:** Principally by 1 tunnel 2400 ft. long. **Remarks:** Small amount of work during the summer months, funds for which were derived from stock assessments, amounts and method of levying unknown.

BLUE STAR MINING & MILLING CO., LTD.

Office: Kingston. **Officers:** Peter Weida, Pres., Kellogg; A. C. Morbeck, Sec., Kingston. **Inc.:** June 8, 1901. **Capital:** 1,000,000 shares; par value $1; 300,000 shares issued. **Property:** 160 acres patented land, Yreka dist.; Kingston.

BLUE WING MINING CO., LTD.

Office: Wallace. **Officers:** Herman J. Rossi, Sec., Wallace. **Inc.:** July 8, 1901. **Capital:** 1,000,000 shares; par value 10c; all shares issued. **Property:** Blue Wing group; 1 patented, 12 unpatented claims, Placer Center dist.; Wallace. **Ore:** Lead-silver. **Remarks:** Property under option to McPhillips Syndicate.

BOBBY ANDERSON GROUP MINING CO.

Office: Kellogg. **Officers:** F. N. Johnson, Pres., Spokane, Wash.; T. R. Mason, Sec., Kellogg. **Inc.:** June 16, 1906. **Capital:** 1,500,000 shares; par value $1. Increased on March 25, 1929, to 2,000,000 shares; par value $1; 1,933,000 shares issued. **Property:** Bobby Anderson group; 11 unpatented claims, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel 1000 ft. long and an inclined shaft 100 ft. long. **Plant:** Electrically-driven compressor and hoist; complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Men employed:** Average, 10. **Remarks:** Active development campaign maintained throughout the year, funds for which were derived from stock assessments.

BULLION MINING CO., LTD.

Office: Wallace. **Officers:** William Squance, Pres.; James H. Taylor, Sec.-Mgr., both of Wallace. **Inc.:** Dec. 5, 1902. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Bullion group; 16 patented, 1 unpatented claim, St. Joe dist.; Mullan. **Development:** 3 tunnels: No. 1, 500 ft. long; No. 2, 2000 ft. long; No. 3, 4800 ft. long; 1 vertical shaft 100 ft. deep. **Plant:** Pelton water wheel driving an I-R compressor. **Ore:** Copper-gold. **Men employed:** Average, 5. **Remarks:** Active for a period of 2 months in driving a raise to connect No. 3 and No. 2 tunnels. A stock assessment of 5 mills was levied on May 29, 1929.



PARTIAL VIEW, MINE AND MILL PLANTS, BUNKER HILL & SULLIVAN M. & C. CO.

BUNKER CHANCE MINING CO.

Office: Wardner. **Officers:** Nick Petrinovich, Pres.-Mgr.; R. L. Brainard, Sec., both of Wardner. **Inc.:** May 8, 1922. **Capital:** 1,500,000 shares; par value 25c; 1,200,000 shares issued. **Property:** Bunker Chance group; 1 patented, 6 unpatented claims, Yreka dist.; Wardner. **Development:** By 4 tunnels, the principal one of which is 725 ft. long. **Plant:** Complete mining equipment; compressed air received from North Bunker Hill Mining Co., Ltd. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** Active for 3 months in extending principal tunnel.

BUNKER HILL & SULLIVAN MINING & CONCENTRATING CO.

Office: Kellogg. **Officers:** F. W. Bradley, Pres.; J. W. Crosby, Sec., both of 1022 Crocker Bldg., San Francisco, Calif.; Stanly A. Easton, Mgr., Kellogg. **Inc.:** Originally incorporated in Oregon and filed in Idaho, Aug. 20, 1903; changed to a Delaware corporation and filed in Idaho, April 16, 1924. **Capital:** 327,000 shares common; par value $10; 20,000 shares preferred; par value $100; all common shares issued. **Property:** Bunker Hill; 362 patented, 26 unpatented claims, Yreka dist.; Kellogg. **Development:** The principal adit is the Kellogg tunnel, which is 24,000 ft. long, in which are the two principal inclined shafts, one of which is known as the White Raise, and the other the main shaft, which is approximately 2785 ft. long, giving a vertical depth of 2000 ft. below the Kellogg tunnel level. In the main shaft are 13 intermediate levels. Total development, approximately **59 miles. Plant:** MINE: Two electrically-driven hoists, two electrically-driven I-R compressors, one steam-driven Nordberg compressor. Trolley locomotive haulage in Kellogg tunnel; storage battery locomotive haulage in intermediate levels. Complete and modern machine shop, blacksmith shop and change house. MILL: Four complete and modern concentrators, including flotation: Sweeny mill, capacity 300 tons, accommodates custom ores, particularly those from Pine Creek; West mill, capacity 1200 tons, treats output from the Bunker Hill mine; South mill, capacity 600 tons, treats output from Star mine of Sullivan Mining Co.; Crescent mill on Big Creek, capacity 100 tons, treats output from Crescent and Alhambra mines. **Ore:** Lead-silver. **Men employed:** In mine, mill and smelter, average, 1390.

BUNKER HILL SMELTER

Officers: Frank M. Smith, Director, 1117 Paulsen Bldg., Spokane, Wash.; A. F. Beasley, Supt., Kellogg. **Remarks:** This smelter was erected during 1917, since which time it has been continually enlarged and improved and is now one of the most modern, complete and up-to-date plants in the United States. The smelting plant covers an area of about 30 acres and consists of complete buildings and equipment for sampling, roasting, sintering, smelting and refining lead, silver, and gold ores. During 1929 its capacity was doubled, in anticipation of the termination on Feb. 1, 1930, of the company's smelting contract with the American Smelting & Refining Co., to whom the Bunker Hill was obliged to ship one-half of its production. In addition to refined lead, silver, and gold, antimonial lead and copper sulphate are also produced. The principal supply of ore is from the company's own mine and the mines of the Coeur d'Alene district. The company is doing a general custom business and is drawing ore from all of the northwestern states as well as from British Columbia and Alaska, and is becoming a strong competitor in the smelting business. This smelter and its operations are fully described and illustrated in many of the articles listed under the bibliography of Shoshone County.

REMARKS

This company is the largest dividend payer and maintains the largest pay roll of any mine in Idaho; it is also the largest producer of lead-silver ore in the State, if not in the world; and is one of the few companies in the United States that mine, mill, smelt, refine, manufacture, and sell lead ore and lead products. The enterprise, particularly the mine and mill, has been established for such a long period and all operations

have become so well founded that it has practically expanded into a manufacturing operation. The mine is opened by over 59 miles of underground workings and has a sufficient tonnage of ore reserves to assure many years of continued operations.

During the past few years this organization has been actively engaged in prospecting and developing mining properties throughout the State, and during 1924 acquired the mines owned by the Hall-Interstate Mining Co. and the Lost Pilgrim Mining Co., situated near the head of the Deadwood River in Valley County. The interest shown in developing lead mines outside of the Coeur d'Alene district is having a tremendous influence in attracting attention to the State's undeveloped resources.

The management is progressive and intelligent and an unusual amount of initiative is shown in the conduct of the affairs of the company and civic activities. An excellent spirit of cooperation has been created and maintained in the employees, and everything possible is done to promote their welfare. The common stock was listed on the New York Curb Exchange during the latter part of 1926; in January, 1927, it sold at a low of $67.50 per share; in March, 1929, it had risen to a high of $165 per share, and in December dropped to a low of $98 per share, these being the highest and lowest points at which it sold during the year.

This company owns a 50 per cent interest with the Hecla Mining Co. in the Sullivan Mining Co., the owner of the Star mine in the Coeur d'Alene district; and a 50 per cent interest in the Alaska-Treadwell Gold Mining Co. and the Treadwell Yukon Co., Ltd., both of Alaska. Ore from the latter property was shipped to the smelter at Kellogg. In addition to the foregoing, the company is actively interested in developing properties in Nevada; at Sudbury, Ontario, Canada; and the Green Mountain group in the Elk City district, Idaho County, Idaho.

The extensive development work in the Bunker Hill mine greatly increased its resources. The completion of the shaft to the 1900-ft. level and the opening of the ore bodies at that depth, where the ore and geological conditions were found to be normal, added much to the life of the mine. The company maintained its usual production record and increased its dividends during the year, while the many plant betterments which were added greatly increased the efficiency of the enterprise. The principal betterments were the remodeling of all mills to conform with the most recent developments in flotation, many of which have been evolved under this company's direction; and the doubling of the capacity of the lead smelter. This work, in addition to the many other plant improvements, constituted the largest expenditure in new plant betterments made in the State during the year. The Crescent or Hooper tunnel, which was started late in 1928, was completed to a distance of 5000 ft., where it intersected the Crescent vein at a depth approximately 500 ft. below the upper workings. The ore exposed by this tunnel at the intersection was one of the largest and most important disclosures of new ore made in the State for a long period of years.

BURKE MINING CO., LTD.

Office: Wallace. **Officers:** Wm. Bailey, Pres.-Mgr.; John C. Glahe, Sec., both of Wallace. **Inc.:** May 31, 1902. **Capital:** 1,000,000 shares; par value $1; 770,000 shares issued. **Property:** 12 patented claims, Lelande dist.; Burke. **Development:** 2 tunnels: No. 1, 125 ft. long; No. 2, 1000 ft. long. **Ore:** Lead-silver.

BUTTE & COEUR D'ALENE DEVELOPMENT CO.

Office: Wallace. **Officers:** T. B. Cosgrove, Pres.-Mgr., Mullan; Elmer E. Johnston, Sec., Kellogg. **Inc.:** Sept. 17, 1927. **Capital:** 2,500,000 shares; par value $1; 1,789,000 shares issued. **Property:** Plymouth group; 7 unpatented claims, Hunter dist.; Mullan. **Development:** By 2 tunnels: No. 1, 400 ft. long; No. 2, 700 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of 1c was levied on Dec. 26, 1929.

CALABRIA MINING CO.

Office: Kellogg. **Officers:** Mike Amabile, Pres.; Gabriel Faraca, Sec.; Tony Faraca, Mgr., all of Kellogg. **Inc.:** Apr. 8, 1929. **Capital:** 1,000,000 shares; par value 10c; 15 shares issued. **Property:** Royal group; 5 unpatented claims, Evolution dist., Moon Creek; Kellogg. Held under lease and option. **Development:** By 3 tunnels: No. 1, 625 ft.; No. 2, 75 ft.; No. 3, 450 ft. **Plant:** Electrically-driven hoist and compressor; complete mining equipment. **Ore:** Lead-zinc-silver. **Men employed:** Average, 3. **Remarks:** Small amount of work during the year.

CALEDONIA MINING CO.

Office: Kellogg. **Officers:** Stanly A. Easton, Pres.-Mgr.; Lee Prather, Sec., both of Kellogg. **Inc.:** July 1, 1907. **Capital:** 2,605,000 shares; par value $1; all shares issued. **Property:** Caledonia; 2 patented claims, Yreka dist.; Kellogg. **Development:** Approximately 19,250 ft. of underground workings. **Plant:** Equipment rented from Bunker Hill & Sullivan M. & C. Co. **Ore:** Silver-lead. **Remarks:** Small amount of work by lessees throughout the year.

CALEDONIA SILVER-LEAD MINING CO.

Office: Kellogg. **Officers:** A. C. Beal, Pres-Mgr., Spokane, Wash.; Lester S. Harrison, Sec., Kellogg. **Inc.:** Oct. 24, 1927. **Capital:** 10,000 shares preferred, par value $5; 800,000 shares common, par value 25c; 6000 shares preferred, 1300 shares common issued. **Property:** 7 unpatented claims, Yreka dist.; Wardner. Part held under lease, and part under lease and option. **Development:** Principally by 1 tunnel 1300 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

CALIFORNIA GULCH PLACER MINING CO.

Office: Sharon. Wash. **Officers:** A. O. Rickert, Pres.-Mgr.; Flora Rickert, Sec., both of Sharon, Wash. **Inc.:** Apr. 26, 1920. **Capital:** 200,000 shares; par value 25c; all shares issued. **Property:** 8 unpatented placer claims, unorganized dist., on St. Joe River; nearest P. O., Superior, Mont.

CALLAHAN ZINC-LEAD CO.

Office: Wallace. **Officers:** D. A. Callahan, Pres.; C. W. Newton, Sec.-Mgr., both of Wallace. **Inc.:** July 18, 1912, as Consolidated Interstate Mining Co.; name changed March 25, 1921. **Capital:** 1,000,000 shares; par value $10; 716,592 shares issued.

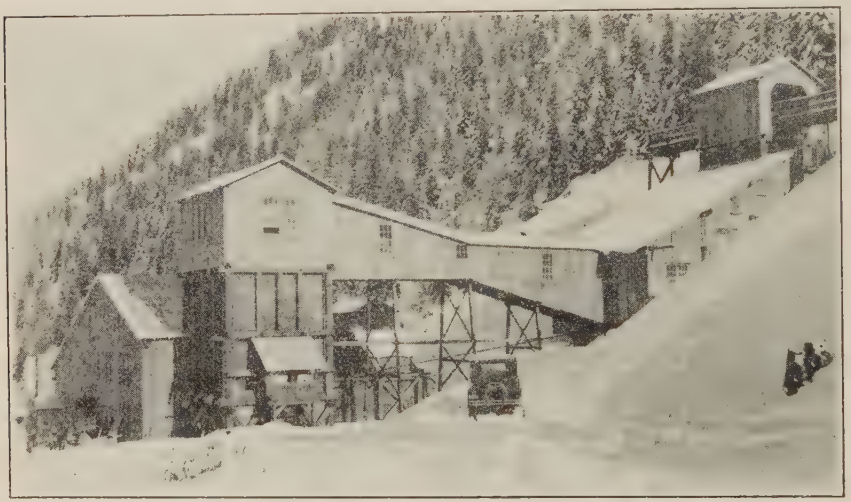
CALLAHAN MINE

Property: Interstate-Callahan group; 81 patented, 2 unpatented claims, Beaver dist.; Interstate. **Development:** Principal development is main transportation tunnel which is 5500 ft. long and a three-compartment vertical shaft 2000 ft. deep. Total development, approximately 10 miles. **Plant:** MINE: Two single drum air-driven hoists and one 250-h. p. electrically-driven double drum hoist; three large I-R electrically-driven compressors; trolley locomotive haulage in main tunnel. Complete and modern blacksmith shop, machine shop, sawmill, mine equipment, camp and company buildings. MILL: 600-ton concentrator, including flotation. **Ore:** Zinc-lead-silver. **Men employed:** Average, 2. **Remarks:** At one time this property was one of the largest zinc mines in the United States. No ore has been mined since October, 1923.

GALENA MINE

Property: Chicago-Boston, Killbuck, Vulcan, Argentine, Wallace, and Silver Range groups; 31 patented, 67 unpatented claims, Lake Gulch, Placer Center dist.; Wallace. **Development:** By 33 tunnels, a 600-ft. vertical shaft, and an 800-ft. vertical winze in the 600-ft. level. Total development, approximately 34,000 ft. **Plant:** MINE: One 150-h. p. Lidgerwood, one 200-h. p. Coeur d'Alene Hdw. electrically-driven hoist; 3 I-R electrically-driven compressors, total capacity 1500 cu. ft.; complete equipment and mine camp. MILL: 150-ton flotation. **Ore:** Lead-silver. **Men employed:** Average, 65. **Remarks:** An extensive development campaign was maintained throughout the year and the mill operated on a

one-shift basis on ore extracted in development work. The principal work consisted of crosscutting to and drifting on the 600-ft. level on the new south vein, which was discovered by diamond drilling in 1928; and a large amount of drifting and raising was performed on the 600 and 800-ft. levels in the former workings. This work resulted in exposing such a substantial amount of new ore that this company is fast becoming re-established as one of the principal producing mines of the Coeur d'Alene district. As the Galena is located in the so-called "dry belt", or south side of the district, the success it is attaining has been an important factor in stimulating development throughout this area.



GALENA MILL: CALLAHAN ZINC-LEAD CO.

CARBONATE MINING & MILLING CO.

Office: Wardner. **Officers:** C. Wiese, Pres.-Mgr., Wardner. **Inc.:** Oct. 7, 1899. **Capital:** 1,000,000 shares; par value 25c; 411,465 shares issued. **Property:** Carbonate group; 4 unpatented claims, Pine Creek, Yreka dist.; Beeler. **Development:** By 2 tunnels: No. 1, 600 ft.; No. 2, 300 ft. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only. A stock assessment of 2 mills was levied on March 2, 1929.

CEDAR CREEK MINING & DEVELOPMENT CO., LTD.

Office: Wallace. **Officers:** Charles Bollinger, Pres.; William Becker, Sec., both of Wallace. **Inc.:** June 28, 1905. **Capital:** 1,000,000 shares; par value $1; 993,754 shares issued. **Property:** Cedar Creek group; 5 patented, 28 unpatented claims, Summit dist.; Murray. **Development:** 3 tunnels: No. 1, 800 ft. long; No. 2, 1050 ft. long; No. 3, 2550 ft. long; 1 inclined shaft 343 ft. long. Total development, approximately 9500 ft. **Plant:** MINE: 12x12 electrically-driven compressor and air-driven hoist; complete mining equipment and camp. MILL: 100-ton flotation concentrator. **Ore:** Lead-zinc-silver. **Men employed:** Average, 26. **Remarks:** During the early part of the year adjustments were completed on the new mill, and milling operations started in May. Entire mine surface plant was destroyed by fire in August; new buildings were then erected, new compressor installed, and operations resumed in October. A limited amount of development work was performed in the mine and a small tonnage of concentrates produced and shipped. Stock assessments were levied during the year as follows: Jan. 8, 1c; Mar. 8, 1c; June 3, 1c; Aug. 9, 1c; Oct. 9, 1c; Dec. 14, 1c.

CENTRAL MINING CO.
Office: Burke. **Officers:** M. V. McNamee, Pres.; F. H. Richardson, Sec.; F. C. Richardson, Mgr., all of Burke. **Inc.:** Oct. 28, 1911. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Central group; 5 patented claims, lying between Hercules and Oom Paul; Lelande dist.; Burke. **Development:** Approximately 1200 ft., principally tunnels. **Ore:** Lead-silver.

CHESTER MINING CO., LTD.
Office: Kellogg. **Officers:** P. P. Weber, Pres.; C. W. Simmons, Sec., both of Kellogg. **Inc.:** July 31, 1900. **Capital:** 1,000,000 shares; par value $1; 923,945 shares issued. **Property:** Chester group; 6 patented claims, Evolution dist.; Osburn.

CINCINNATI MINING CO.
Office: Wallace. **Officers:** R. E. Seysler, Pres.; W. H. Herrick, Sec.-Mgr., both of Wallace. **Inc.:** Jan. 18, 1924. **Capital:** 1,000,000 shares; par value 25c; shares issued, unknown. **Property:** Cincinnati group; 5 unpatented claims, Hunter dist.; Mullan. **Development:** By 2 tunnels: No. 1, 500 ft. long; No. 2, 800 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

CLEAR GRIT MINING CO., LTD.
Office: Wallace. **Officers:** F. C. Rood, Pres., Longview, Wash.; E. G. Gnaedinger, Sec.-Mgr., Wallace. **Inc.:** May 9, 1906. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** 6 unpatented claims, Beaver dist.; Prichard. **Development:** By 1 tunnel approximately 2000 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

COEUR D'ALENE BIG CREEK MINING CO.
Office: 1220 First Ave. S., Seattle, Wash. **Officers:** E. J. Brown, Pres.; C. F. Uhden, Sec., both of Seattle. **Inc.:** Jan. 31, 1925. **Capital:** 1,500,000 shares; par value 10c; all shares issued. **Property:** 4 unpatented claims, Yreka dist.; Big Creek; Kellogg. **Development:** Principally by 1 tunnel 1407 ft. long. **Plant:** 12x10 C-P compressor, electrically driven; drill sharpener; complete mining equipment and camp. **Ore:** Lead-silver. **Remarks:** Annual labor only.

COEUR D'ALENE CHAMPION MINING CO.
Office: E. 1827 Sprague Ave., Spokane, Wash. **Officers:** J. Reeves, Pres.; James Keeth, Sec., both of Spokane, Wash. **Inc.:** Jan. 22, 1907. **Capital:** 1,500,000 shares; par value $1; 383,007 shares issued. **Property:** Champion group; 16 unpatented claims, Hunter and Lelande dists.; Burke. **Development:** By 4 tunnels, the principal one of which is 3200 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

COEUR D'ALENE CRESCENT MINING CO.
Office: 404 Jamieson Bldg., Spokane, Wash. **Officers:** J. B. Millspaugh, Pres.; F. W. Mauser, Sec., both of Spokane, Wash. **Inc.:** Dec. 12, 1913. **Capital:** 1,250,000 shares; par value $1; 650,000 shares issued. **Property:** Evolution group; 6 unpatented claims, Evolution dist.; Osburn. **Ore:** Lead-silver. **Remarks:** Under option to Evolution Mining Co.

COEUR D'ALENE EAGLE LEAD-SILVER MINING CO., LTD.
Office: W. 2918 Dean Ave., Spokane, Wash. **Officers:** James R. Dawson, Pres.-Mgr.; Sarepta Jonas, Sec., both of Spokane, Wash. **Inc.:** Apr. 2, 1928. **Capital:** 2,000,000 shares; par value 25c; 325,000 shares issued. **Property:** 22 unpatented claims, Yreka dist.; Pine Creek. **Development:** By 2 tunnels: No. 1, 300 ft. long; No. 2, 100 ft. long. **Ore:** Lead-zinc-silver. **Men employed:** Average, 1. **Remarks:** Active throughout the year.

COEUR D'ALENES LEAD CO.
Office: 303 Hyde Blk., Spokane, Wash. **Officers:** Walter H. Hanson, Pres., Wallace; John E. Hoppe, Sec., Spokane, Wash. **Inc.:** Apr. 28, 1927. **Capital:** 4,000,000 shares; par value $1; 3,605,860 shares issued. **Remarks:** "The only assets of this company are 500,000 shares of the capital stock of the Atlas Mining Co." Stock assessments of 5 mills each were levied on Jan. 14, Sept. 14, and Oct. 26, 1929.

COEUR D'ALENE METALS CO.

Office: Eagle Blk., Wallace. **Officers:** M. W. Neary, Pres., San Francisco, Calif.; A. G. Kennedy, Sec., Wallace. **Inc.:** Jan. 18, 1926. **Capital:** 10,000 shares; par value $100; 195 shares issued. **Property:** Lease and option on property of Great Eastern Mining Co., Ltd. **Remarks:** Idle.

COEUR D'ALENE MINES CORPORATION

Office: Box 1068, Wallace. **Officers:** George Turner, Pres.; F. E. Coffeen, Sec.; D. M. Drumheller, Mgr., all of Spokane, Wash. **Inc.:** Nov. 1, 1928. **Capital:** 3,000,000 shares; par value $1; 1,418,680 shares issued. **Property:** Mineral Point and St. Elmo groups; 2 patented, 14 unpatented claims, held under lease and option; Evolution dist.; Osburn. **Development:** By 12 tunnels: No. 3, 1000 ft. long; No. 4, 1100 ft. long; No. 5, 1800 ft. long. Total development, approximately 8000 ft. **Plant:** 350-cu.-ft. Worthington compressor, electrically driven; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 15. **Remarks:** New mine and camp buildings erected, power plant constructed, compressor and mining equipment, installed during the early part of the year, after which an active development campaign was maintained without interruption.

COEUR D'ALENE MINING CO.

Office: Ames Bldg., Boston, Mass. **Officers:** Burton E. Eames, Pres.; John P. Wright, Sec., both of Boston, Mass. **Inc.:** July 20, 1900. **Capital:** 125,000 shares; par value $10; 118,586 shares issued. **Property:** Placer claims, which were exhausted by Yukon Gold Co.

COEUR D'ALENE MINING & SMELTING CO.

Office: Wallace. **Officers:** A. D. Wallace, Pres.-Mgr.; F. F. Brewer, Sec., both of Wallace. **Inc.:** July 18, 1904. **Capital:** 1,000,000 shares; par value $1; 923,800 shares issued. **Property:** 9 unpatented claims, Placer Center dist.; Wallace. **Development:** By 2 tunnels: No. 1, 300 ft.; No. 2, 1500 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** Active development work throughout the year in extending No. 2 tunnel. Stock assessments levied during 1929 as follows: Feb. 26, 3 mills; Oct. 23, 5 mills.

COEUR D'ALENE SILVER-LEAD MINING CO.

Office: 1004 E. 8th Ave., Spokane, Wash. **Officers:** Charles J. Heidenreich, Pres., Spokane, Wash. **Inc.:** June 16, 1916; charter forfeited Dec. 1, 1922. **Capital:** 1,200,000 shares; par value $1; 752,800 shares issued. **Property:** 6 patented claims, Hunter dist.; Mullan. **Development:** By 2 tunnels: No. 1, 1200 ft. long; No. 2, 300 ft. long. **Ore:** Lead-silver. **Remarks:** Idle for 10 years.

COEUR D'ALENE SYNDICATE MINING CO.

Office: Wallace. **Officers:** Philip Wiseman, Vice-Pres.; P. Kenneth Wiseman, Sec., both of 1206 Pacific Mutual Bldg., Los Angeles, Calif. **Inc.:** Sept. 16, 1922. **Capital:** 900,000 shares; 200,000 preferred, par value $5; 700,000 common, par value $1; 85,933 common shares issued. **Property:** Flynn and Senator groups held under lease and bond; 42 patented, 4 unpatented claims, Lelande and Hunter dists.; Gem. **Development:** 11,000 ft. of underground workings. **Plant:** Electrically-driven 900-cu. ft. I-R compressor; drill sharpener and complete mining equipment; Hoar shovel. **Ore:** Lead-silver. **Remarks:** Idle.

COLUMBIA COPPER CO., LTD.

Office: Wallace. **Officers:** Joseph Huber, Pres.-Mgr., Mullan; C. W. Betts, Sec., Wallace. **Inc.:** April 24, 1914. **Capital:** 2,500,000 shares; par value $1; 1,303,635 shares issued. **Property:** Columbia group; 22 unpatented claims, Hunter dist.; Mullan. **Development:** By 11 tunnels, totaling approximately 2500 ft. **Ore:** Lead-silver, copper. **Remarks:** Annual labor only.

COMMERCIAL TRAVELER MINING CO.

Office: 203 Standard Stock Exchange Bldg., Spokane, Wash. **Officers:** H. N. Deas, Pres.; E. E. Jordan, Sec., both of Spokane; Fred McHugh, Mgr., Masonia. **Inc.:** May 6, 1926. **Capital:** 2,000,000 shares; par value 5c; 1,688,110 shares issued. **Property:** 12 unpatented claims, Pine Creek,

Yreka dist.; Kellogg; held under lease and option from Shrine Mining Co. **Development:** By 4 tunnels, the principal one of which is 1400 ft. long. **Plant:** Electrically-driven D-G compressor; complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Men employed:** Average, 4. **Remarks:** Principal tunnel was extended 400 ft. during the year, and a stock assessment of 1c was levied on Oct. 7.

COMSTOCK COPPER MINING CO.

Office: Wallace. **Officers:** Therrett Towles, Pres.; Otto A. Olsson, Sec., both of Wallace. **Inc.:** Nov. 23, 1906. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Fannie group; 5 unpatented claims, Beaver dist.; Prichard. **Development:** By 3 tunnels: No. 1, 350 ft.; No. 2, 500 ft.; No. 3, 75 ft. **Ore:** Copper-gold. **Remarks:** Annual labor only.

CONSOLIDATED INDEPENDENT CALUMET MINING CO.

Office: Wallace. **Officers:** John H. Nordquist, Pres.-Mgr.; A. G. Kennedy, Sec., both of Wallace. **Inc.:** Oct. 9, 1906, as Lucky Calumet Copper Mining Co., Ltd. Name changed Nov. 24, 1925. **Capital:** 1,500,000 shares; par value $1; 1,469,150 shares issued. **Property:** Lucky Calumet group; 13 patented, 1 unpatented claim, Hunter dist.; Mullan. **Development:** Principally by 2 tunnels: No. 1, 600 ft. long; No. 2, 1100 ft. long. Total development, approximately 5000 ft. **Plant:** Electrically-driven 5-drill I-R two-stage compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 4. **Remarks:** Active development work for 6 months. This company is developing its property through the lower tunnel of the National Copper Mining Co., Ltd. Stock assessments were levied during the year as follows: June 11, 5 mills; Oct 7, 2½ mills.

CONSTITUTION MINING & MILLING CO.

Office: Masonia. **Officers:** J. P. Graves, Pres.; B. H. Kizer, Sec., both of Spokane, Wash.; Wm. P. White, Mgr., Masonia. **Inc.:** Sept. 17, 1902. **Capital:** 1,750,000 shares; par value $1. Increased Aug. 31, 1929, to 3,500,000 shares; par value $1; 2,320,185 shares issued. **Property:** Constitution group, 14 patented, 31 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 3 tunnels: No. 1, 205 ft.; No. 2, 2508 ft.; No. 3, 2359



CONSTITUTION MINING & MILLING CO. MILL

ft.; an inclined shaft from the surface 240 ft. deep, extending to the 200-ft. level; and a vertical shaft 600 ft. deep in No. 3 tunnel. Total development, approximately 10,000 ft. **Plant:** MINE: Double-drum 150-h. p. hoist, 530-cu.-ft. C. P. and 1575-cu.-ft. I-R compressor, all electrically driven; drill sharpeners; storage-battery locomotive haulage; complete mining equipment and camp. MILL: 200-ton concentrator, fine grinding and flotation. **Ore:** Lead-zinc-silver. **Men employed:** Average, 78. **Remarks:** Expenditure made by this company during the year was one of the largest in the Coeur d'Alene district. Station, ore pockets, and connections for new shaft were completed; shaft was extended from the 400-ft. to the 600-ft. level; and a large amount of development work performed on the 400-ft. level, which resulted in greatly increasing ore reserves. Installation of large new electrically driven hoist completed, new compressor installed, and mill remodeled. This enterprise is fully described in the September, 1929, issue of the Mining Congress Journal.

COPPER CHIEF MINING CO.

Office: Wallace. **Officers:** D. E. Wickward, Pres.; James H. Taylor, Sec.-Mgr., both of Wallace. **Inc.:** Sept. 25, 1907. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Copper Chief group; 7 patented, 4 unpatented claims, St. Joe dist.; Adair. **Ore:** Copper-gold.

COPPER KING MINING & SMELTING CO.

Office: Mullan. **Officers:** F. H. Davison, Pres., Spokane, Wash.; H. W. Ingalls, Sec.-Mgr., Mullan. **Inc.:** Aug. 13, 1901. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Copper King group; 18 unpatented claims, Lelande and Hunter dists.; Mullan. **Development:** Principally by 3 tunnels: No. 1, 200 ft. long; No. 2, 2000 ft. long; No. 3, 5000 ft. long. Total development, approximately 10,000 ft. **Plant:** Electrically-driven compressor and complete mining equipment and camp. **Ore:** Lead-silver. **Remarks:** Annual labor only.

C. & R. MINING CO.

Office: 312 Old Nat'l Bank Bldg., Spokane, Wash. **Officers:** E. R. Week, Pres.; Ben L. Collins, Sec.; Russell F. Collins, Mgr., all of Spokane, Wash. **Inc.:** June 16, 1904. **Capital:** 1,250,000 shares; par value $1; all shares issued. **Property:** C. & R. group; 10 patented claims, on Sunset Peak, Lelande dist.; Burke. **Development:** By 3 tunnels: No. 1, 400 ft.; No. 2, 1200 ft.; No. 3, 6000 ft. **Plant:** Electrically-driven I-R compressor; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Small amount of development work during the year.

CUBA MINING CO.

Office: Wallace. **Officers:** W. H. Hanson, Pres.; Herman Marquardt, Sec., both of Wallace. **Inc.:** Nov. 18, 1899. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Cuba group; 2 patented claims, Placer Center dist.; Wallace. **Development:** 2 tunnels: No. 1, 500 ft. long; No. 2, 1100 ft. long. **Plant:** Electrically-driven I-R compressor; complete mining equipment. **Ore:** Lead-silver. **Remarks:** This company is controlled by the Plymouth Lead Mines Co.

DAYROCK MINES CO.

Office: Wallace. **Officers:** F. M. Rothrock, Pres., Spokane; John E. Ryan, Sec., Wallace. **Inc.:** Nov. 30, 1923, as Strattons Mines Co.; name changed Nov. 19, 1928. **Capital:** 2,000,000 shares; par value 10c; 1,710,300 shares issued. **Property:** McPhillips, Panhandle, and Monarch-Bonanza groups; 17 patented, 28 unpatented claims, Placer Center dist.; Wallace. **Development:** McPhillips group: Principally by 1 tunnel 1450 ft. long, in which is an inclined shaft 460 ft. long, with 4 intermediate levels, which opens the vein to a vertical depth of 400 ft. Panhandle group: Principally by 1 tunnel 1562 ft. long, and an inclined shaft 360 ft. long, with 3 intermediate levels, which opens the vein to a vertical depth of 253 ft. Total development in both groups, over 13,000 ft. **Plant:** Electrically-driven hoist and 2 electrically-driven compressors; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 60. **Re-**

marks: Large amount of development work performed on the 200, 300, and 400-ft. levels; new mine buildings erected; new compressor and storage-battery locomotive haulage installed. The development work greatly increased the known ore reserves, and production was maintained throughout the year. This mine is fast developing into one of the important producers of the Coeur d'Alene district, and entered the ranks of dividend-paying mines during 1929.

DECKER DEVELOPMENT CO.

Office: Kellogg. **Officers:** George Decker, Pres.-Mgr.; Mrs. M. E. Morgan, Sec., both of Kellogg. **Inc.:** Oct. 1, 1927. **Capital:** 500,000 shares; par value 10c; 244,430 shares issued. **Property:** Stewart group; 11 patented, 8 unpatented claims, held under lease; Yreka dist.; Kellogg. **Development:** By Fir tunnel, 2400 ft. long. **Ore:** Lead-silver. **Remarks:** Idle.

DEEP WONDER MINE

Office: 408 Ziegler Bldg., Spokane, Wash. **Officers:** Charles J. Kapps, Trustee, Spokane, Wash. **Property:** Deep Wonder group; 12 patented claims, Hunter dist.; Mullan. **Ore:** Lead-silver. **Remarks:** Property under lease and option to Mutual Mines Development Co.

DELAWARE MINES CORPORATION

Office: 323 Lindelle Bldg., Spokane, Wash. **Officers:** Matt Baumgartner, Pres.; A. L. Hooper, Sec., both of Spokane; F. C. Bailey, Mgr., Wallace. **Inc.:** March 10, 1926. **Capital:** 5,000,000 shares; par value 10c; 3,416,201 shares issued. **Property:** Rex and Red Monarch groups; 6 patented, 51 unpatented claims, Placer Center and Beaver dists.; Wallace. **Development:** By 4 tunnels, the principal of which are No. 4 or Rex tunnel, approximately 4000 ft. long, in which is a vertical shaft 700 ft. deep; and Red Monarch tunnel, 5400 ft. long. **Plant:** 3 electrically-driven compressors; complete mining equipment and 2 mine camps. **Ore:** Lead-zinc-silver. **Men employed:** Average, 4. **Remarks:** During the year an additional electrically-driven compressor was installed at the Red Monarch tunnel, and this tunnel was extended approximately 1000 ft. under contract. A small tonnage of ore was produced and marketed by lessees.

DICKENS CONSOLIDATED MINES CO.

Office: Mohawk Bldg., Spokane, Wash. **Officers:** Guy E. Reigel, Pres.; C. F. Kratzer, Sec., both of Spokane. **Inc.:** Mar. 18, 1925. **Capital:** 2,500,000 shares; par value 10c; all shares issued. **Property:** Dickens group; 31 unpatented claims, Moon Creek, Evolution and Yreka dists.; Kellogg. **Development:** Principally by a vertical shaft 700 ft. deep. Total development, approximately 7000 ft. **Plant:** MINE: 900-cu.-ft. Sullivan compressor and hoist, both electrically driven; complete mining equipment and camp. MILL: 150-ton flotation concentrator. **Ore:** Lead-zinc-silver. **Men employed:** Average, 30. **Remarks:** In May fire destroyed the hoist and compressor, after which new buildings were erected, this machinery rebuilt, a small amount of development work performed, and the mill operated for a few days. In December all operations were suspended. Stock assessments were levied during 1929 as follows: March 5, 1c; Apr. 29, 1c; July 17, 1c; Sept. 12, 1c; Dec. 6, 1c.

DICKENS-EAST MINING CO.

Office: 801 Realty Bldg., Spokane, Wash. **Officers:** W. Y. Clark, Pres-Mgr.; C. Fred Kratzer, Sec., both of Spokane, Wash. **Inc.:** Aug. 18, 1926. **Capital:** 2,500,000 shares; par value 10c; all shares issued. **Property:** 10 unpatented claims, Moon Creek, Yreka dist.; Kellogg. **Development:** By 2 tunnels: No. 1, 165 ft.; No. 2, 95 ft. **Ore:** Lead-zinc-silver.

DOUGLAS MINING CO., LTD.

Office: Wallace. **Officers:** Frank F. Johnson, Pres., Boise; H. C. Adami, Sec.; H. J. Rossi, Mgr., both of Wallace. **Inc.:** Oct. 24, 1903. **Capital:** 1,200,000 shares; par value $1; all shares issued. **Property:** Douglas group; 10 patented, 5 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 4 tunnels: No. 1, 930 ft.; No. 2, 1350 ft.; No. 3, 1900 ft.; No. 4, 650 ft.; and an inclined shaft 330 ft. long. **Plant:** Electrically-driven compressor and hoist; complete mining equipment and

camp. **Ore:** Zinc-lead-silver. **Men employed:** Average, 14. **Remarks:** Company maintained active development campaign throughout the year and shipped a substantial tonnage of crude ore to the Sweeny mill of the Bunker Hill & Sullivan M. & C. Co. for experimental purposes. The development work consisted principally of extending the main shaft from the 170-ft. to the 330-ft. level and drifting on the 300-ft. and intermediate levels of the shaft. The new ore developed by this work was one of the most important disclosures in the Coeur d'Alene district during the year. A stock assessment of 1c was levied on Nov. 22.

DU BOIS MINING CO.

Office: Kellogg. **Officers:** H. E. Ginter, Pres., Du Bois, Pa.; J. B. Eberhart, Sec.-Treas., Punxsutawney, Pa. **Inc.:** Aug. 9, 1914. **Capital:** 1,000,000 shares; par value $1; 300,000 shares issued. **Property:** 7 patented, 1 unpatented claim, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel 1250 ft. long. **Ore:** Lead-silver. **Remarks:** Idle for many years.

DULUTH MINING CO.

Office: Wallace. **Officers:** W. B. Heitfeld, Pres.; John E. Ryan, Sec., both of Wallace. **Inc.:** June 10, 1909. **Capital:** 1,500,000 shares; par value 25c; 384,710 shares issued. **Property:** Duluth group; 8 unpatented claims, Lelande dist.; Burke. **Development:** By 5 tunnels, with a total development of approximately 1000 ft. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of 3 mills was levied on June 17, 1929.

EAST ALAMEDA MINING CO., LTD.

Office: 689 Catalina St., Los Angeles, Calif. **Officers:** Frank P. Markwell, Pres., Los Angeles, Calif.; Everett H. Pattison, Sec., Sanger, Calif. **Inc.:** July 25, 1907. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** East Alameda group; 1 patented, 1 unpatented claim, Lelande dist.; Black Bear. **Ore:** Lead-silver.

EAST CALEDONIA MINES CO.

Office: Wallace. **Officers:** H. J. Rossi, Pres.; Franklin Pfirman, Sec., both of Wallace. **Inc.:** Mar. 6, 1915. **Capital:** 1,000,000 shares; par value 25c; 156,730 shares issued. **Property:** East Caledonia group; 2 patented, 5 unpatented claims, Yreka dist.; Kellogg. **Plant:** Electrically-driven I-R compressor, electrically-driven hoist, complete mining equipment. **Ore:** Lead-silver. **Remarks:** Annual labor only.

EAST HECLA MINING CO., LTD.

Office: Wallace. **Officers:** John P. Gray, Pres., Coeur d'Alene; A. H. Featherstone, Sec., Wallace. **Inc.:** Nov. 24, 1906. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** East Hecla group; 4 patented claims, Hunter dist.; Mullan. **Remarks:** Idle for a number of years.

EASTERN STAR MINING CO., LTD.

Office: Wallace. **Officers:** Jack Johnston, Pres.-Mgr., Burke; John C. Glahe, Sec., Wallace. **Inc.:** Aug. 29, 1906. **Capital:** 1,000,000 shares; par value $1; 600,000 shares issued. **Property:** Eastern Star group; 18 unpatented claims, Lelande dist.; Burke. **Development:** 2 tunnels: No. 1, 150 ft. long; No. 2, 900 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

ELDORADO MINING & SMELTING CO., LTD.

Office: Wallace. **Officers:** J. C. Waddell, Pres., Rose Lake; G. W. Dougherty, Sec., Wallace. **Inc.:** July 5, 1907. **Capital:** 1,250,000 shares; par value 10c; 1,204,820 shares issued. **Property:** 1 patented, 3 unpatented claims, Yreka dist.; Kellogg. **Development:** By 1 tunnel, approximately 1000 ft. long. **Plant:** Gas-driven compressor. **Ore:** Lead-silver. **Remarks:** Annual labor only.

ELGIN & OGDEN MINING CO.

Office: Kellogg. **Officers:** Wesley J. Herring, Pres.-Mgr.; H. L. Goodwin, Sec., both of Kellogg. **Inc.:** July 11, 1921. **Capital:** 1,000,000 shares; par value 5c; 633,845 shares issued. **Property:** 5 unpatented claims, Big Creek, Yreka dist.; Kellogg. **Development:** By 2 tunnels: No. 1, 500 ft.; No. 2, 450 ft. **Ore:** Lead-silver. **Remarks:** Annual labor only.

ENCHANTED HILL MINING CO.

Office: Kellogg. **Officers:** J. A. Pengelly, Pres.-Mgr.; Lester S. Harrison, Sec., both of Kellogg. **Inc.:** Feb. 27, 1928. **Capital:** 2,000,000 shares common, par value 10c; 25,000 shares preferred, par value $1; 1,500,000 shares common, all shares preferred issued. **Property:** Enchanted Hill group; 19 unpatented claims, unorganized dist.; St. Joe. **Development:** By 1 tunnel 60 ft. long. **Ore:** Lead-copper-silver. **Remarks:** Annual labor only.

ENTERPRISE MINING CO.

Office: Kellogg. **Officers:** Fred F. Donaldson, Pres.-Mgr.; W. A. Tuson, Sec., both of Kellogg. **Inc.:** June 4, 1910. **Capital:** 1,000,000 shares; par value $1; 664,500 shares issued. **Property:** Enterprise group; 8 unpatented claims; Kellogg. **Development:** By 3 tunnels: No. 1, 150 ft. long; No. 2, 180 ft. long; No. 3, 1400 ft. long. **Men employed:** Average, 1. **Ore:** Lead-silver. **Remarks:** Principal tunnel extended during the year. Stock assessments were levied during 1929 as follows: Jan. 1, 3 mills; Aug. 28, 3 mills.

EQUITABLE MINING & MILLING CO.

Office: 303 Sherman Ave., Coeur d'Alene. **Officers:** C. L. Dittimore, Pres.; H. W. Fintzel, Sec., both of Coeur d'Alene. **Inc.:** April 3, 1916. **Capital:** 1,250,000 shares; par value 1c; 599,926 shares issued. **Property:** 7 unpatented claims; Pine Creek, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel 1100 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only. A stock assessment of 1½ mills was levied in April, 1929.

EVOLUTION MINING CO.

Office: Wallace. **Officers:** Montgomery Waddell, Pres., New York City; Julius P. Hall, Mgr., Wallace. **Inc.:** July 25, 1927. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Evolution group; 8 unpatented claims, Evolution dist.; Osburn; held under lease and option from the Coeur d'Alene Crescent Mining Co. **Development:** By 1 tunnel 1500 ft. long; a vertical shaft 300 ft. deep; and an inclined shaft 800 ft. long, giving a vertical depth of 340 ft. **Plant:** Electrically-driven compressor and hoist; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 10. **Remarks:** During the year additional mining equipment and new pumps were installed; the inclined shaft was extended to the 300-ft. level; and a large amount of drifting was performed on the 200 and 300-ft. levels.

FANNIE GREMM MINING CO.

Office: Wallace. **Officers:** P. P. Weber, Pres., Kellogg; Alfred J. Dunn, Sec., Wallace. **Inc.:** Dec. 6, 1900. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** 2 patented claims adjoining the Morning mine on the east, Hunter dist.; Mullan. **Development:** Approximately 16,000 ft. of underground workings. **Ore:** Lead-silver. **Remarks:** Idle.

FEDERAL MINING & SMELTING CO.

Office: 120 Broadway, New York City. **Officers:** F. H. Brownell, Pres.; J. L. Martin, Sec., both of New York City; Frederick Burbidge, Mgr., Wallace. **Inc.:** Sept. 24, 1903. **Capital:** 200,000 shares preferred, 100,000 shares common; par value of each, $100; 114,160 shares preferred, 60,000 shares common issued.

MORNING GROUP

Property: 41 patented claims, Hunter dist.; Mullan. **Development:** The two principal tunnels are No. 5, 1600 ft. long, and No. 6, the main transportation tunnel, 9500 ft. long. The principal shaft, which is located in No. 6 tunnel, is a vertical, 4-compartment shaft, 2650 ft. deep, with 13 intermediate levels below No. 6 tunnel, which opens the vein to a depth of approximately 5000 ft. Total development, approximately 37 miles. **Plant:** MINE: 1 double-reel hoist, arranged for electric drive by means



MORNING MILL AND SURFACE PLANT, FEDERAL M. & S. CO.

of direct-current hoist motor 600 h. p., 450 r. p. m., through single reduction herringbone gear, driven by synchronous motor generator (motor 700 h. p.; generator 500 KW-D. C.) 1200 r. p. m., 265 volts; one 600-h. p. electrically-driven double-drum Nordberg hoist; one Nordberg single-drum geared hoist, driven by 300-h. p. electric motor; one water-driven 5200-cu.-ft. Ricks compressor; one Laidlaw-Dunn-Gordon 3200-cu.-ft. compressor, two Ingersoll-Rand 2500-cu.-ft. compressors, and one Prescott pump, 400 gal. capacity, on 2450 level, all electrically driven; complete mining equipment, machine shops, sawmill, company buildings and hotel. HAULAGE: 500-volt electric in main, or No. 6, tunnel; 250-volt



PAGE MINE: FEDERAL M. & S. CO.

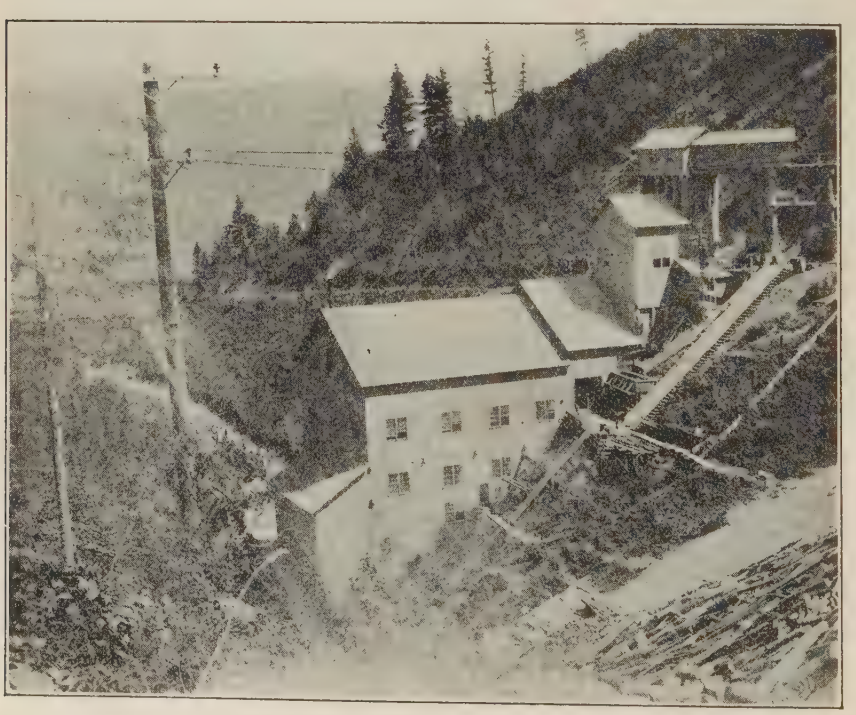
electric and 10 storage-battery locomotives in intermediate levels. MILL: 1200-ton concentrator, including flotation. Two ore-sorting plants and complete modern change house. **Ore:** Lead-silver-zinc. **Men employed:** Average, 625, exclusive of lessees. **Remarks:** Capacity production maintained throughout a large part of the year. The number of years that this record will continue is unknown, as development work on the 3250 and 3450-ft. levels has proved the ore bodies to be larger and more extensive than on any of the upper levels, and the ore on the 3450-ft. level was found to be richer in metal content than on any of the levels above it. During the year the 3250 and 3450-ft. levels were opened to the full length of the ore, and work was started on extending the shaft to the 3650-ft. level. The mine and mill plants were greatly enlarged, and the mill was improved to conform with recent developments in flotation practice. In addition to the ore mined under company operation, a large tonnage was extracted from the upper levels by a number of lessees; the most important of these is the Sheridan Lease, which employs over 100 men.

PAGE GROUP

Property: 86 patented claims, Yreka dist.; Kellogg. **Development:** By 9 tunnels, the principal one of which is the Curlew, 650 ft. long; and an inclined shaft 900 ft. long, giving a vertical depth of 700 ft. Total development, approximately 17,000 ft. **Plant:** MINE: A 100-h. p. hoist and a 75-h. p. double-drum hoist, both electrically driven; a 400-cu.-ft. and an 800-cu.-ft. electrically-driven compressor; 1 trolley locomotive and 2 storage-battery locomotives; complete and modern mine camp, equipment and buildings. MILL: 300-ton flotation concentrator. **Ore:** Lead-zinc-silver. **Men employed:** Average, 225. **Remarks:** During the year a new 2550-cu -ft. compressor was added to the mine plant; new mine and camp buildings were erected; a large amount of new mining equipment installed; and the mill enlarged and improved. The mine was operated throughout the year on a profitable basis; a large amount of development work was performed; and the ore bodies were fully opened on the 1200-ft. level, at which point they proved to be of greater extent and higher grade than on any of the upper levels. The success of this operation can be accredited entirely to flotation, because with the old milling methods it was impossible to mine and mill such low-grade ore at a profit.

MACE GROUP

Property: 35 patented claims, Lelande dist.; Mace. **Development:** Principal development consists of No. 6 tunnel, 3600 ft. long; No. 2, Campbell, 3000 ft. long; and a 3-compartment vertical shaft 2400 ft. deep, with 22 intermediate levels. Total development: Approximately 4 miles. **Plant:** MILL: Two 500-ton concentrators, including flotation. **Ore:** Lead-silver. **Remarks:** Except for the operation of a few lessees, who produced a small tonnage of ore, this property was idle. No. 6 tunnel is now known as No. 7 of the Tamarack & Custer Consolidated Mining Co.



PAGE MILL: FEDERAL M. & S. CO.

BURKE GROUP

Property: One millsite, Lelande dist.; Burke. **Plant:** A small hydroelectric power plant.

FRISCO GROUP

Property: 15 patented claims, Lelande dist.; Gem. **Development:** Principally by 4 tunnels: No. 1, 1000 ft. long; No. 2, 1500 ft. long; No. 3, 550 ft. long; No. 4, 1000 ft. long; and a vertical 4-compartment shaft 1650 ft. deep. Total development, approximately 6 miles. **Ore:** Lead-zinc-silver. **Remarks:** A substantial tonnage of ore was produced by lessees during the year.

BIG CREEK GROUP

Property: 3 patented claims, Evolution dist.; Kellogg. **Development:** By 1 tunnel, 75 ft. long. **Ore:** Lead-zinc-silver.

GOVERNMENT GULCH GROUP

Property: Five-sixteenths interest in 1 patented claim, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel, which is 500 ft. long. Total development, approximately 1700 ft. **Ore:** Lead-silver.

CON. BIEDERMAN GROUP

Property: One-half interest in 2 patented claims and one-third interest in 2 patented claims, Yreka dist.; Kellogg. **Development:** By 2 tunnels: No. 1, 320 ft. long; No. 2, 125 ft. long. **Ore:** Lead-zinc-silver.

REMARKS

This company is one of the largest operators in Shoshone County, both in property owned and in production.

FIDELITY COMPANY, LTD.

Office: Wallace. **Officers:** Oscar B. Bergstrom, Pres., 149 Broadway, New York City; Allan G. Kennedy, Sec.-Mgr., Wallace. **Inc.:** Nov. 5, 1915. **Capital:** 2,500,000 shares; par value 20c; 1,675,309 shares issued. **Property:** Monarch group; 7 patented, 29 unpatented claims, Summit dist.; Murray. **Development:** By 3 tunnels, the principal of which is No. 3, or main crosscut tunnel, which is 3120 ft. long; and an inclined shaft 300 ft. deep; total development, approximately 13,500 ft. **Plant:** MINE: Ottumwa air-driven hoist, 10-drill water-driven compressor, complete mining equipment and camp. MILL: 150-ton concentrator, jigs and tables. **Ore:** Lead-zinc-silver. **Men employed:** 1 watchman. **Remarks:** Annual labor only.

FIRST NATIONAL SILVER MINES, LTD.

Office: 323 Lindelle Blk., Spokane, Wash. **Officers:** Dan Krehbiel, Pres., Lind, Wash.; Matt Baumgartner, Sec.-Mgr., Spokane, Wash. **Inc.:** April 7, 1920. **Capital:** 3,000,000 shares; par value 5c; 2,600,000 shares issued. **Property:** Liston group; 7 patented, 26 unpatented claims, Big Creek, Evolution dist.; Kellogg. **Development:** By 3 tunnels: No. 1, 1000 ft. long; No. 2, 2500 ft. long; No. 3, 3600 ft. long. **Plant:** Steam-driven compressor, and complete mining equipment. **Ore:** Lead-silver. **Remarks:** Annual labor only.

FLAGSTAFF MINING CO.

Office: Wallace. **Officers:** Emery Guay, Pres.; Evelyn Vowels, Sec., both of Spokane, Wash.; E. L. Vowels, Mgr., Prichard. **Inc.:** Oct. 29, 1927. **Capital:** 1,000,000 shares; par value 10c, 492,155 shares issued. **Property:** Jippo group; 5 unpatented claims, Eagle dist.; Prichard. **Remarks:** Annual labor only.

FLORENCE MINING & MILLING CO., LTD.

Office: Kellogg. **Officers:** Robert R. Pence, Pres.; E. C. Franks, Sec.; L. E. Franks, Mgr., all of Spokane, Wash.. **Inc.:** Aug. 15, 1908. **Capital:** 1,000,000 shares; par value $1; 424,652 shares issued. **Property:** Dallaire group; 10 unpatented claims, Big Creek, Yreka dist.; Kellogg. **Development:** 5 tunnels: No. 1, 100 ft. long; No. 2, 150 ft. long; No. 3, 80 ft. long; No. 4, 180 ft. long; No. 5, 1700 ft. long. **Ore:** Lead-silver. **Remarks:** Property optioned to Keystone Mining Co.

FLYNN GROUP MINING CO.
Office: Wallace. **Officers:** J. J. Cronin, Pres.; J. F. Whelan, Sec., both of Wallace. **Inc.:** Aug. 21, 1905. **Capital:** 2,500,000 shares; par value 25c; 1,605,000 shares issued. **Property:** Flynn group; 21 patented claims, Lelande dist.; Black Bear. **Development:** Total development, 6600 ft. **Remarks:** Under option to Coeur d'Alene Syndicate Mining Co.

FORMOSA LEAD MINING CO., LTD.
Office: 504 Empire State Bldg., Spokane, Wash. **Officers:** Charles Hussey, Sec., Spokane, Wash. **Inc.:** Jan. 19, 1907. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** 3 patented claims, Lelande dist.; Wallace. **Remarks:** Under development by Mutual Mines Development Co., which see.

FORT WAYNE MINING CO.
Office: 213 Shannon, Spokane, Wash. **Officers:** E. W. Conrad, Pres.-Mgr., Helena, Mont.; J. M. Henneck, Sec., Spokane. **Inc.:** Sept. 22, 1924. **Capital:** 1,500,000 shares; par value 33 1-3c; 1,089,153 shares issued. **Property:** Eclipse group; 19 unpatented claims, Evolution dist.; Osburn. **Development:** Principally by 1 tunnel, which is 2300 ft. long. **Plant:** Gas-driven compressor. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of 2 mills was levied on Apr. 29, 1929.

GEM STATE MINING CO.
Office: 720 Peyton Bldg., Spokane, Wash. **Officers:** J. M. Porter, Pres.-Mgr.; W. E. Horstkotte, Sec., both of Spokane, Wash. **Inc.:** Aug. 25, 1924. **Capital:** 2,200,000 shares; no par value; 1,100,000 shares issued. **Property:** 8 patented, 12 unpatented claims, Hunter dist.; Wallace. **Development:** By 6 tunnels, the longest of which is No. 4, 1878 ft. in length. **Ore:** Lead-silver-zinc. **Remarks:** Annual labor only. Stock assessments were levied during the year as follows: May 31, 1½ mills; Nov. 7, ½ mill.

GENERAL MINES CORPORATION
Office: 402 Empire State Bldg., Spokane, Wash. **Officers:** C. Roholt, Pres., Worley; H. G. Loop, Sec., Spokane, Wash. **Inc.:** Nov. 23, 1925. **Capital:** 2,000,000 shares; par value 5c; 1,000,000 shares issued. **Property:** Big Eight group; 12 unpatented claims and 106 acres patented land, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel 2850 ft. long. **Plant:** Electrically-driven G-D compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 5. **Remarks:** During the year mine and camp buildings were erected, power line constructed, and complete mining equipment installed; principal tunnel was extended 550 ft.

GERTIE MINING CO.
Office: Wallace. **Officers:** E. E. Flood, Pres.; F. M. Rothrock, Sec., both of Spokane, Wash. **Inc.:** July 23, 1914. **Capital:** 2,500,000 shares; par value 10c; all shares issued. **Property:** Gertie group; 3 patented claims, Lelande dist.; Burke.

GIANT MINING & DEVELOPMENT CO.
Office: Wallace. **Officers:** Paul Liver, Pres.-Mgr.; E. R. Turk, Sec., both of Wallace. **Inc.:** Sept. 22, 1899. **Capital:** 1,000,000 shares; par value 10c; 650,500 shares issued. **Property:** 8 unpatented claims, Beaver dist.; Wallace. **Development:** Principally by 1 tunnel, which is 1050 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** The company was active for four months. Stock assessments were levied during the year as follows: Jan. 10, 2 mills; Aug. 21, 3 mills; Oct. 21, 3 mills.

GOLCONDA LEAD MINES
Office: Wallace. **Officers:** A. H. Featherstone, Pres.; J. F. Ferguson, Sec.; Wm. A. Beaudry, Mgr., all of Wallace. **Inc.:** Jan. 18, 1927. **Capital:** 2,000,000 shares; par value $1; all shares issued. **Property:** Hector group: 14 patented, 6 unpatented claims, Hunter dist.; Wallace; Mayflower group; 14 unpatented claims, Lelande and Hunter dists.; Wallace. **Development:** Mine opened by the Mayflower tunnel, 5000 ft. in length, an inclined raise 800 ft. long, and a vertical shaft 400 ft. deep, both from

Mayflower tunnel. **Plant:** MINE: Electrically-driven 750-cu.-ft. Sullivan compressor; 2 air-driven hoists; storage-battery locomotive haulage; sawmill, yards, and timber-shed; complete mining equipment. MILL: 200-ton concentrator, fine grinding and flotation. **Ore:** Lead-zinc-silver. **Men employed:** Average, 100. **Remarks:** New main shaft raised from the 1400-ft. to the 1000-ft. level, where it connects with haulage tunnel. Station and skip pockets cut and necessary connections driven preparatory to installing large new hoist. Development work on 1200 and 1400-ft. levels maintained, the ore proving to be of greater extent than on the 1000-ft. level. Money for these improvements was obtained from mine profits; in addition to this, the company began the payment of dividends and declared two dividends during the year.



GOLCONDA LEAD MINES: MILL

GOLD HUNTER MINES, INC.

Office: 516 E. 28th St., Chicago, Ill. **Officers:** Edwin C. Hennessy, Pres.; Thomas F. Keeley, Sec., both of Chicago, Ill.; C. K. Cartwright, Mgr., Mullan. **Inc.:** April 24, 1925; formerly Gold Hunter Mining & Smelting Co. **Capital:** 20,000 shares; par value $10; all shares issued. **Property:** Gold Hunter; 12 patented claims, Hunter dist.; Mullan. **Development:** Principal main haulage tunnel 7600 ft. long, from which level is a shaft 1500 ft. deep to the 1200-ft. level, in which there is another shaft 600 ft. deep. **Plant:** MINE: Complete and modern; electric hoist; two 3000-cu-ft. electrically-driven compressors; pumps; machine and blacksmith shop; electric haulage. MILL: 500-ton concentrator, including flotation. **Ore:** Lead-silver. **Men employed:** Average, 150. **Remarks:** Capacity output maintained and extensive development campaign conducted for nine months of the year. Destruction by fire of the surface plant in January caused a suspension of operations. New buildings were erected, new compressor and equipment installed, and operations resumed in March. The development work greatly increased the ore reserves and added much to the future life of the mine.

GOODENOUGH MINING CO.

Office: Sanger, Calif. **Officers:** F. P. Markwell, Pres., Los Angeles, Calif.; J. Fred Markwell, Sec., Sanger, Calif. **Inc.:** Apr. 6, 1922. **Capital:** 2,500,000 shares; par value 1c; all shares issued. **Property:** Goodenough group; 13 patented, 5 unpatented claims, Lelande and Hunter dists.; Gem. **Remarks:** Property under option to United Metals Co.

GOVERNMENT GULCH MINING CO.

Office: Wallace. **Officers:** Frederick Burbidge, Pres.-Mgr.; A. W. Hoover, Sec., both of Wallace. **Inc.:** July 15, 1918. **Capital:** 1,500,000 shares; par value 10c; 1,350,567 shares issued. **Property:** Government Gulch group; 6 patented claims, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel 500 ft. long and a vertical shaft 100 ft. deep. Total development, approximately 1800 ft. **Ore:** Lead-zinc-silver. **Remarks:** Idle.

GREAT DUNKER MINING & MILLING CO.

Office: 316 Lindelle Bldg., Spokane, Wash. **Officers:** J. G. Johnson, Pres., Spokane, Wash.; Carl A. Pearson, Sec.-Mgr., Star Route, Kellogg. **Inc.:** Jan. 11, 1924. **Capital:** 1,000,000 shares; par value 10c; 315,980 shares issued. **Property:** Great Dunker group; 3 patented, 2 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 7 short tunnels. **Ore:** Lead-zinc-silver, antimony. **Men employed:** Average, 2. **Remarks:** Annual labor only.

GREAT EASTERN MINING CO., LTD.

Office: Wallace. **Officers:** John Carlson, Pres., Medimont; John C. Furst, Sec., Wallace. **Inc.:** Oct. 22, 1900. **Capital:** 1,000,000 shares; par value $1; 750,000 shares issued. **Property:** Great Eastern group; 12 patented claims, Lelande dist.; Gem. **Development:** Total development, approximately 4000 ft.; the principal tunnel is 600 ft. long. **Ore:** Lead-silver-zinc.

GREEN HILL CLEVELAND MINING CO.

Office: Wallace. **Officers:** F. H. Brownell, Pres., 120 Broadway, New York City; John H. Wourms, Sec.; Frederick Burbidge, Mgr., both of Wallace. **Inc.:** Oct. 7, 1912. **Capital:** 320,000 shares; par value $1; all shares issued. **Property:** Green Hill group; 3 patented claims, Lelande dist.; Mace. **Ore:** Silver-lead-zinc. **Remarks:** Idle since 1917.

HAPPY DAY MINING CO., LTD.

Office: Day Bldg., Wallace. **Officers:** Daniel Morgan, Pres., Spokane, Wash.; John E. Ryan, Sec., Wallace. **Inc.:** Sept. 30, 1899. **Capital:** 1,000,000 shares; par value 10c; 791,737 shares issued. **Property:** Happy Day group; 6 patented claims, Lelande dist.; Burke. **Development:** Principally by 1 tunnel 1500 ft. long. **Ore:** Lead-silver.

HAYES CO.

Office: Kellogg. **Officers:** Arthur Hays, Pres.; R. S. Handy, Sec.; Stanly A. Easton, Mgr., all of Kellogg. **Inc.:** May 11, 1916. **Capital:** 25,000 shares; par value $1; 12,500 shares issued. **Property:** 1200 acres river bottom land held under lease; Yreka dist.; Kellogg. **Plant:** MILL: 100-ton flotation concentrator; Orange-peel dredge and sand pumps. **Ore:** Lead-silver from river tailings. **Men employed:** Average, 12. **Remarks:** Profitably operated throughout the early part of the year. Tailings which were being reclaimed were exhausted, so operations were suspended and the mill was dismantled.

HECLA EXTENSION MINING CO.

Office: Wallace. **Officers:** Chas. Oster, Pres., Wallace; George C. Hollister, Sec., 50 Broadway, New York. **Inc.:** Oct. 21, 1926. **Capital:** 1,500,000 shares; par value 25c; all shares issued. **Property:** Anchor group; 8 patented claims, held under lease and option from the Anchor Mining Co., and 7 unpatented claims; Lelande dist.; Burke. **Development:** By 2 tunnels: No. 1, 700 ft. long; No. 2, 2800 ft. long; and a 600-ft. vertical shaft. **Plant:** Electrically-driven I-R compressor; electrically-driven hoist; and complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 16. **Remarks:** An active development campaign, which consisted principally of diamond drilling and drifting on the 600-ft. shaft level, was maintained throughout the year.

HECLA MINING CO.

Office: Wallace. **Officers:** James F. McCarthy, Pres.-Mgr.; L. E. Hanley, Sec., both of Wallace. **Inc.:** Sept. 26, 1898. **Capital:** 1,000,000 shares; par value 25c; all shares issued. **Property:** 47 patented, 1 unpatented claim, Lelande dist.; Burke. **Development:** Principally by a 4-compartment vertical shaft, which is 2800 ft. deep, and a 3-compartment vertical shaft from the 2000-ft. level, which is 800 ft. deep. Total development, approximately 9 miles. **Plant:** MINE: 2 electrically-driven I-R compressors, totaling 7500 ft., housed in steel and concrete buildings; one of the largest, most complete and modern mine plants in the United States; 2 electrically-driven hoists. MILL: 700-ton concentrator, including flotation. **Ore:** Lead-silver. **Men employed:** Average, 485.



HECLA MINING CO.'S MILL

REMARKS

This company, which is recognized as one of the principal lead-silver producing companies of the United States, greatly increased its ore reserves and resources in the Hecla mine. The vein was further explored on the 2800-ft. level and work was completed in sinking the main shaft and cutting the station on this level. The mill plant was enlarged and improved, and the mine was maintained in first-class condition. In addition to this the installation of two new electrically-operated hoists was completed; these hoists constitute one of the largest and most expensive installations in the United States. (See pages 19 to 22 for complete description of this installation.) The company was actively engaged in developing two other properties in the Coeur d'Alene district, and installed a new mill and complete mine camp at the Union mine in British Columbia. Also, an active scouting and investigation campaign in the search for additional properties was maintained throughout the year.

The Hecla management are progressive and intelligent; they have engendered an excellent spirit of cooperation among the employees and are giving the utmost consideration to safety and welfare provisions. Under such conditions, and with the life of the mine assured for many years, the outlook for the company is exceedingly favorable.

HERCULES EXPLORATION CO.

Office: Day Bldg., Wallace. **Officers:** Harry L. Day, Pres.; W. H. Heitfeld, Sec., both of Wallace. **Inc.:** Nov. 27, 1928. **Capital:** 10,000 shares; par value $100; 10 shares issued.



HECLA MINING CO.: MINE BUILDINGS AND TOWN OF BURKE

HERCULES MINING CO.

Office: Wallace. **Officers:** Harry L. Day, Pres.-Mgr.; A. P. Ramstedt, Sec., both of Wallace. **Inc.:** Dec. 31, 1923. **Capital:** 500,000 shares; par value $10; 430,180 shares issued.

HERCULES GROUP

Property: Hercules group, 36 patented claims; Columbia lode, 1 patented claim; Lelande and Placer Center dists.; Burke. **Development:** Principally by 5 tunnels: No. 1, 280 ft.; No. 2, 3350 ft.; No. 3, 3900 ft.; No. 4, 5900 ft.; No. 5, 8550 ft.; and a 4-compartment vertical shaft 1300 ft. deep, with 8 intermediate levels. Total development, approximately 18 miles. **Plant:** MINE: Special first motion, double-reel, Nordberg electric hoist, direct connected to 700-h. p. motor. One 22x16 I-R and 1 29x21 I-R compressor, both electrically driven. Electric trolley locomotive in main transportation tunnel and storage-battery locomotives in intermediate levels. Complete and modern mine equipment and shops. MILL: 900-ton concentrator, including flotation. **Ore:** Lead-silver. **Men employed:** Average, 95.

MAHER-HEARN GROUP

Property: 38 patented claims; Lelande dist.; Burke. **Development:** Through 4500-ft. tunnel of Gertie Mining Co., at the end of which is over 4000 ft. of tunnel and a 400-ft. vertical shaft. **Plant:** Electrically-driven 1000-cu.-ft. I-R compressor; air-driven hoist; trolley electric locomotive haulage; complete and modern equipment. **Ore:** Lead-silver.

REMARKS

During the year the Hercules mine surface plant and tunnel No. 5 were used in the operation of the Sherman Lead Co., the Humming Bird Mining Co., and the Ambergris Consolidated Mining Co., the two former of which performed a large amount of development work and produced a substantial tonnage of ore; this ore was transported to Wallace and treated in the Hercules custom mill, which also treated the ores from the Tamarack & Custer Consolidated Mining Co., the Dayrock Mines Co., and 22 other properties. During the year the reconstruction of this mill was fully completed. (See pages 23 to 27 for complete description.)

The principal mines and companies which this company owns or controls are: Hercules and Haher-Hearn mines; Dayrock Mines Co.; Ambergris Consolidated Mining Co.; Sherman Lead Co.; Humming Bird Mining Co.; Roanoke Mining Co.; Stanley Mining Co.; Happy Day Mining Co.; Western Union Mining Co.; Success Mining Co., Ltd.; and Marsh Mines, Cons. The following of these produced a substantial tonnage during the year: Humming Bird Mining Co.; Dayrock Mines Co.; Sherman Lead Co.; and Tamarack & Custer Consolidated Mining Co. Lessees at the Success mine produced a small amount of ore.

HIDDEN TREASURE MINING CO.

Office: Wallace. **Officers:** Frederick Burbidge, Pres.-Mgr.; A. W. Hoover, Sec., both of Wallace. **Inc.:** May 18, 1908. **Capital:** 500,000 shares; par value $10; all shares issued. **Property:** Hidden Treasure group; 4 patented claims, Lelande dist.; Burke. **Development:** Principally by 1 tunnel 2540 ft. long. **Ore:** Silver-lead-zinc.

HIGH CROPPING SILVER-LEAD MINING CO.

Office: Burke. **Officers:** Hugh Gibson, Pres.-Mgr.; J. F. Hurtubise, Sec., both of Burke. **Inc.:** Sept. 18, 1924. **Capital:** 1,500,000 shares; par value 25c; 255,500 shares issued. **Property:** High Cropping group; 6 unpatented claims, Lelande dist.; Burke. **Development:** 1 tunnel, 310 ft. long.

HIGH GRADE MINING CO.

Office: Kellogg. **Officers:** J. V. Regan, Pres., Beverly, Wash.; Donald Ross, Sec.-Mgr., St. Maries. **Inc.:** Mar. 5, 1923. **Capital:** 1,500,000 shares; par value 10c; 600,000 shares issued. **Property:** High Grade group; 5 unpatented claims, Elk Creek, Yreka dist.; Kellogg. **Development:** By 1 tunnel 500 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** Small amount of work during the summer months.

HIGHLAND-SURPRISE CONSOLIDATED MINING CO.
Office: Kellogg. **Officers:** Dr. Charles R. Mowery, Pres., Wallace; George D. Lamielle, Sec., Kellogg. **Inc.:** Aug. 27, 1912. **Capital:** 1,200,000 shares; par value $1; 1,190,552 shares issued. **Property:** 3 patented, 36 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** Approximately 2 miles of underground workings. **Plant:** MINE: A 7-drill I-R compressor, electrically driven; complete mining equipment and camp. MILL: 150-ton concentrator. **Ore:** Lead-zinc-silver. **Men employed:** Average, 6. **Remarks:** Annual labor only.

HILARITY LEAD-SILVER MINING CO.
Office: Mullan. **Officers:** J. A. Glowe, Pres.; C. W. Ingram, Sec.- Mgr., both of Mullan. **Inc.:** Apr. 24, 1916, as Pine Creek Mining & Milling Co.; name changed May 7, 1923. **Capital:** 2,000,000 shares; par value 10c; 1,250,000 shares issued. **Property:** 12 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel 500 ft. long, and a 200-ft. vertical shaft. **Plant:** Electrically-driven compressor; complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only. A stock assessment of 5 mills was levied on March 2, 1929.

HILL MINING & MILLING CO.
Office: First State Bank Bldg., Kellogg. **Officers:** Elmer Brown, Pres.-Mgr.; F. Wm. Voightlander, Sec., both of Kellogg. **Inc.:** May 10, 1916. **Capital:** 1,000,000 shares; par value 2c; 500,000 shares issued. **Property:** Hill group; 4 unpatented claims, Yreka dist.; Kellogg. **Development:** By 1 tunnel 800 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

HORNSILVER MINING & MILLING CO.
Office: Coeur d'Alene. **Officers:** Ben L. Collins, Pres., 312 Old Nat'l Bank Bldg., Spokane, Wash.; Russell F. Collins, Sec.-Mgr., Coeur d'Alene. **Inc.:** May 31, 1901. **Capital:** 1,000,000 shares; par value 10c; 694,505 shares issued. **Property:** 5 unpatented claims, Placer Center dist.; Wallace. **Development:** 1 tunnel, 1000 ft. long. **Ore:** Lead-silver-gold. **Remarks:** annual labor only.

HORSESHOE MINING CO.
Office: Mullan. **Officers:** Jas. B. Scoles, Pres.-Mgr., Mullan. **Inc.:** July 16, 1908. **Capital:** 1,500,000 shares; par value $1; 900,000 shares issued. **Property:** Horseshoe group; 9 unpatented claims, Hunter dist.; Mullan. **Development:** 2 tunnels: No. 1, 400 ft. long; No. 2, 3000 ft. long. **Ore:** Lead-silver. **Remarks:** Tunnel controlled by Atlas Mining Co.

HULL SILVER-LEAD CORPORATION
Office: Wallace. **Officers:** W. H. Moore, Pres.; P. J. Maggy, Sec., both of Wallace. **Inc.:** July 1, 1929. **Capital:** 2,000,000 shares; par value $1; all shares issued. **Property:** 4 unpatented claims, Lelande dist.; Wallace. **Development:** By 1 tunnel 165 ft. long. **Ore:** Silver-lead.

HUMBOLDT MINING & MILLING CO.
Office: Wallace. **Officers:** E. B. Quackenbush, Pres.; Geo. Noble, Sec., both of Spokane, Wash.; C. E. Biggs, Mgr., Wallace. **Inc.:** Apr. 13, 1929. **Capital:** 3,000,000 shares; par value 50c; 1,500,000 shares issued. **Property:** Deer Creek group; 23 unpatented claims, Beaver dist.; Wallace. **Development:** By 3 tunnels: No. 1, 200 ft.; No. 2, 800 ft.; No. 3, 300 ft.; and a vertical shaft 100 ft. deep. **Plant:** Gas-driven Sullivan compressor; air-driven hoist; complete mining equipment and camp. **Ore:** Lead-silver. **Remarks:** Idle. A reorganization of the Deer Creek Mining Co.

HUMMING BIRD MINING CO.
Office: Burke. **Officers:** Harry L. Day, Pres.-Mgr., Wallace; W. H. Hoover, Sec., Burke. **Inc.:** June 27, 1898. **Capital:** 1,500,000 shares; par value $1; 1,411,075 shares issued. **Property:** Humming Bird group; 18 patented claims, Lelande dist.; Burke. **Development:** Total development, approximately 12,400 ft. of tunnels, the principal of which are No. 4, 1253 ft. long, and No. 5, Hercules, 12,086 ft. long. **Plant:** All equipment used in

operation furnished by Hercules Mining Co. **Ore:** Lead-silver. **Men employed:** Average, 13. **Remarks:** In addition to performing a large amount of development work, the company produced a substantial tonnage of ore, which was milled at the Hercules mill.

HYPOTHEEK MINING & MILLING CO.

Office: Wallace. **Officers:** E. G. Gnaedinger, Pres.; Otto A. Olsson, Sec.-Mgr., both of Wallace. **Inc.:** Feb. 13, 1901. Capital: 2,000,000 shares; par value 10c; all shares issued. **Property:** 760 acres of patented land, Yreka dist.; Kellogg. **Development:** By 2 tunnels: No. 1, 700 ft. long; No. 2, 1500 ft. long; and a vertical shaft 1100 ft. deep. Total development, approximately 37,000 ft. **Plant:** MINE: Double-drum electric hoist; No. 10 I-R compressor, electrically driven; machine shop; sawmill; and complete mining equipment; 12 buildings. MILL: 200-ton concentrator. **Ore:** Lead-silver. **Men employed:** Average, 7. **Remarks:** A large amount of exploration work was performed on the 700 and 900-ft. levels during the year. Stock assessments were levied during 1929 as follows: June 11, 1c; Oct. 10, 1c.

IDAHO AMERICAN MINING & MILLING CO.

Office: Kellogg. **Officers:** Lloyd McDougall, Pres.; C. R. Blegen, Sec., both of Kellogg. **Inc.:** Feb. 7, 1923. **Capital:** 100,000 shares; increased Mar. 30, 1926, to 2,000,000 shares; par value 25c; 808,957 shares issued. **Property:** O. K. group; 13 patented claims, Yreka dist.; Kellogg. **Development:** By 2 tunnels: No. 1, 400 ft. long; No. 2, 1200 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** Idle.

IDAHO COPPER MINING CO., LTD.

Office: Wallace. **Officers:** W. H. Herrick, Pres.; A. H. Featherstone, Sec., both of Wallace. **Inc.:** Aug. 24, 1906. **Capital:** 1,250,000 shares; par value $1; all shares issued. **Property:** 3 patented claims, Hunter dist.; Mullan. **Ore:** Copper. **Remarks:** Idle for a number of years.

IDAHO & EASTERN MINING & MILLING CO.

Office: Wallace. **Officers:** John H. Wourms, Pres.; W. A. Devan, Sec., both of Wallace. **Inc.:** Aug. 20, 1903. **Capital:** 1,000,000 shares; par value $1; 910,215 shares issued. **Property:** Idaho & Eastern group; 3 patented, 2 unpatented claims, Lelande dist.; Burke. **Development:** By 1 tunnel 86 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

IDAHO GALENA MINING CO.

Office: Wallace. **Officers:** A. H. Featherstone, Pres.; Herman Marquardt, Sec.; C. A. Fay, Mgr., all of Wallace. **Inc.:** July 28, 1927. **Capital:** 5,000,000 shares; par value 25c; 3,500,000 shares issued. **Property:** 10 unpatented claims, Placer Center dist.; Wallace. **Development:** By 1 tunnel 250 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

IDAHO-LEADVILLE MINES CO.

Office: 823 First Ave., Spokane, Wash. **Officers:** Thomas Fahey, Pres.; E. P. Ryan, Sec., both of Spokane, Wash. **Inc.:** Apr. 1, 1914. **Capital:** 1,000,000 shares; par value 10c; 548,020 shares issued. **Property:** 12 unpatented claims, Evolution dist.; Osburn. **Development:** By 2 tunnels: No. 1, 900 ft. long; No. 2, 145 ft. long. **Ore:** Lead-silver. **Remarks:** Idle.

IDAHO & LOS ANGELES MINING & MILLING CO.

Office: Wallace. **Officers:** Thomas McCabe, Pres.; Alfred J. Dunn, Sec.-Mgr., both of Wallace. **Inc.:** June 6, 1904; charter forfeited Dec. 2, 1916. **Capital:** 1,000,000 shares; par value $1; 820,000 shares issued. **Property:** 16 patented claims, Beaver dist.; Wallace. **Development:** By 3 tunnels: No. 1, 150 ft. long; No. 2, 1700 ft. long; No. 3, 800 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** Idle.

IDAHO-MONTANA AND ORLANDO CONSOLIDATED MINING CO.

Office: Wallace. **Officers:** John A. Swan, Pres.-Mgr.; Carl Johnson, Sec., both of Burke. **Inc.:** July 14, 1925. **Capital:** 1,500,000 shares; par value 10c; 1,037,002 shares issued. **Property:** 7 unpatented claims, Lelande dist.; Burke. **Development:** By 3 tunnels: No. 1, 80 ft. long; No. 2, 500 ft. long; No. 3, 600 ft. long. **Ore:** Lead-silver. **Remarks:** Idle.

IDAHO STAR MINING CO.
Office: 212 Eagle Bldg., Spokane, Wash. **Officers:** Hans Peterson, Pres.; R. T. Lawrence, Sec.-Mgr., both of Spokane, Wash. **Inc.:** Oct. 8, 1924. **Capital:** 1,500,000 shares; par value 10c; all shares issued. **Property:** 24 unpatented claims, St. Joe dist.; Adair. **Development:** By 1 tunnel 630 ft. long. **Plant:** Water-driven compressor. **Ore:** Lead-silver. **Remarks:** Principal tunnel extended 60 ft. during the year.

IDORA MINING CO., LTD.
Office: Jamieson Blk., Spokane, Wash. **Officers:** James C. Broad, Pres.; C. E. Mallette, Sec.-Mgr., both of Spokane, Wash. **Inc.:** Apr. 23, 1915. **Capital:** 1,500,000 shares; par value 10c; 600,000 shares issued. **Property:** Idora group; 1 patented, 8 unpatented claims, Beaver dist.; Carbonite. **Plant:** MINE: 1 electrically-driven compressor. MILL: 100-ton concentrator. **Ore:** Lead-zinc-silver. **Remarks:** Property under lease and option to Yolanda Mining Co.

IMPERIAL MINING CO.
Office: Wallace. **Officers:** William Becker, Pres.; Homer G. Brown, Sec.-Mgr., both of Wallace. **Inc.:** Nov. 21, 1906. **Capital:** 1,500,000 shares; par value $1; 1,174,931 shares issued. **Property:** Imperial group; 8 patented claims, Lelande dist.; Burke. **Development:** Principally by 2 tunnels: No. 2, 1000 ft. long; No. 3, 4000 ft. long. Total development, approximately 10,000 ft. **Plant:** Electrically-driven 4-drill I-R compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Remarks:** Idle throughout the year.

INDEPENDENCE LEAD MINES CO.
Office: Wallace. **Officers:** W. D. Greenough, Pres., Spokane, Wash.; Herman Marquardt, Sec.; Henry B. Kingsbury, Mgr., both of Wallace. **Inc.:** Nov. 12, 1929. **Capital:** 4,000,000 shares; par value $1; 2,800,000 shares issued. **Property:** Independence group, 10 patented claims; American Commander group, 2 patented claims; Hunter dist.; Mullan. **Development:** American Commander group: By 4 tunnels: No. 1, 190 ft. long; No. 2, 1160 ft. long; No. 3, 1300 ft. long; No. 4, 2500 ft. long. Independence group: Principally by 4 tunnels: No. 1, 100 ft. long; No. 2, 300 ft. long; No. 3, 1200 ft. long; No. 4, 6000 ft. long; and a vertical raise 313 ft. long connecting No. 3 and No. 4 tunnels. **Plant:** Electrically-driven 9x12 Sullivan compressor; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 7. **Remarks:** An extensive development campaign in No. 4 tunnel, near the east end-line of the Morning mine and the west end of the Independence, was maintained throughout the year. Press reports were to the effect that this work encountered a good showing of lead-silver ore. This company is a consolidation of the American Commander Mining & Milling Co., Ltd., and the Independence Lead Mines, Ltd., which was perfected in November. Prior to that date the Independence Lead Mines, Ltd., levied the following assessments: Jan. 15, 1c; June 8, 1c. After the consolidation a stock assessment of 1c was levied on Nov. 14.

INDEPENDENCE MINING CO., LTD.
Office: Wallace. **Officers:** W. A. Taylor, Pres.-Mgr.; Jessie E. Adam, Sec., both of Wallace. **Inc.:** June 5, 1928. **Capital:** 1,500,000 shares; par value 10c; 758,500 shares issued. **Property:** 17 unpatented claims, Eagle dist.; Murray. **Ore:** Lead-silver.

INLAND EMPIRE MINING & MILLING CO.
Office: 310 Ziegler Bldg., Spokane, Wash. **Officers:** A. C. Schirmer, Pres.-Mgr., Hibbing, Minn.; John H. Roche, Sec., Spokane, Wash. **Inc.:** June 18, 1910. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Never Sweat; 1 patented claim, Lelande dist.; Burke. **Development:** By 2 tunnels: No. 1, 350 ft. long; No. 2, 400 ft. long; and an inclined shaft 300 ft. deep. **Plant:** Electrically-driven compressor and complete mining equipment. **Ore:** Lead-silver.

INSPIRATION LEAD CO., INC.

Office: Wallace. **Officers:** L. K. Stratton, Pres.; W. J. Stratton, Sec.-Mgr., both of Wallace. **Inc.:** Aug. 14, 1929. **Capital:** 10,000,000 shares; par value 10c; 6,400,000 shares issued. **Property:** Lease and option on property of Moe Mining Co. and Troy group, Hunter dist.; Mullan. **Development:** By 3 tunnels: No. 1, 500 ft. long; No. 2, 1100 ft. long; No. 3, 2400 ft. long. **Plant:** 14x12 I-R compressor and hoist, both electrically driven; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 6. **Remarks:** After acquiring the property, company erected new buildings and head-frame; installed compressor, hoist, and complete mining equipment; and started work in sinking a 400-ft. shaft, the first 80 ft. of which was a raise from No. 2 tunnel to the surface. A substantial amount of development work was performed in drifting and crosscutting in No. 3 tunnel.



SURFACE PLANT OF INSPIRATION LEAD CO., INC.

INTERNATIONAL MINES, LTD.

Office: Wallace. **Officers:** James White, Pres.; A. H. Featherstone, Sec., both of Wallace. **Inc.:** July 2, 1903. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** 13 patented claims, Lelande dist.; Burke. **Ore:** Lead-silver. **Remarks:** Idle for many years.

INTERNATIONAL MINING CO.

Office: Kellogg. **Officers:** C. A. May, Pres., Minneapolis, Minn.; Fred C. May, Mgr., Kellogg. **Inc.:** July 8, 1912. **Capital:** 1,000,000 shares; par value $1; shares issued, unknown. **Property:** International group; 7 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 2 tunnels: No. 1, 150 ft.; No. 2, 1500 ft. **Plant:** Gas-driven compressor; complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

IONE MINING CO.

Office: Wallace. **Officers:** O. M. Nordquist, Pres.-Mgr.; L. L. Brainard, Sec., both of Wallace. **Inc.:** Dec. 19, 1922. **Capital:** 1,500,000 shares; par value 10c; 300,000 shares issued. **Property:** Ione group; 3 unpatented claims, Summit dist.; Murray. **Ore:** Lead-silver. **Remarks:** Annual labor only.

IRON KING MINING CO., LTD.
Office: Wallace. **Officers:** Herman J. Rossi, Pres.; Otto A. Olsson, Sec., both of Wallace. **Inc.:** Jan. 8, 1904. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Iron King group; 4 unpatented claims, Evolution dist.; Wallace. **Development:** Principally by 2 tunnels: No. 1, 2000 ft. long; No. 2, 150 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

IVANHOE MINING CO., LTD.
Office: Mullan. **Officers:** J. A. Bean, Pres., Los Angeles, Calif.; C. D. Miller, Sec., Mullan. **Inc.:** Oct. 18, 1906. **Capital:** 1,500,000 shares; par value $1; 1,494,950 shares issued. **Property:** 2 patented claims, Hunter dist.; Mullan. **Ore:** Lead-silver. **Remarks:** Idle for many years.

JACK WAITE CONSOLIDATED MINING CO.
Office: Wallace. **Officers:** Herman J. Rossi, Pres.; R. C. Russell, Sec., both of Wallace; M. L. Savage, Mgr., Kellogg. **Inc.:** Jan. 30, 1928. **Capital:** 5,000,000 shares; par value $1; 4,982,666 shares issued. **Property:** Jack Waite group; 4 patented, 17 unpatented claims in Idaho; Silver King group: 30 unpatented claims in Montana; Eagle dist.; Prichard. **Development:** Jack Waite group: Principally by 2 tunnels: No. 1, 1500 ft. long; No. 2, 3500 ft. long. in which is an inclined shaft 200 ft. deep. **Plant:** MINE: One air-driven and one electrically-driven hoist; 3 I-R electrically-driven compressors; trolley locomotive haulage; complete mining equipment and camp. MILL: 400-ton flotation concentrator. **Ore:** Lead-zinc-silver. **Men employed:** Average, 60. **Remarks:** This company is a consolidation of the Jack Waite Mining Co., Ltd., and the Silver King Mining Co., the two properties being adjoining groups situated on the Idaho-Montana state line. The enterprise was placed on a profitable operating basis during the year. The mine and mill plants were enlarged and improved; and a large tonnage of ore and concentrate was produced and marketed, in addition to maintaining an active mine development campaign, which consisted principally of extending the No. 2 or lower tunnel a distance of approximately 1500 ft. This work was successful in opening one of the largest and most important ore bodies disclosed in the Coeur d'Alene district for many years.

JIM BLAINE SILVER SYNDICATE, LTD.
Office: 323 Lindelle Blk., Spokane, Wash. **Officers:** Dan Krehbiel, Pres., Lind, Wash.; Matt Baumgartner, Sec.-Mgr., Spokane, Wash. **Inc.:** Apr. 12, 1920. **Capital:** 2,000,000 shares; par value 5c; 1,556,500 shares issued. **Property:** Jim Blaine group; 25 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 3 tunnels: No. 1, 500 ft. long; No. 2, 1000 ft. long; No. 3, 1290 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

JUPITER MINING CO.
Office: Wallace. **Officers:** Theodore Wellman, Pres.; Chas. E. Horning, Sec.; Robert Madzgalla, Mgr., all of Wallace. **Inc.:** Nov. 27, 1928. **Capital:** 2,500,000 shares; par value 10c; shares issued, unknown. **Property:** Jupiter group; 6 unpatented claims, Hunter dist.; Wallace. **Development:** By 2 tunnels: No. 1, 450 ft.; No. 2, 50 ft. **Ore:** Lead-silver. **Remarks:** Annual labor only.

KELLOGG GALENA MINING CO.
Office: 832 Old National Bank Bldg., Spokane, Wash. **Officers:** Samuel A. McCoy, Pres.-Mgr.; Geo. W. Sommer, Sec., both of Spokane, Wash. **Inc.:** Sept. 30, 1915. **Capital:** 1,500,000 shares; par value 10c; all shares issued. **Property:** 7 unpatented claims, Yreka dist.; Kellogg. **Development:** About 1400 ft. of workings. **Ore:** Lead-silver. **Remarks:** Annual labor only.

KELLOGG SILVER-LEAD MINING CORPORATION
Office: 832 Old Nat'l Bank Bldg., Spokane, Wash. **Officers:** Sam A. McCoy, Pres.-Mgr.; Edward J. Johnson, Sec., both of Spokane, Wash. **Inc.:** Nov. 25, 1927. **Capital:** 400,000 shares; par value $1.

KENNAN MINING CO.
Office: N. 1111 Hamilton St., Spokane, Wash. **Officers:** E. J. Roberts, Jr., Pres., Spokane, Wash. **Inc.:** Sept. 4, 1917. **Capital:** 250,000 shares; par value $1; 200,000 shares issued. **Property:** 14 unpatented claims, Beaver dist.; Murray. **Development:** Approximately 2800 ft. of tunnel. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Annual labor only.

KEYSTONE MINING CO.
Office: Kellogg. **Officers:** Clarence I. Paulsen, Pres., Spokane, Wash.; Eugene Tously, Sec., Seattle, Wash.; Leonard E. Franks, Mgr., Kellogg. **Inc.:** July 22, 1929. **Capital:** 2,500,000 shares; par value 10c; 2,000,000 shares issued. **Property:** Lease and option on property of Florence Mining & Milling Co., Ltd. **Development:** Principally by 1 tunnel 1700 ft. long. **Plant:** Electrically-driven I-R compressor; complete mining equipment. **Ore:** Lead-silver. **Remarks:** Buildings erected and equipment installed during the year.

KING OF PINE CREEK MINING CO.
Office: Wallace. **Officers:** Andrew Anderson, Pres., Burke; C. A. Magnuson, Sec., Wallace. **Inc.:** Aug. 10, 1904. **Capital:** 1,500,000 shares; par value $1; 935,572 shares issued. **Property:** King of Pine Creek group; 6 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 2 tunnels: No. 1, 400 ft.; No. 2, 400 ft. **Ore:** Lead-zinc-silver. **Remarks:** Under lease and option to New Jersey Consolidated Mines Co.

LACLEDE MINING CO., LTD.
Office: Wallace. **Officers:** O. W. Lewis, Pres.; W. B. Heitfeld, Sec., both of Wallace. **Inc.:** Dec. 10, 1903. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Laclede group; 9 patented claims, Lelande dist.; Burke. **Development:** Principally by 1 tunnel, 2600 ft. long, and an inclined shaft 340 ft. long. **Ore:** Lead-silver. **Remarks:** Idle.

LANSING SILVER-LEAD MINING CO.
Office: Wallace. **Officers:** W. V. Stansfield, Pres.-Mgr., Wallace. **Inc.:** June 14, 1916. Charter forfeited Nov. 30, 1927. **Capital:** 1,000,000 shares; par value 25c; 35,000 shares issued. **Property:** 10 patented, 3 unpatented claims, Placer Center dist.; Wallace. **Development:** By 3 tunnels: No. 1, 300 ft. long; No. 2, 280 ft. long; No. 3, 800 ft. long. **Plant:** 10x12 Sullivan gas-driven compressor; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** Active development campaign maintained during the year.

LEAD BLOSSOM MINING & MILLING CO.
Office: Wallace. **Officers:** Walter H. Hanson, Pres.; Herman Marquardt, Sec., both of Wallace. **Inc.:** June 5, 1922, as Iron Blossom Mining & Milling Co.; name changed Nov. 2, 1922. **Capital:** 1,500,000 shares; par value 25c; all shares issued. **Property:** Iron Blossom group; 13 unpatented claims, Yreka dist.; Wardner. **Development:** By 2 tunnels: No. 1, 300 ft. long; No. 2, 600 ft. long; and an inclined shaft 360 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only. Stock assessments were levied during the year as follows: May 6, 5 mills; Oct. 16, 5 mills.

LEAD CRYSTALS MINING CO., LTD.
Office: Wallace. **Officers:** Walter Keister, Pres., Murray; G. W. Dougherty, Sec., Wallace. **Inc.:** Dec. 11, 1911. **Capital:** 1,500,000 shares; par value $1; 1,447,996 shares issued. **Property:** 10 unpatented claims, Eagle dist.; Prichard. **Development:** By 3 tunnels: No. 1, 250 ft. long; No. 2, 1100 ft. long; No. 3, 750 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

LEROY GOLD & COPPER CO., LTD.
Office: Wallace. **Officers:** G. F. Damm, Pres.; C. E. Clarke, Sec., both of Wallace. **Inc.:** Aug. 2, 1897. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Leroy group; 5 patented claims, unorganized dist.; Adair.

LEWIS & CLARK MINING CO.
Office: Wallace. **Officers:** William Grismer, Pres., Coeur d'Alene; J. R. Bean, Sec., Wallace. **Inc.:** Apr. 18, 1907. **Capital:** 1,250,000 shares; par value $1; 430,000 shares issued. **Property:** 2 patented, 5 unpatented claims, Hunter dist.; Mullan. **Remarks:** Annual labor only, on unpatented claims. A stock assessment of 2 mills was levied on Oct. 7, 1929.

LIBERAL KING MINING CO.
Office: Kellogg. **Officers:** Magnus Cheyne, Pres.; J. B. Cox, Sec., both of Kellogg. **Inc.:** June 12, 1928. **Capital:** 1,500,000 shares; par value 10c; 879,178 shares issued. **Property:** Liberal King group; 10 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 2 tunnels: No. 1, 500 ft.; No. 2, 800 ft. **Ore:** Lead-zinc-silver. **Men employed:** Average, 4. **Remarks:** Active throughout the year.

LINCOLN MINING CO.
Office: Wallace. **Officers:** James Hamilton, Vice-Pres., Detroit, Mich.; Franklin Pfirman, Sec., Wallace. **Inc.:** July 9, 1923. **Capital:** 1,500,000 shares; par value 10c. Increased May 7, 1928, to 2,000,000 shares common, par value 10c; 30,000 shares preferred, par value $10; 1,502,860 shares common, 286 shares preferred issued. **Property:** Silverado group; 44 unpatented claims, Evolution dist.; Osburn. **Development:** Principally by 1 tunnel 6600 ft. long, and an inclined shaft 570 ft. long, giving a vertical depth of 550 ft. with 4 intermediate levels. **Plant:** MINE: 500-cu.-ft. electrically-driven compressor; complete mining equipment. MILL: 50-ton concentrator, including flotation. **Ore:** Lead-silver. **Remarks:** Small amount of work by lessees on a vein near the portal of the principal tunnel.

LINFOR COPPER CO.
Office: 745 Peyton Bldg., Spokane, Wash. **Officers:** W. A. Beaudry, Pres.; R. P. Woodworth, Sec., both of Spokane. **Inc.:** July 28, 1919. **Capital:** 1,500,000 shares; par value 10c; 500,000 shares issued. **Property:** 2 patented, 3 unpatented claims, unorganized dist.; Enaville. **Ore:** Copper-silver.

LITTLE BUTTE MINING CO.
Office: Wallace. **Officers:** Mark Cyr, Pres., Burke; Herman J. Rossi, Sec., Wallace. **Inc.:** Sept. 14, 1906. **Capital:** 1,500,000 shares; par value $1; 980,000 shares issued. **Property:** Little Butte group; 28 unpatented claims, Lelande dist.; Burke. **Ore:** Lead-silver. **Remarks:** Annual labor only.

LITTLE SUNSHINE MINING CO.
Office: 902 Second Ave., Seattle, Wash. **Officers:** John R. Moore, Pres., Seattle, Wash.; Joseph A. Carson, Sec., Mullan; C. A. Fay, Mgr., Wallace. **Inc.:** Nov. 3, 1906, as Elk Mining Co. Name changed Oct. 5, 1927, and capitalization increased from $1,000,000 to $1,750,000. **Capital:** 1,750,000 shares; par value $1; shares issued, unknown. **Property:** Owns Elk group; 3 patented claims, Hunter dist.; Mullan. Lease and option on Palmer group; 7 unpatented claims, Big Creek, Yreka dist.; Kellogg. **Development:** On Palmer group: 2700-ft. crosscut. **Plant:** On Palmer group: Electrically-driven compressor and complete mining equipment. **Ore:** Lead-silver. **Remarks:** A small amount of work on Palmer group. A stock assessment of 1c was levied on June 22, 1929.

LOG CABIN MINING AND MILLING CO., LTD.
Office: Wallace. **Officers:** O. H. Linn, Pres.; Otto A. Olsson, Sec., both of Wallace. **Inc.:** Nov. 21, 1906. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Log Cabin group; 9 unpatented claims, Placer Center dist.; Wallace. **Development:** By 2 tunnels: No. 1, 200 ft. long; No. 2, 80 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

LOMBARDY MINING & MILLING CO.
Office: Kellogg. **Officers:** Peter Albinola, Pres., Kellogg; Herman J. Rossi, Sec., Wallace. **Inc.:** Mar. 17, 1899. **Capital:** 1,500,000 shares; par value 10c; all shares issued. **Property:** Lombardy group; 15 patented claims, Yreka dist.; Kellogg. **Development:** By 3 tunnels and 1 shaft. **Plant:** Hoist, compressor, and mining equipment. **Ore:** Lead-silver.

LOOKOUT MOUNTAIN MINING & MILLING CO.

Office: Kellogg. **Officers:** C. W. Simmons, Pres.; S. A. Germo, Sec., both of Kellogg; C. A. Fay, Mgr., Wallace. **Inc.:** June 2, 1916. **Capital:** 2,000,000 shares; par value 25c. Increased Sept. 25, 1928, to 3,000,000 shares; par value 25c; 2,520,000 shares issued. **Property:** Lookout Mountain group; 40 unpatented claims, Yreka dist.; Kellogg; part of which are held under lease and option. **Development:** Principally by 3 tunnels: No. 1, 100 ft. long; No. 2, 2500 ft. long; No. 3, 5000 ft. long; a vertical shaft in No. 3 tunnel 200 ft. deep; and a 500-ft. raise connecting No. 2 and No. 3 tunnels. **Plant:** 2 electrically-driven Gardner compressors; complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 20. **Remarks:** An additional compressor was installed, and an active development campaign maintained throughout the year, part of which consisted of extending the shaft an additional 100 ft. and about 1800 ft. of lateral development work in No. 3 tunnel. Stock assessments were levied during the year as follows: Jan. 19, 5 mills; June 29, 2c.

LOSTINE MINES & POWER CO.

Office: Hoquiam, Wash. **Officers:** Wm. Hampton, Pres., Hyde Block, Spokane, Wash.; B. H. England, Sec.-Mgr., Hoquiam, Wash. **Inc.:** July 30, 1929. **Capital:** 500,000 shares preferred, par value $1; 2,500,000 shares common, par value 25c; shares issued, unknown. **Property:** 1 unpatented claim, unorganized dist.; Adair.

LUCKY BOY MINING & CONCENTRATING CO., LTD.

Office: Mullan. **Officers:** M. D. Needham, Pres.-Mgr.; Agnes Needham, Sec., both of Mullan. **Inc.:** Jan. 12, 1907. **Capital:** 1,000,000 shares; par value $1; 376,455 shares issued. **Property:** Lucky Boy group; 31 unpatented claims, Hunter dist.; Mullan. **Development:** By 8 tunnels, the principal of which is 2600 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of 5 mills was levied on Sept. 10, 1929.

McPHILLIPS SYNDICATE

Office: 1400 Northern Life Tower, Seattle, Wash. **Officers:** C. C. Hayes, Trustee, Seattle, Wash. **Inc.:** Not incorporated. **Property:** Blue Wing and Zanetti groups; 11 unpatented claims, Lelande dist.; Wallace. Held under lease and option. **Development:** By 4 tunnels, estimated approximately 5000 ft. **Plant:** Electrically-driven compressor and complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 4. **Remarks:** Equipment installed and small amount of development work performed during the year.

MACEDONIA MINING CO.

Office: Wallace. **Officers:** A. M. Mundell, Pres.-Mgr., Wallace; W. S. Leland, Sec., Prichard. **Inc.:** Oct. 8, 1921. **Capital:** 1,500,000 shares; par value 10c; 11,000 shares issued. **Property:** Macedonia group; 23 unpatented claims, at the head of West Fork of Slate Creek; St. Joe dist.; Wallace. **Remarks:** Active development work throughout the summer months by the president.

MAINE-STANDARD MINING CO., LTD.

Office: Wallace. **Officers:** Carlton Fox, Pres.; Otto A. Olsson, Sec.-Mgr., both of Wallace. **Inc.:** March 4, 1907. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Maine-Standard group; 5 unpatented claims, Moon Creek, Yreka dist.; Kellogg. **Development:** By 1 tunnel, 1200 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

MAJESTIC MINING CO., LTD.

Office: Wallace. **Officers:** James Dunne, Pres.-Mgr., Burke; Therrett Towles, Sec., Wallace. **Inc.:** Aug. 23, 1904. **Capital:** 1,500,000 shares; par value 25c; 981,930 shares issued. **Property:** Majestic group; 13 patented claims, Lelande and Summit dists.; Burke. **Development:** Principally by 1 tunnel 2000 ft. long. **Ore:** Lead-silver. **Remarks:** A stock assessment of 1½ mills was levied on May 20, 1929.

MARSH MINES CONSOLIDATED

Office: Spokane, Wash., Box 1620. **Officers:** Edward Pohlman, Pres.; Jos. McCarthy, Sec.; F. Cushing Moore, Mgr., all of Spokane, Wash. **Inc.:** Aug. 17, 1916. **Capital:** 2,000,000 shares; par value 25c; all shares issued. **Property:** Marsh group; 12 patented, 1 unpatented claim, Lelande dist.; Burke. **Development:** By 2 tunnels: No. 1, 300 ft. long; No. 2, 2000 ft. long; a vertical shaft 900 ft. deep with 5 intermediate levels; and an inclined shaft 400 ft. long. Total development, approximately 9900 ft. **Plant:** MINE: One I-R 1150-cu.-ft. compressor and one 690-cu.-ft. Franklin compressor, both electrically driven; complete mining equipment. MILL: 200-ton concentrator, including flotation. **Ore:** Lead-silver. **Remarks:** Idle.

MAYBIRD MINING CO.

Office: Kellogg. **Officers:** J. L. Hunt, Pres., Kellogg; L. O. Thomas, Sec., Spokane, Wash. **Inc.:** Jan. 24, 1928. **Capital:** 1,000,000 shares; par value 25c; 6000 shares issued. **Property:** Maybird group; 7 unpatented claims held under lease and option, Yreka dist.; Kellogg. **Development:** By 2 tunnels: No. 1, 750 ft. long; No. 2, 550 ft. long; and an inclined shaft 100 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 1. **Remarks:** Small amount of work prior to June. A stock assessment of 2½ mills was levied on June 7, 1929.

MAYFLOWER M. & D. CO.

Office: Mullan. **Officers:** A. H. Featherstone, Pres.; J. F. Ferguson, Sec.; Wm. A. Beaudry, Mgr., all of Wallace. **Inc.:** Sept. 27, 1915. **Capital:** 1,250,000 shares; par value $1; shares issued, unknown. **Remarks:** Property sold to Golconda Lead Mines. A stock assessment of 1 mill was levied on May 25, 1929.

MERRY WIDOW MINING CO.

Office: Wallace. **Officers:** Howard Hazeltine, Pres.-Mgr.; A. L. Strope, Sec., both of Wallace. **Inc.:** Nov. 5, 1924. **Capital:** 1,500,000 shares; par value 10c; 1,000,000 shares issued. **Property:** Merry Widow group; 2 unpatented claims, Placer Center dist.; Wallace. **Development:** By 2 tunnels: No. 1, 60 ft. long; No. 2, 400 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

METROPOLITAN MINES CORPORATION, LTD.

Office: Wallace. **Officers:** R. L. Brainard, Pres., Wardner; John F. Ferguson, Sec., Wallace; Matt Baumgartner, Mgr., Spokane, Wash. **Inc.:** Nov. 21, 1929. **Capital:** 3,000,000 shares; par value 10c; 1,456,587 shares issued. **Property:** Sterling Silver group; 20 unpatented claims, Big Creek, Evolution dist.; Kellogg. **Development:** Principally by 1 tunnel 750 ft. long. **Plant:** 5x5 I-R gas-driven compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Remarks:** Annual labor only. This company is a reorganization of the Sterling Silver Mountain Mining Co., Ltd.

MILITARY MINING & MILLING CO., LTD.

Office: R. F. D. 4, Spokane, Wash. **Officers:** P. A. Renkert, Pres.; George K. Renkert, Sec.-Mgr., both of Spokane, Wash. **Inc.:** Apr. 30, 1907. **Capital:** 1,000,000 shares; par value $1; 567,000 shares issued. **Property:** 2 patented claims, Lelande dist.; Burke. **Development:** 2 tunnels: No. 1, 150 ft. long; No. 2, 100 ft. long. **Ore:** Copper.

MINERAL FARM MINING CO., LTD.

Office: Mullan. **Officers:** C. J. Carlson, Pres.-Mgr., 1215 Gem Ave., Spokane, Wash.; C. D. Miller, Sec., Mullan. **Inc.:** Aug. 28, 1903. **Capital:** 1,500,000 shares; par value $1; 798,676 shares issued. **Property:** Mineral Farm group; 8 patented claims, Hunter dist.; Mullan. **Development:** Principally by 1 tunnel 1200 ft. long. **Ore:** Lead-silver.

MINERAL POINT MINING CO.

Office: Wallace. **Officers:** H. E. Worstell, Pres.; Paul Leuschel, Sec., both of Wallace. **Inc.:** July 7, 1904. **Capital:** 1,200,000 shares; par value $1; 544,390 shares issued. **Property:** 1 patented, 7 unpatented claims, Evolution dist.; Osburn. **Ore:** Lead-silver. **Remarks:** Property under lease and option to Coeur d'Alene Mines Corporation.

MOE MINING CO., LTD.

Office: Wallace. **Officers:** W. K. Moe, Pres.-Mgr.; G. W. Dougherty, Sec., both of Wallace. **Inc.:** Apr. 8, 1922. **Capital:** 1,000,000 shares; par value 10c; 718,527 shares issued. **Property:** Gold Creek group; 16 unpatented claims, Hunter dist.; Mullan. **Development:** 3 tunnels: No. 1, 500 ft. long; No. 2, 1100 ft. long; No. 3, 2400 ft. long. **Ore:** Lead-silver-copper. **Remarks:** Under lease and option to Inspiration Lead Co., Inc.

MOHAWK MINING CO.

Office: Kellogg. **Officers:** James G. Ferbrache, Pres.-Mgr.; M. A. Miller, Sec., both of Kellogg. **Inc.:** Sept. 8, 1927. **Capital:** 1,000,000 shares; par value 5c; 573,249 shares issued. **Property:** 5 unpatented claims, Yreka dist.; Kellogg. **Development:** By 3 tunnels: No. 1, 70 ft.; No. 2, 200 ft.; No. 3, 50 ft. **Plant:** Small water-driven compressor; complete mining equipment. **Ore:** Lead-silver. **Remarks:** Annual labor only.

MOONLIGHT MINING CO.

Office: Wallace. **Officers:** John F. Murphy, Pres.; John E. Ryan, Sec., both of Wallace. **Inc.:** Apr. 27, 1903. **Capital:** 1,500,000 shares; par value $1; 1,185,297 shares issued. **Property:** Moonlight group; 9 patented claims, Lelande dist.; Burke. **Development:** By 3 tunnels: No. 1, 640 ft.; No. 2, 2270 ft.; No. 3, or Trade Dollar, 3900 ft. **Ore:** Lead-silver. **Remarks:** Idle.

MOUNTAIN CON MINING CO., INC.

Office: Wallace. **Officers:** W. H. Keating, Pres.-Mgr.; P. J. Conley, Sec., both of Wallace. **Inc.:** July 27, 1929. **Capital:** 1,500,000 shares; par value 50c; shares issued, unknown. **Property:** 3 unpatented claims, Hunter dist.; Wallace.

MOUNTAIN QUEEN MINING CO.

Office: Murray. **Officers:** William Wylie, Pres.; Joe Lavergne, Sec., both of Murray. **Inc.:** Sept. 9, 1907. **Capital:** 1,000,000 shares; par value $1; 469,400 shares issued. **Property:** Mountain Queen group; 10 unpatented claims, Eagle dist.; Murray. **Development:** By 1 tunnel 300 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

MULLAN MINING CO.

Office: Wallace. **Officers:** Charles M. Baillie, Pres.-Mgr.; L. L. Leighty. Sec., both of Wallace. **Inc.:** Nov. 10, 1899. **Capital:** 1,000,000 shares; par value 5c; 614,129 shares issued. **Property:** Mullan group; 2 patented, 1 unpatented claim, Hunter dist.; Mullan. **Development:** Approximately 2000 ft. of underground workings. **Ore:** Lead-silver. **Remarks:** A small amount of work during the year.

MURRAY HILL MINING CO.

Office: Jamieson Blk., Spokane, Wash. **Officers:** C. E. Mallette, Pres.; A. Brownlow, Sec., both of Spokane, Wash. **Inc.:** Nov. 20, 1914. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Black Horse group; 9 unpatented claims, Summit dist.; Murray. **Remarks:** Property under option to Paragon Mining Co.

MUTUAL MINES DEVELOPMENT CO.

Office: 312 Old Nat'l Bank Bldg., Spokane, Wash. **Officers:** Harley Little, Pres.-Mgr.; Ben L. Collins, Sec., both of Spokane, Wash. **Inc.:** May 20, 1925. **Capital:** 2,000,000 shares; par value 10c; 1,605,941 shares issued. **Property:** 24 patented, 30 unpatented claims, of which 20 are owned, the remainder are held under lease and option from the Formosa Lead Mining Co., Ltd., the Deep Wonder Mining Co., and Messrs. Gus Kallman and Ed. Johnson; Hunter and Lelande dists.; Wallace. **Development:** Principally by 1 tunnel 3000 ft. long. Total development, over 12,000 ft. **Plant:** Electrically-driven compressor and complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 9. **Remarks:** Sinking equipment installed and an active development campaign maintained throughout the year, which consisted principally of sinking a 150-ft. shaft in the main tunnel and crosscutting from bottom of same.

NABOB SILVER LEAD CO.

Office: Wallace. **Officers:** S. H. Tweedell, Pres., Spokane, Wash.; Herman J. Rossi, Mgr., Wallace. **Inc.:** June 29, 1923. **Capital:** 3,500,000 shares; par value 25c; 2,286,149 shares issued. **Property:** Nabob group; 3 patented, 24 unpatented claims, Yreka dist.; Kellogg. **Development:** By 4 tunnels: No. 1, 400 ft. long; No. 2, 700 ft. long; No. 3, 1500 ft. long; No. 4, 4700 ft. long; and a vertical shaft 300 ft. deep. **Plant:** 2 electrically-driven compressors; electrically-driven hoist; complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Men employed:** Average, 2. **Remarks:** Small amount of work during the year. Stock assessments were levied as follows: Jan. 4, 1c; Dec. 23, 6 mills.

NATIONAL LEAD MINING CO.

Office: Wallace. **Officers:** Stanly A. Easton, Pres., Kellogg; Leo J. Hoban, Sec., Wallace. **Inc.:** Sept. 21, 1910. **Capital:** 1,000,000 shares; par value $1; 520,000 shares issued. **Property:** 7 patented claims, Hunter dist.; Mullan.

NEVADA STEWART MINING CO.

Office: Kellogg. **Officers:** Alfred Page, Pres., Spokane, Wash.; M. J. Sinclair, Sec.-Mgr., Kellogg. **Inc.:** Nov. 22, 1915. **Capital:** 1,500,000 shares; par value 10c; 1,254,438 shares issued. **Property:** Nevada Stewart group; 9 unpatented claims, Pine Creek, Yreka dist.; Masonia. **Development:** Principally by 1 tunnel 1100 ft. long. **Plant:** Electrically-driven 2-drill Sullivan compressor; complete mining equipment. **Ore:** Zinc-lead-silver. **Men employed:** Average, 3. **Remarks:** Active throughout the summer months in exploring the vein which is intersected by the tunnel. It was reported that a good showing of ore was encountered. A stock assessment of 1 mill was levied on Apr. 15, 1929.

NEW HOPE MINING CO., LTD.

Office: Wallace. **Officers:** Eugene Thomas, Pres.-Mgr.; Otto A. Olsson, Sec., both of Wallace. **Inc.:** July 6, 1900. **Capital:** 1,000,000 shares; par value 5c; all shares issued. **Property:** New Hope group; 12 unpatented claims, Evolution dist.; Osburn. **Development:** By 3 tunnels: No. 1, 500 ft. long; No. 2, 1100 ft. long; No. 3, 600 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 1. **Remarks:** No. 3 tunnel was extended 200 ft. during the year. A stock assessment of 2 mills was levied on Sept. 17, 1929.

NEW JERSEY CONSOLIDATED MINES CO.

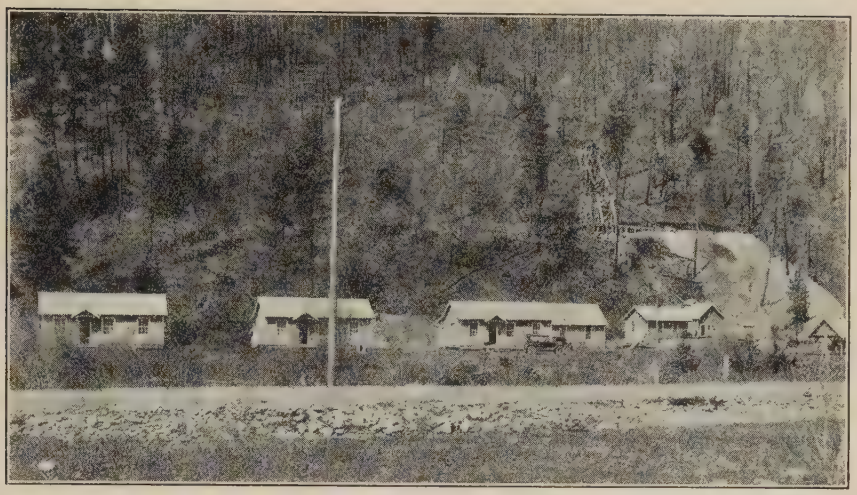
Office: Wallace. **Officers:** L. K. Stratton, Pres.; Wm. J. Stratton, Sec., both of Wallace. **Inc.:** June 20, 1928. **Capital:** 5,000,000 shares; par value 10c; 3,163,106 shares issued.

KING OF PINE CREEK GROUP

Property: King of Pine Creek group; 9 unpatented claims and 160 acres patented land, held under lease and option from King of Pine Creek Mining Co., Yreka dist.; Kellogg. **Development:** By 2 tunnels: No. 1, 380 ft. long; No. 2, 350 ft. long; and a vertical shaft 200 ft. deep. **Plant:** Hoist and 2 I-R compressors, all electrically driven; complete mining equipment. **Ore:** Lead-zinc-silver. **Men employed:** Average, 12. **Remarks:** 4 new mine buildings and head-frame erected; 2 large electrically-driven compressors and electrically-driven hoist installed; and active development work maintained throughout the greater part of the year, consisting of sinking a vertical shaft 220 ft. deep and performing a large amount of crosscutting and drifting, which resulted in proving a substantial increase in ore mineralization as depth was obtained on the vein. After this work was completed, sinking of the shaft an additional 200 ft. was started. The company's expenditures were among the largest in the Pine Creek section during 1929.

NEW JERSEY GROUP

Property: New Jersey group; 6 patented claims held under lease and option, Big Creek, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel 1500 ft. long. **Remarks:** Idle.



SURFACE PLANT, KING OF PINE CREEK MINE OF NEW JERSEY CONSOLIDATED MINES CO.

NEW ROAD MINING CO.
Office: Mullan. **Officers:** Gust Lindroos, Pres.-Mgr.; D. R. Scott, Sec., both of Mullan. **Inc.:** May 1, 1922; charter forfeited Dec. 1, 1922. **Capital:** 1,000,000 shares; par value 10c; 550,000 shares issued. **Property:** New Road group; 2 unpatented claims, Hunter dist.; Mullan. **Ore:** Lead-silver. **Remarks:** Annual labor only.

NINE MILE MINING CO.
Office: Wallace. **Officers:** S. H. Linn, Pres., Kingston; Otto A. Olsson, Sec., Wallace. **Inc.:** Oct. 6, 1899. **Capital:** 2,000,000 shares; par value 10c; all shares issued. **Property:** Nine Mile group; 6 patented, 16 unpatented claims, Placer Center dist.; Wallace. **Development:** Approximately 5500 ft. of underground workings, the principal of which is No. 3 tunnel, 2000 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of 5 mills was levied on Feb. 25, 1929.

NONPAREIL COPPER MINING CO.
Office: Wallace. **Officers:** Harry C. McAllister, Pres.-Mgr.; Herman J. Rossi, Sec., both of Wallace. **Inc.:** Nov. 1, 1906. **Capital:** 1,500,000 shares; par value $1; 1,200,000 shares issued. **Property:** Nonpareil; 3 patented claims, Hunter dist.; Mullan. **Development:** 2 tunnels: No. 1, 380 ft. long; No. 2, 100 ft. long. **Ore:** Lead-silver. **Remarks:** Idle since 1916.

NORTH AMERICAN MINING & MILLING CO., LTD.
Office: Wallace. **Officers:** Winnifred Presley, Pres.; J. Clarence Presley, Sec.-Mgr., both of Wallace. **Inc.:** June 8, 1903. **Capital:** 1,500,000 shares; par value $1; 1,036,000 shares issued. **Property:** North American group; 23 patented, 3 unpatented claims, Big Creek, Yreka dist.; Kellogg. **Development:** 1 tunnel 2100 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor.

NORTH AMERICAN MINING & SMELTING CORPORATION
Office: Peyton Bldg., Spokane, Wash. **Officers:** Andrew Stevenson, Pres.; Harry L. Crisp, Sec., both of Los Angeles, Calif.; J. R. Villars, Mgr., Spokane, Wash. **Inc.:** Filed in Idaho Mar. 22, 1929. **Capital:** 7,500,000 shares; no par value; 1,257,373 shares issued. **Property:** West Mammoth group; 12 patented, 26 unpatented claims, held under lease and option from the West Mammoth Mining Co., Silver Moon Mining Co., Ltd., and

Big Divide Mining Co., Ltd.; Lelande dist.; Mace. **Development:** Principally by 2 tunnels: No. 1, 1800 ft. long; No. 3, 2900 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 5. **Remarks:** Principal tunnel was extended 750 ft. during the early part of 1929. Late in the year the West Mammoth Mining Co. reported that work was suspended and the options forfeited.

NORTH BUNKER HILL MINING CO., LTD.

Office: Kellogg, Box 457. **Officers:** Elmer Brown, Pres.; N. T. Hardy, Sec.-Mgr., both of Kellogg. **Inc.:** Feb. 16, 1907. **Capital:** 1,250,000 shares; par value $1; all shares issued. **Property:** 4 patented claims, Yreka dist.; Wardner. **Development:** Over 10,000 ft. of underground workings. **Plant:** Electrically-driven I-R compressor; air-driven hoist and complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Active development work throughout the year. A stock assessment of 4 mills was levied on June 26, 1929.

NORTH FORK DEVELOPMENT CO.

Office: Wallace. **Officers:** Thure Olson, Pres.-Mgr., Enaville; John F. Ferguson, Sec., Wallace. **Inc.:** May 8, 1922. **Capital:** 1,000,000 shares; par value 10c; all shares issued. **Property:** 13 unpatented claims, Yreka dist.; Enaville. **Development:** Principally by 1 tunnel 3000 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

NORTH IDAHO MINING CO.

Office: Wallace. **Officers:** George Champagne, Mgr., Saltese, Mont.; G. W. Dougherty, Sec., Wallace. **Inc.:** March 14, 1900. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** 3 patented claims, Beaver dist.; Wallace. **Development:** By 2 tunnels: No. 1, 700 ft. long; No. 2, 50 ft. long. **Ore:** Lead-silver.

NORTHSIDE MINING CO.

Office: Wallace. **Officers:** A. M. White, Pres.; Ruth M. White, Sec., both of Butte, Mont.; Sarah M. Weigle, Mgr., Kellogg. **Inc.:** Nov. 21, 1928. Charter forfeited Nov. 30, 1929. **Capital:** 1,750,000 shares; par value 1c; 1,540,000 shares issued. **Property:** 12 unpatented claims, Yreka dist.; Kellogg. **Development:** By 4 short tunnels. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** Small amount of development work during the year.

NORTH STAR MINING CO.

Office: Wallace. **Officers:** John H. Hansen, Pres.; Chester A. Hansen, Sec., both of Wallace. **Inc.:** Mar. 16, 1899. **Capital:** 1,000,000 shares; par value $1; 199,080 shares issued. **Property:** North Star; 1 patented claim; St. Joe dist.; Falcon. **Development:** 2 tunnels: No. 1, 1500 ft. long; No. 2, 200 ft. long. **Ore:** Copper-gold-silver. **Remarks:** Annual labor only.

NORTH STAR MINING & DEVELOPMENT CO.

Office: Wallace. **Officers:** D. E. Wherry, Pres., Yakima, Wash.; G. W. Dougherty, Sec.-Mgr., Wallace. **Inc.:** April 20, 1920. **Capital:** 1,250,000 shares; par value $1; 1,222,065 shares issued. **Property:** 5 unpatented claims, Placer Center dist.; Wallace. **Development:** Principally by 1 tunnel, 1700 ft. long. **Ore:** Lead-silver. **Remarks:** Tunnel extended 400 ft. Stock assessments were levied during 1929 as follows: Feb. 20, 1 mill; May 17, 2 mills; Sept. 3, 2 mills.

NORTHERN LIGHT MINING & MILLING CO.

Office: 401 Court House, St. Paul, Minn. **Officers:** B. E. Harmon, Sec., St. Paul, Minn. **Inc.:** Feb. 26, 1915. **Capital:** 1,500,000 shares; par value 5c; 1,314,000 shares issued. **Property:** Northern Light; 1 patented claim, Pine Creek, Yreka dist.; Kellogg. **Remarks:** Idle since 1917.

NORTHWEST MINING & MILLING CO.

Office: Wallace. **Officers:** H. J. Rossi, Sec., Wallace. **Inc.:** Apr. 6, 1917. **Capital:** 1,000,000 shares; par value 5c; 791,000 shares issued. **Property:** 3 patented claims, Placer Center dist.; Wallace. **Development:** Principally by 1 tunnel 500 ft. long, and an inclined shaft 150 ft. deep. **Ore:** Lead-silver.

OASIS MINING CO.
Office: Kellogg. **Officers:** W. A. Smith, Pres., Wallace; Lester S. Harrison, Sec.-Mgr., Kellogg. **Inc.:** Aug. 15, 1925. **Capital:** 100,000 shares; par value $1; all shares issued. **Property:** Oasis group; 2 unpatented claims, Yreka dist.; Kellogg. **Ore:** River tailings: Lead-zinc-silver. **Remarks:** A stock assessment of 3 mills was levied on May 25, 1929.

OOM PAUL CONSOLIDATED MINING CO.
Office: Wallace. **Officers:** James F. McCarthy, Pres.-Mgr.; L. E. Hanley, Sec., both of Wallace. **Inc.:** April 29, 1907. **Capital:** 1,600,000 shares; par value $1; all shares issued. **Property:** Oom Paul group; 10 patented claims, Lelande dist.; Burke. **Development:** Over 5000 ft. of workings. **Plant:** Compressor and complete mining equipment. **Ore:** Lead-silver. **Remarks:** Idle throughout the year.

OPTION MINING CO.
Office: Wallace. **Officers:** W. B. Heitfeld, Pres.; W. A. Devan, Sec., both of Wallace. **Inc.:** Jan. 17, 1925. **Capital:** 2,500,000 shares; par value 10c; all shares issued. **Property:** 2 patented claims, Placer Center dist.; Wallace. **Development:** By 2 tunnels: No. 1, 334 ft. long; No. 2, 2000 ft. long; and a crosscut from No. 1 level of the Dayrock mine. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Property under lease to Dayrock Mining Co., which was active throughout the year in extending the crosscut.

PACIFIC MINING AND MILLING CO.
Office: Wallace. **Officers:** A. H. Featherstone, Sec., Wallace. **Inc.:** April 13, 1898. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** 3 patented claims, Lelande dist.; Gem. **Ore:** Lead-silver.

PARADISE MINES ASSOCIATION
Office: Wallace. **Officers:** Thomas Sheppard, Pres., Wallace. **Inc.:** A common-law trust. **Capital:** 10,000 shares; par value $10; 8500 shares issued. **Property:** Paradise group; 5 unpatented claims, Placer Center dist.; Wallace. **Development:** By 2 tunnels: No. 1, 941 ft. long; No. 2, 800 ft. long. **Plant:** Gas-driven compressor and complete mining equipment. **Ore:** Lead-silver. **Remarks:** Under lease and option to Paradise Mining Co., Inc.

PARADISE MINING CO., INC.
Office: 510 Hyde Bldg., Spokane, Wash. **Officers:** Len Lussier, Pres.; S. W. Lazier, Sec.; John A. Walker, Mgr., all of Spokane. **Inc.:** Jan. 29, 1926. **Capital:** 1,000,000 shares; par value 10c; 500,000 shares issued. **Property:** Paradise group; 5 unpatented claims, Placer Center dist.; Wallace. Held under lease and option from the Paradise Mines Association. **Development:** By 2 tunnels: No. 1, 941 ft. long; No. 2, 800 ft. long. **Plant:** Laidlaw-Dunn-Gordon gas-driven compressor. **Men employed:** Average, 2. **Ore:** Lead-silver. **Remarks:** Annual labor only.

PARAGON MINING CO.
Office: Commerce Bldg., St. Paul, Minn. **Officers:** George S. Monson, Pres.; F. O. Hammer, Sec., both of St. Paul, Minn.; Mrs. Theo. Furst, Mgr., Murray. **Inc.:** Sept. 20, 1901. **Capital:** 150,000 shares; par value $10; 130,125 shares issued. **Property:** Paragon group; 19 patented, 34 unpatented claims, Summit dist.; Murray. **Development:** Total development, approximately 19,000 ft. **Plant:** MINE: Electrically-driven compressor; air-driven hoist; complete mining equipment and camp. MILL: 100-ton concentrator. **Ore:** Lead-zinc-silver. **Remarks:** Idle throughout the year.

PARAMOUNT MINES CORPORATION
Office: Kellogg. **Officers:** Vera Regan, Pres., Beverly, Wash.; Donald Ross, Sec., St. Maries. **Inc.:** Sept. 24, 1929. **Capital:** 5,000,000 shares; par value 10c; all shares issued. **Property:** High Grade group; 12 unpatented claims, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel 1200 ft. long. **Ore:** Lead-silver.

PARK COPPER & GOLD MINING CO., LTD.
Office: Wallace. **Officers:** O. W. Lewis, Pres.-Mgr.; N. J. Stockbridge, Sec., both of Wallace. **Inc.:** Aug. 25, 1899. **Capital:** 1,500,000 shares; par value 10c; 1,373,316 shares issued. **Property:** 6 patented claims; Stevens Peak, Hunter dist.; Mullan. **Ore:** Copper.

PEARSON MINING CO.
Office: Wallace. **Officers:** John F. Ferguson, Sec.; Harry P. Pearson, Mgr., both of Wallace. **Inc.:** April 26, 1920. **Capital:** 500,000 shares; par value $1; 320,561 shares issued. **Property:** 4 patented, 70 unpatented claims, St. Joe dist.; Falcon. **Development:** Principally by 1 tunnel 4400 ft. long. **Plant:** Water-driven Sullivan compressor; complete mining equipment and camp. **Ore:** Copper-gold. **Men employed:** Average, 3. **Remarks:** Mining operations were conducted without interruption throughout the year.

PINE CREEK CONSOLIDATED MINING CO.
Office: 419 Hutton Bldg., Spokane, Wash. **Officers:** T. E. Coleman, Pres.-Mgr.; Fred Dashiell, Sec., both of Spokane, Wash. **Inc.:** June 4, 1929. **Capital:** 3,500,000 shares common, par value 5c; 30,000 shares preferred, par value $1; 2,308,151 shares issued. **Property:** Amy-Matchless and Olympic groups; 45 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 3 tunnels: No. 1, 3500 ft.; No. 2, 650 ft.; No. 3, 275 ft.; and 2 inclined shafts 400 ft. long. **Plant:** 3 electrically-driven compressors; 1 electrically-driven and 1 air-driven hoist; complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Men employed:** Average, 5. **Remarks:** Annual labor only. This company is a consolidation of the Amy Matchless Mining & Milling Co. and Olympic Mines.

PINE CREEK LEAD-ZINC MINING CO.
Office: Wallace. **Officers:** M. L. Savage, Pres.-Mgr., Kellogg; Herman J. Rossi, Sec., Wallace. **Inc.:** Nov. 8, 1929. **Capital:** 1,000,000 shares; par value 10c; 100,000 shares issued. **Property:** Little Pittsburg group; 5 patented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 2 tunnels: No. 1, 800 ft. long; No. 2, 1300 ft. long. **Plant:** Electrically-driven 10-drill compressor; complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Men employed:** Average, 8. **Remarks:** In the early part of the year machinery and equipment were removed from No. 2 tunnel to No. 3 tunnel; new buildings were erected; and an extensive mine development campaign commenced, which resulted in proving a substantial tonnage of commercial ore. In November company was incorporated and work started on construction of a new 250-ton flotation concentrator. The company's activities and new ore exposures were among the principal events in Shoshone County during the year.

PIONEER MINING CO., LTD.
Office: Wallace. **Officers:** Herman Marquardt, Sec., Wallace; S. H. Linn, Mgr., Kingston. **Inc.:** Nov. 22, 1916. **Capital:** 1,500,000 shares; par value 25c; all shares issued. **Property:** Pioneer group; 12 unpatented claims, Beaver dist.; Wallace. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of 5 mills was levied on Feb. 25, 1929.

PLAINVIEW MINING CO., INC.
Office: Wardner. **Officers:** Wm. Swinerton, Pres., Wardner; S. S. Gundlach, Sec., Wallace; L. E. Shaver, Mgr., Spokane, Wash. **Inc.:** Jan. 29, 1927. **Capital:** 1,500,000 shares; par value 10c; 929,500 shares issued. **Property:** Plainview group; 6 unpatented claims held under lease and option, Evolution dist.; Osburn. **Development:** By 1 tunnel 800 ft. long. **Remarks:** Property held by Yakima-Shoshone Mining Co. A stock assessment of 1c was levied on Oct. 23, 1929.

PLYMOUTH LEAD MINES CO.
Office: Wallace. **Officers:** Walter H. Hanson, Pres.; Herman Marquardt, Sec., both of Wallace. **Inc.:** May 16, 1923, as Caledonia Lead Mines Co.; name changed Oct. 13, 1923. **Capital:** 1,500,000 shares; par value $1;

1,212,000 shares issued. **Property:** 10 patented, 21 unpatented claims, consisting of 5 groups located in different sections of the Coeur d'Alene dist.; part of which are held under lease and option. **Plant:** Electrically-driven compressor and complete mining equipment on Cuba group. **Ore:** Lead-silver. **Remarks:** Annual labor only.

POLARIS DEVELOPMENT & MINING CO.
Office: Wallace. **Officers:** Harry W. Woodward, Pres.-Mgr.; Eleanor Sylva, Sec., both of Lynn, Mass. **Inc.:** Dec. 10, 1915. **Capital:** 1,500,000 shares; par value $1; 1,024,500 shares issued. **Property:** 3 patented claims, Yreka dist.; Wallace. **Development:** Principally by 1 tunnel 2500 ft. long. **Plant:** Electrically-driven compressor and complete mining equipment. **Ore:** Lead-silver.

PONTIAC MINING CO.
Office: Insurance Bldg., Wallace. **Officers:** Arthur J. Schanck, Pres., Metamora, Mich.; Herman J. Rossi, Sec., Wallace. **Inc.:** June 21, 1929. **Capital:** 1,500,000 shares; par value $1; shares issued, unknown. **Property:** Terrible Edith group; 1 patented, 33 unpatented claims, Summit dist.; Murray. **Development:** By 4 tunnels: No. 1, 1450 ft.; No. 2, 200 ft.; No. 3, 500 ft.; No. 4, 150 ft. **Plant:** Electrically-driven I-R compressor; complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Men employed:** Average, 5. **Remarks:** Entire surface plant was destroyed by fire in September.

PROGRESS GOLD MINING CO.
Office: Murray. **Officers:** Harry Clark, Pres., Sprague, Wash.; T. E. Damrell, Sec., Cheney, Wash.; D. M. Stairs, Mgr., Murray. **Inc.:** Aug. 17, 1920. **Capital:** 1,000,000 shares; par value 10c; 465,000 shares issued. **Property:** Progress group; 17 unpatented claims, Summit dist.; Prichard. **Development:** By 6 short tunnels. **Ore:** Lead-silver. **Remarks:** Small amount of work during the year by A. E. Hoover, lessee.

PURITAN MINING CO., LTD.
Office: Wallace. **Officers:** Theodore Anderson, Pres., Lindsay, Calif.; C. A. Salberg, Sec.-Treas., Wallace. **Inc.:** Sept. 30, 1905. **Capital:** 1,500,000 shares; par value $1; 1,335,000 shares issued. **Property:** Puritan group; 6 patented claims, Placer Center dist.; Wallace. **Development:** Approximately 5000 ft. of crosscuts and drifts. **Remarks:** Idle throughout the year.

RAINBOW MINING & MILLING CO., LTD.
Office: 303 Mohawk Bldg., Spokane, Wash. **Officers:** Geo. Austin, Pres.-Mgr.; E. W. La Mon, Sec., both of Spokane, Wash. **Inc.:** June 20, 1907. **Capital:** 2,000,000 shares; par value 25c; 1,418,426 shares issued. **Property:** 4 patented, 17 unpatented claims, Little North Fork dist., Kootenai County; and Evolution dist.; Osburn; and 15 unpatented claims, Medimont dist.; Benewah County. **Development:** 1350-ft. crosscut on property in Shoshone County. **Plant:** Gas-driven I-R compressor, and complete mining equipment. **Ore:** Lead-silver. **Remarks:** See Benewah County.

RAMONA MINING CO.
Office: Kellogg. **Officers:** R. A. Brockman, Pres.-Mgr.; R. J. Coats, Sec., both of Kellogg. **Inc.:** Nov. 24, 1924. **Capital:** 1,000,000 shares; par value 25c; 783,216 shares issued. **Property:** Ramona group; 12 unpatented claims, Evolution dist.; Osburn. **Ore:** Lead-silver. **Remarks:** Annual labor only.

RAVEN MINING CO., LTD.
Office: Wallace. **Officers:** T. B. Gilmore, Pres., Spokane, Wash.; Art Partch, Sec., Pasco, Wash. **Inc.:** Nov. 13, 1907. **Capital:** 1,500,000 shares; par value $1; 642,765 shares issued. **Property:** 5 unpatented claims, Summit dist.; Murray. **Development:** Principally by 1 tunnel 1280 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Small amount of work during the year.

RAY JEFFERSON MINING CO.

Office: Wallace. **Officers:** D. C. Smith, Pres., Missoula, Mont.; P. J. Maggy, Sec., Wallace. **Inc.:** Mar. 31, 1910. **Capital:** 2,000,000 shares; par value 25c; all shares issued. **Property:** Ray Jefferson group; 32 patented, 9 unpatented claims, Beaver dist.; Wallace. **Developments:** Total development, 13,000 ft., consisting principally of a 3100-ft. crosscut. **Ore:** Lead-zinc-silver. **Men employed:** 1 watchman. **Remarks:** Annual labor only on unpatented claims. A stock assessment of 3 mills was levied on May 20, 1929.

RED CLOUD MINING CO.

Office: Wallace. **Officers:** A. L. Honeker, Pres.; H. J. Rossi, Sec., both of Wallace. **Inc.:** Sept. 1, 1896. **Capital:** 500,000 shares; par value $1; 263,396 shares issued. **Property:** 1 patented claim, Yreka dist.; Kellogg.

REINDEER-QUEEN MINING CO.

Office: Wallace. **Officers:** J. F. Gearon, Pres.-Mgr.; G. A. Halvorson, Sec., both of Wallace. **Inc.:** Sept. 27, 1913. Charter forfeited Nov. 30, 1929. **Capital:** 2,000,000 shares; par value 10c; 349,732 shares issued. **Property:** Reindeer-Queen group; 3 patented, 12 unpatented claims, Hunter dist.; Mullan. **Development:** Principally by 5 tunnels: No. 1, 3100 ft. long; No. 5, 7700 ft. long. **Plant:** Water-driven compressor and complete mining equipment. **Ore:** Copper-lead-silver. **Remarks:** Annual labor only. A stock assessment of 10 mills was levied on May 15, 1929.

REVETT MINING CO.

Office: 225 South Wall St., Spokane, Wash. **Officers:** W. W. Russell, Pres.; J. F. Arnold, Sec.-Mgr., both of Spokane, Wash. **Inc.:** Feb. 7, 1925. **Capital:** 2,500,000 shares; par value 20c; 1,106,000 shares issued. **Property:** Great Western group; 7 patented claims, Lelande dist.; Burke. **Development:** By 1 tunnel 2000 ft. long. **Ore:** Lead-silver. **Remarks:** Idle. Property formerly owned by Great Western Mining Co., Ltd.

RHODE ISLAND MINING CO., LTD.

Office: Wallace. **Officers:** Chas. Bollinger, Pres.; C. E. Clarke, Sec., both of Wallace. **Inc.:** July 13, 1900. **Capital:** 1,000,000 shares; par value 5c; all shares issued. **Property:** Rhode Island group; 4 unpatented claims, Evolution dist.; Wallace. **Development:** Approximately 900 ft. of workings. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

RICHMOND CONSOLIDATED MINING CO.

Office: 824 Old National Bank Bldg., Spokane. **Officers:** John B. White, Pres.; Fred J. Cunningham, Sec., both of Spokane. **Inc.:** June 29, 1923. **Capital:** 2,500,000 shares; par value 10c; all shares issued. **Property:** Richmond group; 7 patented claims, St. Joe dist.; Adair. **Development:** Approximately 8000 ft. of underground workings. **Ore:** Copper-gold. **Remarks:** During 1926, mine plant was dismantled and all operations were suspended.

ROANOKE MINING CO., LTD.

Office: Wallace. **Officers:** Henry L. Day, Pres.; John E. Ryan, Sec., both of Wallace. **Inc.:** Jan. 2, 1907. **Capital:** 1,500,000 shares; par value $1; 1,125,750 shares issued. **Property:** Roanoke group; 7 patented claims, Big Creek, Yreka dist.; Kellogg. **Development:** By 3 tunnels: No. 3, 650 ft. long; and an inclined shaft 340 ft. long, in which are 3 intermediate levels. **Plant:** Electrically-driven hoist. **Ore:** Lead-silver. **Remarks:** Small amount of work performed during the year by lessees.

ROBERTS COEUR D'ALENE M. & M. CO.

Office: E. 101 Nora Ave., Spokane, Wash. **Officers:** T. W. Roberts, Pres.-Mgr.; Dorothy Roberts, Sec., both of Spokane, Wash. **Inc.:** Nov. 16, 1927. **Capital:** 100,000 shares; par value $1; 54,589 shares issued. **Property:** sublease on property of Snow Storm Silver-Lead Co.

ROB ROY MINING CO.
Office: Wallace. **Officers:** John A. McLeod, Pres., Mullan; G. W. Dougherty, Sec., Wallace. **Inc.:** Feb. 16, 1907. **Capital:** 1,500,000 shares; par value $1; 892,576 shares issued. **Property:** 9 unpatented claims, Beaver dist.; Sunset. **Development:** By 1 tunnel 900 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of 1½ mills was levied on July 22, 1929.

RUTH CONSOLIDATED MINING & MILLING CO.
Office: 727 Old National Bank Bldg., Spokane, Wash. **Officers:** C. M. Crego, Pres.; G. D. Crego, Sec., both of Spokane, Wash. **Inc.:** Sept. 15, 1906. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Ruth group; 7 patented claims, Placer Center dist.; Wallace. **Development:** By 2 tunnels: No. 1, 1440 ft. long; No. 2, 1915 ft. long. **Plant:** Electrically-driven Laidlaw-Dunn-Gordon compressor; complete mining equipment. **Ore:** Lead-silver. **Remarks:** A small amount of development work during a period of 90 days.

ST. JOE LEAD & SILVER MINES CO.
Office: Wallace. **Officers:** Charles Oster, Pres.-Mgr.; Therrett Towles, Sec., both of Wallace. **Inc.:** July 6, 1928. **Capital:** 1,000,000 shares; par value 25c; 700,000 shares issued. **Property:** St. Joe group; 9 unpatented claims, Evolution dist.; Osburn. **Development:** By 4 tunnels: No. 1, 800 ft.; No. 2, 900 ft.; No. 3, 700 ft.; No. 4, 870 ft. **Ore:** Lead-silver. **Remarks:** During the year 500 ft. of tunnel driven under contract.

SAINT LOUIS & IDAHO MINING & MILLING CO.
Office: Wallace. **Officers:** Russell F. Collins, Pres.-Mgr.; S. B. Collins, Sec., both of Wallace. **Inc.:** June 24, 1903. **Capital:** 1,000,000 shares; par value $1; 840,251 shares issued. **Property:** Saint Louis & Idaho group; 3 unpatented claims, Lelande dist.; Burke. **Development:** By 2 tunnels: No. 1, 1000 ft. long; No. 2, 2000 ft. long. **Ore:** Lead-silver.

SAMSON MINING & DEVELOPMENT CO., LTD.
Office: Wardner. **Officers:** D. W. Raines, Pres., Spokane; R. L. Brainard, Sec., Wardner. **Inc.:** Aug. 15, 1904. **Capital:** 1,000,000 shares; par value $1; 900,000 shares issued. **Property:** Samson group; 8 unpatented claims, Eagle dist.; Prichard. **Development:** Principally by 1 tunnel 1000 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

SAVAGE MINING CO.
Office: Wallace. **Officers:** M. L. Savage, Pres.-Mgr., Kellogg; Herman J. Rossi, Sec., Wallace. **Inc.:** Jan. 12, 1929. **Capital:** 1,500,000 shares; par value 25c; 250,000 shares issued. **Property:** Savage group; 18 unpatented claims, Nine Mile Creek, Placer Center and Beaver dists.; Wallace. **Development:** By 1 tunnel 1000 ft. long. **Plant:** Electrically-driven 5-drill compressor and complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 4. **Remarks:** In January power line was extended to the property, mine buildings erected, equipment installed, and contract let for driving 1000 ft. of tunnel. In June fire destroyed the entire surface plant, which was immediately reconstructed and operations continued.

SENATOR MINING CO.
Office: Wallace. **Officers:** Rush J. White, Pres.-Mgr.; John J. Ferguson, Sec., both of Wallace. **Inc.:** May 3, 1920. **Capital:** 2,500,000 shares; par value 25c; 1,915,024 shares issued. **Property:** Senator group; 5 patented claims, Lelande dist.; Gem. **Remarks:** Property absorbed by Flynn Group Mining Co., which is under option to Coeur d'Alene Syndicate Mining Co.

SHERMAN LEAD CO.
Office: Wallace. **Officers:** Jerome J. Day, Pres.; P. J. Maggy, Sec., both of Wallace. **Inc.:** Nov. 4, 1918. **Capital:** 3,500,000 shares; par value 25c. Increased Aug. 27, 1928, to 3,675,000 shares; par value 25c; all shares issued. **Property:** Sherman and Oreano groups; 9 patented claims, Lelande dist.; Burke. **Development:** Total development, over 23,000 ft., consisting principally of Sherman No. 5 tunnel, 5660 ft. long; Sherman

No. 6 tunnel, 2000 ft. long; Oreano No. 2 tunnel, 5000 ft. long; and 2 1000-ft. inclined raises connecting Sherman No. 6 tunnel and Oreano No. 2 tunnel, in which are 7 intermediate levels. **Plant:** 2 electrically-driven hoists; trolley locomotive haulage and all mining equipment, furnished by Hercules Mining Co. **Ore:** Lead-silver. **Men employed:** Average, 107. **Remarks:** One of the principal mines in the Coeur d'Alene district to be placed on a profitably operating basis during 1929. The mine is connected with No. 5 tunnel of the Hercules mine, through which it is operated, and the ore is taken to the Hercules custom mill at Wallace for reduction. In addition to maintaining production throughout the greater part of the year, a large amount of development work was performed, which consisted principally of driving an additional 1000-ft. raise and a large amount of drifting on the Oreano and intermediate levels. This work resulted in greatly increasing the known reserves of the mine. Control of this company is owned by the Tamarack & Custer Consolidated Mining Co.

SHRINE MINING CO.

Office: Kellogg. **Officers:** A. C. Beal, Pres., Spokane, Wash.; Lester S. Harrison, Sec., Kellogg. **Inc.:** May 29, 1926. **Capital:** 2,000,000 shares; par value 5c; 1,000,000 shares issued. **Property:** 7 unpatented claims on Pine Creek, Yreka dist.; Masonia. **Development:** Principally by 2 tunnels: No. 3, 1350 ft. long; No. 4, 1100 ft. long. **Ore:** Lead-silver, antimony. **Remarks:** A small amount of work during the year.

SIDNEY LEASING CO.

Office: Kellogg. **Officers:** J. B. Cox, Pres.; W. T. Simons, Sec., both of Kellogg. **Inc.:** Feb. 27, 1925. **Capital:** 25,000 shares; par value $1; 7215 shares issued. **Property:** Lease on property of the Sidney Mining Co. **Plant:** 4½-mile aerial tramway; a 538-cu.-ft. I-R and an 1170-cu.-ft. I-R electrically-driven compressor; electrically-driven hoist; Waugh drill sharpener; complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Men employed:** Average, 62. **Remarks:** During the year the 1170-cu.-ft. compressor was installed, the main shaft extended 250 ft., a large amount of development work performed, and capacity production maintained. The new development work was successful in opening up an immense tonnage of new ore, particularly on the lower shaft level, where the lead content greatly exceeded that in the upper levels. The dividends paid by both this company and the Sidney Mining Co., which owns the property, were increased over those of the previous year. The fact that this mine, located on Pine Creek, is being operated at a substantial profit and its ore improving in grade and extent as depth is gained, is significant in proving that this section of the Coeur d'Alene district is not without merit, and the success of this enterprise is greatly stimulating mine development in this part of the district.

SIDNEY MINING CO.

Office: Kellogg. **Officers:** H. M. Ross, Pres., Seattle, Wash.; W. T. Simons, Sec., Kellogg. **Inc.:** June 20, 1910. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Sidney group; 7 patented, 11 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 6 tunnels: No. 1, 400 ft.; No. 3, 700 ft.; No. 5, 825 ft.; No. 6, 850 ft.; and an inclined shaft 350 ft. deep. **Ore:** Lead-zinc-silver. **Remarks:** Under lease to Sidney Leasing Co., which see.

SIERRA NEVADA CONSOLIDATED MINING CO.

Office: Kellogg. **Officers:** Stanly A. Easton, Pres.-Mgr.; C. W. Simmons, Sec., both of Kellogg. **Inc.:** May 21, 1887. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Sierra Nevada group; 5 patented claims, Yreka dist.; Kellogg. **Development:** Principally by 4 tunnels: No. 1, 4550 ft. long; No. 2, 275 ft. long; No. 3, 700 ft. long; No. 4, 625 ft. long. Total development, approximately 10,000 ft. **Ore:** Lead-silver. **Remarks:** Property under operation throughout the year by lessees, who produced and marketed a small tonnage of ore.

SILVER CLIFF GOLD & COPPER MINING CO., LTD.
Office: Wallace. **Officers:** Sidney L. Shonts, Pres.; Ed. C. Young, Sec.-Mgr., both of Wallace. **Inc.:** Oct. 6, 1900. **Capital:** 1,500,000 shares; par value $1; 1,406,000 shares issued. **Property:** Silver Cliff group; 19 unpatented claims, Hunter dist.; Mullan. **Development:** Over 2 miles of underground workings. **Plant:** An old water-driven compressor. **Ore:** Copper-silver. **Men employed:** Average, 2. **Remarks:** Annual labor only by lessees.

SILVER CRESCENT MINING CO.
Office: Wallace. **Officers:** James Mohr, Pres.-Mgr.; D. M. Faires, Sec., both of Wallace. **Inc.:** Oct. 19, 1911, as Placer Creek Silver-Lead Mining & Milling Co.; name changed Aug. 31, 1922. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Silver Crescent group; 9 unpatented claims, on Moon Creek, Yreka dist.; Kellogg. **Development:** By 5 tunnels, the principal one of which is 1000 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

SILVER EAGLE MINING CO., LTD.
Office: Wallace. **Officers:** John J. Hogus, Pres.; C. W. Betts, Sec., both of Wallace. **Inc.:** Nov. 12, 1906. **Capital:** 1,000,000 shares; par value $1; 656,110 shares issued. **Property:** Silver Eagle group; 11 patented claims, Placer Center dist.; Wallace. **Development:** 4 tunnels: No. 1, 1600 ft. long; No. 2, 400 ft. long; No. 3, 400 ft. long; No. 4, 300 ft. long. **Ore:** Lead-silver. **Remarks:** Idle.

SILVER MOON MINING CO., LTD.
Office: Palmerston Hotel, Spokane, Wash. **Officers:** H. C. Lambach, Pres.; Gus Ehrenberg, Sec., both of Spokane, Wash. **Inc.:** Aug. 31, 1906. **Capital:** 1,500,000 shares; par value $1; 708,394 shares issued. **Property:** Silver Moon group; 9 unpatented claims, Leland dist.; Gem. **Development:** Principally by 1 tunnel 2850 ft. long. **Plant:** Electrically-driven 200-cu.-ft. compressor; complete mining equipment. **Ore:** Lead-silver. **Remarks:** Annual labor only. Under lease and option to North American Mining & Smelting Corporation.

SILVER STANDARD MINING CO.
Office: E. 604 Heroy Ave., Spokane, Wash. **Officers:** S. L. Shaw, Pres.; Mrs. C. M. Shaw, Sec., both of Spokane. **Inc.:** Unknown; never filed in Idaho. **Capital:** 2,000,000 shares; par value 25c; 292,240 shares issued. **Property:** 11 unpatented claims, Evolution dist.; Osburn. **Development:** By 2 tunnels: No. 1, 411 ft. long; No. 2, 560 ft. long. **Plant:** Water-driven Sullivan compressor. **Ore:** Lead-silver. **Remarks:** Annual labor only.

SILVER SUMMIT MINING CO.
Office: Wallace. **Officers:** Harry P. Pearson, Pres.-Mgr., Wallace. **Inc.:** Mar. 7, 1927. **Capital:** 1,500,000 shares; par value $1; shares issued, unknown. **Property:** Coeur d'Alene-Jumbo group; 31 unpatented claims, Evolution dist.; Osburn. **Remarks:** Under option to Stratton Silver Summit, Inc., which see.

SISTER MINING & MILLING CO., LTD.
Office: 1160 Winston Ave., San Marino, Calif. **Officers:** Frank P. Markwell, Pres., Los Angeles, Calif.; Everett H. Pattison, Sec., San Marino, Calif. **Inc.:** Dec. 12, 1899. **Capital:** 1,500,000 shares; par value 10c; all shares issued. **Property:** Sister group; 7 patented claims, Placer Center dist.; Wallace. **Development:** By 4 tunnels: No. 1, 108 ft.; No. 2, 1069 ft.; No. 3, 2500 ft.; No. 4, 209 ft.; a 210-ft. raise, and a 264-ft. vertical shaft. **Ore:** Lead-zinc-silver. **Remarks:** Idle.

SLAVONIAN MINING CO.
Office: Wallace. **Officers:** John Lucas, Vice-Pres.; G. W. Dougherty, Sec., both of Wallace. **Inc.:** Nov. 26, 1910. **Capital:** 1,500,000 shares; par value $1; 584,360 shares issued. **Property:** 4 unpatented claims, Yreka dist.; Wardner. **Development:** Principally by 1 tunnel 1200 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of ¾ mill was levied on May 17, 1929.

SMUGGLER CONSOLIDATED MINING CO.

Office: 8 Germond Bldg., Spokane, Wash. **Officers:** J. A. Reubens, Sec.; Frank Murphy, Mgr., both of Spokane. **Inc.:** June 29, 1927. **Capital:** 1,000,000 shares; par value 10c; 338,500 shares issued. **Property:** Smuggler group; 5 patented claims, Lelande dist.; Burke. **Ore:** Lead-silver. **Remarks:** Idle.

SNOWSHOE MINING CO.

Office: Wallace. **Officers:** Walter H. Hanson, Pres.; Herman Marquardt, Sec., both of Wallace. **Inc.:** Sept. 30, 1903. **Capital:** 2,000,000 shares; par value $1; 260,000 shares issued. **Property:** Snowshoe; 8 patented claims, Hunter dist.; Mullan. **Development:** Approximately 4000 ft. of workings, the principal of which are No. 2 tunnel, 3000 ft. long, and No. 1 tunnel, 900 ft. long. **Plant:** Electrically-driven 3-drill compressor. **Ore:** Copper-silver. **Remarks:** Idle.

SONORA MINING & MILLING CO.

Office: Wallace. **Officers:** Otto Dubach, Pres., Gem; G. L. Richardson, Sec.-Mgr., Wallace. **Inc.:** Nov. 5, 1897. **Capital:** 1,000,000 shares; par value $1; 743,339 shares issued. **Property:** Sonora group; 11 patented, 4 unpatented claims, Lelande dist.; Burke. **Development:** Principally by 1 tunnel 5000 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Small amount of work during the year.

SPOKANE TUNNEL MINING CO.

Office: Wallace. **Officers:** John I. Johnson, Pres.-Mgr.; Otto A. Olsson, Sec., both of Wallace. **Inc.:** Oct. 29, 1906. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** 3 unpatented claims, Placer Center dist.; Wallace. **Development:** Approximately 1200 ft. of workings. **Ore:** Lead-silver. **Remarks:** Annual labor only.

SQUARE DEAL MINING & MILLING CO., LTD.

Office: Wallace. **Officers:** A. H. Featherstone, Pres.; M. K. Howes, Sec., both of Wallace. **Inc.:** Oct. 29, 1906. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Square Deal group; 11 unpatented claims, Hunter dist.; Wallace. **Development:** By 3 tunnels: No. 1, 150 ft.; No. 2, 900 ft.; No. 3, 100 ft. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** No. 2 tunnel extended 300 ft. during the year. A stock assessment of 1 mill was levied on June 3, 1929.

STANLEY MINING CO.

Office: Wallace. **Officers:** John H. Wourms, Pres., Wallace. **Inc.:** Apr. 16, 1926. **Capital:** 1,500,000 shares; par value 10c; all shares issued. **Property:** Stanley group; 13 patented, 2 unpatented claims, Lelande dist.; Burke. **Development:** By 3 tunnels: No. 1, 290 ft. long; No. 2, 950 ft. long; No. 3, 1630 ft. long. **Ore:** Antimony-gold. **Remarks:** A reorganization of the Stanley Consolidated Mining & Milling Co. Annual labor on unpatented claims.

STAR MINING CO.

Office: 504 Empire State Bldg., Spokane, Wash. **Officers:** W. J. C. Wakefield, Pres.; Charles Hussey, Sec., both of Spokane, Wash.; James F. McCarthy, Mgr., Wallace. **Inc.:** Sept. 17, 1900. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Star; 15 patented claims, Hunter dist.; Mullan. **Ore:** Silver-lead-zinc. **Remarks:** Property sold to Sullivan Mining Co. This company is being held together for the purpose of distributing the funds received from the sale.

STERLING MINING CO., LTD.

Office: Wallace. **Officers:** Mrs. Winnefred Presley, Pres.; J. Clarence Presley, Sec.-Mgr., both of Wallace. **Inc.:** Feb. 21, 1903. **Capital:** 1,500,000 shares; par value $1; 970,000 shares issued. **Property:** 13 unpatented claims, Evolution dist.; Wallace. **Development:** 1 tunnel, 600 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

STRATTON SILVER SUMMIT, INC.

Office: Wallace. **Officers:** L. K. Stratton, Pres.; Wm. J. Stratton, Sec., both of Wallace. **Inc.:** Feb. 6, 1929. **Capital:** 10,000,000 shares; par value 10c; 8,415,750 shares issued. **Property:** Jumbo group, Silver Summit Mining Co.; held under lease and option. **Development:** Principally by 1 tunnel 3040 ft. long. **Plant:** Electrically driven G. D. compressor and complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average. 10. **Remarks:** Compressor and mining equipment installed and operations maintained without interruption throughout the year. This work consisted in extending the projected 4000-ft. crosscut a distance of 2640 ft. during the year to a total distance of 3040 ft. This company is one of the important new enterprises of the Coeur d'Alene district and its expenditure was one of the largest.

SUCCESS MINING CO., LTD.

Office: Wallace. **Officers:** Dan P. Mahoney, Pres., Perma, Mont.; H. H. Miller, Sec., Wallace. **Inc.:** April 7, 1905. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Success group; 8 patented claims, Placer Center dist.; Wallace. **Development:** Principally by 3 tunnels: No. 1, 1320 ft. long; No. 2, 4585 ft. long; No. 3, 3360 ft. long; and a vertical shaft 1070 ft. deep, with 8 intermediate levels; total development, approximately 25,700 ft. **Plant:** MINE: Electrically-driven double-drum hoist; 2 electrically-driven compressors; complete mining equipment. MILL: 300-ton concentrator, including flotation and magnetic separation. **Ore:** Lead-zinc-silver. **Remarks:** In July, 1926, all operations were suspended, underground equipment was removed, and part of the mining and milling equipment was disposed of. A small tonnage was produced and marketed during 1929 by lessees.

SULLIVAN MINING CO.

Office: Kellogg. **Officers:** James F. McCarthy, Pres., Wallace; C. W. Simmons, Sec., Kellogg. **Inc.:** May 22, 1917. **Capital:** 500,000 shares; par value $3; 37,448 shares issued. **Property:** Star group; 23 patented claims, Hunter and Lelande dists.; Burke. **Development:** By a crosscut tunnel known as "Star crosscut", over 4000 ft. of drifting on vein, and two 1500-ft. vertical raises. The Star crosscut is on the 2000-ft. level of the Hecla mine and it is 8900 ft. long. **Plant:** MINE: All mine equipment furnished by Hecla Mining Co. MILL: All ore is milled by Bunker Hill & Sullivan M. & C. Co. in its South mill at Kellogg. ELECTROLYTIC ZINC PLANT: See Twenty-ninth Ann. Rept. of Mining Industry of Idaho, Engineering & Mining Journal of Dec. 1, 1928, and Mining Congress Journal of January, 1929, for complete illustrated description. **Ore:** Lead-zinc-silver. **Men employed:** Average, 125 at mine and 250 at zinc plant.

REMARKS

In 1916 the Bunker Hill & Sullivan M. & C. Co. secured an option on the Star mine from the Star Mining Co.; as the most feasible method of opening this mine was through the Hecla mine, the Hecla Mining Co. was offered and accepted a 50 per cent interest in the option.

The Sullivan Mining Co. was then formed to take over the Star option and to operate the mine. After litigation to perfect title to the Star vein system was settled in favor of the Star Mining Co., the Star crosscut was started and continued without interruption, excepting the time lost from July 13, 1923, to March 1, 1924, as a result of the Burke fire.

On November 13, 1925, the Star ore body was encountered at a point 1650 ft. west of the east end-line, and at a depth of 4000 ft. below the apex of the vein. After encountering the ore body development work continued, and during 1925 it was opened the entire distance of 1650 ft. and a connection was made with the 2250 level of the Morning mine of the Federal Mining & Smelting Co. On account of the great depth of the Star crosscut, the development work necessary to open the mine for the extraction of ore involved a large amount of drifting and raising. This work progressed throughout 1929 and the principal raises were extended to the Star tunnel. The Star crosscut is 4000 ft. below the apex and

about 70 ft. below the 2250-ft. level of the Morning mine; the Morning vein has been proved to the 3450-ft. level, and as the Morning and Star veins are conceded to be the same, it is evident that the Star mine contains an ore body of tremendous size. An authorized statement made during 1926 was to the effect that: "At the present capacity (475 tons per day) there is sufficient proven ore in the Star mine to assure it a life of 50 years."

Production, which was suspended in 1928 pending completion of the zinc plant, was resumed in February, 1929, and maintained at the rate of approximately 450 tons per day throughout the year. The two operating raises were completed to the Star tunnel, and a large amount of mine development work was performed. This work consisted principally in reopening the old stopes and placing new ones in condition for continuous production. The metal produced by the electrolytic zinc plant of this company is of exceptionally high grade and is finding a ready market at an increase in price over that of any other zinc metal. During the year this plant was enlarged and improved; many new homes for the employees were constructed, and a cadmium recovery unit, which represented a large expenditure, was added. The zinc plant of this company now constitutes one of the largest and most important enterprises in the Pacific Northwest, and one which assures the perpetuation of the mining industry in Shoshone County.

SUNRISE MINING CO., LTD.

Office: 801 Realty Bldg., Spokane, Wash. **Officers:** Josephine Kratzer, Pres.; C. Fred Kratzer, Sec.-Mgr., both of Spokane, Wash. **Inc.:** Nov. 18, 1902. **Capital:** 1,125,000 shares; par value $1; all shares issued. **Property:** Sunrise group; 8 patented, 2 unpatented claims, Beaver dist.; Wallace. **Development:** By 6 tunnels, the principal one of which is 1500 ft. long. **Ore:** Lead-zinc-silver.

SUNSET MINING CO.

Office: 781 Corbett St., Portland, Ore. **Officers:** A. H. Ruedy, Pres., Oakland, Calif.; E. G. Ruedy, Sec., Portland, Ore. **Inc.:** Mar. 3, 1926. **Capital:** 500,000 shares; par value $1; 352,403 shares issued. **Property:** 9 patented, 2 unpatented claims, Placer Center and Beaver dists.; Wallace. **Development:** By 2 tunnels: No. 1, 810 ft. long; No. 2, 220 ft. long. **Plant:** 10x10 electrically-driven compressor. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

SUNSHINE MINING CO.

Office: Yakima, Wash. **Officers:** John Sawbridge, Pres.; F. H. Church, Sec., both of Yakima, Wash.; C. C. Samuels, Mgr., Kellogg. **Inc.:** Jan. 3, 1921. **Capital:** 1,500,000 shares; par value 10c; 1,488,220 shares issued. **Property:** Yankee group; 4 patented, 11 unpatented claims, Yreka dist.; Kellogg. **Development:** Principal development by 5 tunnels: No. 1, 100 ft. long; No. 2, 170 ft. long; No. 3, 800 ft. long; No. 4, 1000 ft. long; No. 5, 3000 ft. long, in which is a vertical shaft 500 ft deep, and an inclined shaft connecting No. 5 tunnel level and the 1300-ft. level. **Plant:** MINE: 2 I-R compressors, 1 Burry compressor, 2 hoists, all electrically driven; complete mining equipment, buildings, and camp. MILL: 200-ton concentrator, including fine grinding and flotation. **Ore:** Lead-silver. **Men employed:** Average, 144.

REMARKS

The principal haulage level (No. 5) was entirely rebuilt; inclined shaft was sunk to the 1300-ft. level, and raised to the No. 5 tunnel level, which obviates the transfer on No. 5 shaft level and the use of the vertical shaft, permitting direct operation throughout the mine. A large boarding house was erected, additional compressor and much new mining equipment installed, and the mill rebuilt and enlarged; in addition to which the company maintained throughout the year an active development campaign, which was successful in greatly increasing the known ore reserves, particularly on the lower levels, where the ore proved to be of higher grade and greater extent.

SUNSHINE MINING CO., LTD.

Office: Wallace. **Officers:** D. C. Smith, Pres., Missoula, Mont.; H. J. Hull, Sec., Wallace. **Inc.:** Jan. 5, 1907. **Capital:** 2,700,000 shares; par value $1; 1,395,129 shares issued. **Property:** Sunshine group; 4 patented, 14 unpatented claims, Beaver dist.; Wallace. **Development:** Over 6000 ft. of underground workings. **Plant:** Electrically-driven I-R 5-drill compressor; complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only. A stock assessment of 5 mills was levied on Sept. 28, 1929.

SYNDICATE MINING & EXPLORATION CO., LTD.

Office: Kellogg. **Officers:** Ed. Lagerstrom, Pres.; J. L. Moore, Sec., both of Kellogg. **Inc.:** June 24, 1907. **Capital:** 1,500,000 shares; par value 25c; 717,000 shares issued. **Property:** 9 unpatented claims, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel, 1700 ft. long. **Ore:** Lead-silver. **Remarks:** Principal tunnel was extended a short distance during the year. A stock assessment of 1 mill was levied on Jan. 8, 1929.

TAMARACK & CUSTER CONSOLIDATED MINING CO.

Office: Wallace. **Officers:** Jerome J. Day, Pres.-Mgr.; Harry L. Day, Sec., both of Wallace. **Inc.:** Aug. 6, 1912. **Capital:** 5,000,000 shares; par value $1; all shares issued. **Property:** Tamarack & Custer; 56 patented, 1 unpatented claim, Lelande and Placer Center dists.; Gem. **Development:** The three principal tunnels are: No. 5, 12,300 ft. long; No. 6 (400-ft. level), 7900 ft. long; and No. 7 (1200-ft. level), 10,000 ft. long. The principal shaft is a 3-compartment, vertical shaft, 600 ft. deep; and a 3-compartment raise 800 ft. long connecting No. 6 and No. 7 tunnels. Total development, approximately **14** miles. **Plant:** MINE: 100-h. p. electrically-driven hoist; 3 1300-cu.-ft. electrically-driven compressors; storage battery haulage on intermediate levels and trolley locomotive haulage on main levels. Complete mining equipment. Modern and complete machine shop. Modern hotel, change houses, and camp. **Ore:** Lead-silver-zinc. **Men employed:** Average, 225. **Remarks:** Company maintained steady output and extensive mine development campaign during 10 months of the year. In September operations were suspended and all mine machinery and equipment moved from the No. 6 tunnel on Nine Mile Creek and reinstalled at No. 7 tunnel on Canyon Creek. The mine camp at No. 6 tunnel was abandoned and all operations transferred to No. 7 tunnel, which was converted into the principal outlet in 1928. From it the ore is transported in railroad cars to the Hercules custom mill at Wallace, which treats the entire output from this mine.

TEDDY MINING & MILLING CO., LTD.

Office: Kellogg. **Officers:** T. R. Mason, Pres.; S. M. Marchesi, Sec., both of Kellogg. **Inc.:** Dec. 1, 1904. **Capital:** 1,000,000 shares; par value $1; 900,000 shares issued. **Property:** Teddy group; 9 unpatented claims, Yreka dist.; Kellogg. **Development:** Over 1800 ft. of tunnels, the principal one of which is approximately 1400 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** Principal tunnel extended under contract throughout the year.

TIBERIUS MINING CO.

Office: Moscow. **Officers:** S. H. Knepper, Pres.; Samuel Owings, Treas., both of Moscow. **Inc.:** Mar. 9, 1916. **Capital:** 1,000,000 shares; par value 10c; 611,450 shares issued. **Property:** 40 acres of patented land on Pine Creek, Yreka dist.; Kellogg. **Ore:** Lead-zinc-silver.

TRADE DOLLAR MINING CO., LTD.

Office: 1160 Winston Ave., San Marino, Calif. **Officers:** Frank P. Markwell, Pres., Los Angeles, Calif.; Everett H. Pattison, Sec., San Marino, Calif. **Inc.:** Oct. 18, 1901. **Capital:** 1,000,000 shares; par value 10c; all shares issued. **Property:** Trade Dollar group; 6 patented claims, Lelande dist.; Burke.

TRAPPER MINING & SMELTING CO., LTD.
Office: Insurance Bldg., Wallace. **Officers:** Herman J. Rossi, Pres.-Mgr.; R. C. Russell, Sec., both of Wallace. **Inc.:** Dec. 14, 1906. **Capital:** 1,500,000 shares; par value $1; 861,047 shares issued. **Property:** 7 patented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 1 tunnel 700 ft. long. **Ore:** Lead-zinc-silver.

TREASURE VAULT MINING CO., LTD.
Office: Wallace. **Officers:** P. J. Maggy, Pres.; W. A. Devan, Sec., both of Wallace. **Inc.:** Oct. 29, 1906. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Treasure Vault group; 4 patented claims, Placer Center dist.; Sunset. **Ore:** Lead-silver. **Remarks:** Idle.

TUCKER MINING & MILLING CO.
Office: Wallace. **Officers:** Peter Bahn, Pres.-Mgr.; W. R. Turner, Sec., both of Wallace. **Inc.:** Mar. 30, 1907. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Tucker group; 6 unpatented claims, Hunter dist.; Mullan. **Development:** Principally by 1 tunnel which is 1300 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of 3 mills was levied on Dec. 2, 1929.

UNITED METALS CO.
Office: Wallace. **Officers:** John J. Hamlyn, Pres., San Francisco, Calif.; A. G. Kennedy, Sec., Wallace. **Inc.:** Sept. 2, 1924. **Capital:** 1,000,000 shares common, no par value; 100,000 shares preferred, par value $5; 746,950 shares common issued. **Property:** 61% of stock of Black Bear Mines Co.; property of Western Pacific Mining Co., Goodenough Mining Co., and Bell Mining Co. held under 50-yr. lease: 36 patented, 14 unpatented claims, Lelande and Hunter dists.; Wallace. **Development:** Principally by 2 tunnels: No. 1, 800 ft. long; No. 2, or Black Bear, 4000 ft. long. **Plant:** Electrically-driven 3-drill compressor; complete mining equipment. **Ore:** Lead-zinc-silver. **Men employed:** Average, 7. **Remarks:** Active for 3 months.

UNITED STATES SILVER LEAD MINES CO.
Office: W. 2011 Sinto Ave., Spokane, Wash. **Officers:** N. J. Jacobs, Pres., Ellensburg, Wash.; R. J. Toner, Sec., Spokane, Wash. **Inc.:** Sept. 24, 1917. **Capital:** 1,000,000 shares; par value 10c; 915,000 shares issued. **Property:** 21 unpatented claims, Eagle dist.; Prichard. **Development:** Principally by 1 tunnel 1200 ft. long. **Plant:** Electrically-driven G. D. compressor; complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Men employed:** Average, 4. **Remarks:** Equipment installed and principal tunnel extended about 700 ft. under contract during the year. Funds for this work were derived from stock assessments.

VIENNA-INTERNATIONAL MINING & MILLING CO., LTD.
Office: Wallace. **Officers:** A. H. Featherstone, Pres.; R. A. Marshall, Sec., both of Wallace. **Inc.:** Sept. 10, 1906. **Capital:** 1,500,000 shares; par value $1; 1,326,408 shares issued. **Property:** Vienna International; 4 patented claims, Placer Center dist.; Wallace. **Development:** Approximately 1300 ft. of tunnels. **Ore:** Lead-silver. **Remarks:** Idle for several years.

VINDICATOR MINING CO.
Office: 2122 Dwight Way, Berkeley, Calif. **Officers:** Kathryn Powers, Pres.; Grace Powers, Sec., both of Berkeley, Calif. **Inc.:** June 9, 1902. **Capital:** 1,000,000 shares; par value 10c; 323,462 shares issued. **Property:** 5 unpatented claims, Hunter dist.; Mullan. **Development:** By 1 tunnel 1100 ft. long. **Remarks:** Idle.

WALLACE IDAHO LEAD MINES, INC.
Office: 411 Second St., Wallace. **Officers:** L. W. Defenbach, Pres.-Mgr.; W. L. Coe, Sec., both of Wallace. **Inc.:** July 25, 1929. **Capital:** 2,000,000 shares; par value 25c; 300 shares issued. **Property:** Eastern Star group; 8 unpatented claims, Evolution dist.; Osburn. **Development:** By 2 tunnels: No. 1, 500 ft.; No. 2, 1300 ft. **Ore:** Lead-silver. **Remarks:** Small amount of work.

WALL STREET MINING CO.

Office: Wallace. **Officers:** Wm. O. Bradley, Pres., Spokane, Wash.; L. R. Loomis, Sec., Wallace. **Inc.:** Apr. 20, 1907. **Capital:** 1,250,000 shares; par value $1; 1,241,263 shares issued. **Property:** 17 unpatented claims, Hunter dist.; Mullan. **Development:** Principally by 3 tunnels, the longest of which is 1400 ft. **Plant:** Electrically-driven compressor; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Small amount of work during the year. A stock assessment of 2 mills was levied on July 6, 1929.

WASHINGTON-IDAHO MINING CO.

Office: 617 Peyton Bldg., Spokane, Wash. **Officers:** Dr. James Murray, Pres., Hayden Lake; A. B. Thomson, Sec.; Thos. Murray, Mgr., both of Spokane, Wash. **Inc.:** Oct. 21, 1927. **Capital:** 2,500,000 shares; par value 10c; 1,175,498 shares issued. **Property:** Crescent group; 19 unpatented claims, held under lease and option from the Crescent Mining & Milling Co.; Moon Creek, Yreka dist.; Kellogg. **Development:** By 3 tunnels, the principal one of which is 1200 ft. long. **Plant:** Electrically-driven I-R compressor and complete mining equipment. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

WEIGLE MINING & MILLING CO.

Office: Pasco, Wash. **Officers:** G. S. Weigle, Pres.; W. N. Jones, Sec., both of Pasco, Wash.; A. M. White, Mgr., Kellogg. **Inc.:** July 15, 1929. **Capital:** 1,250,000 shares; par value 5c; 792,520 shares issued. **Property:** Weigle group; 17 unpatented claims, Yreka dist.; Kellogg; 8 of which are held under lease and option from the Northside Mining Co. **Development:** By 4 short tunnels. **Ore:** Lead-zinc-silver. **Men employed:** Average, 3. **Remarks:** Small amount of work.

WEST BELL MINING CO., LTD.

Office: Wallace. **Officers:** J. O. Nordquist, Pres., Spokane, Wash.; Otto A. Olsson, Sec., Wallace. **Inc.:** May 8, 1899. **Capital:** 1,000,000 shares; par value 5c; all shares issued. **Property:** West Bell group; 5 patented claims, Lelande dist.; Black Bear. **Development:** 1 tunnel, 2300 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 1. **Remarks:** Idle.

WEST FEDERAL MINING CO.

Officers: Ray Morrison, Sec., Kellogg. **Inc.:** Mar. 9, 1928. **Capital:** 1,000,000 shares; par value 50c; 750,000 shares issued. **Property:** 12 unpatented claims, Hunter dist.; Wallace.

WEST GEM MINING CO.

Office: 1160 Winston Ave., San Marino, Calif. **Officers:** J. Fred Markwell, Pres., Sanger, Calif.; E. H. Pattison, Sec., San Marino, Calif. **Inc.:** Feb. 1, 1912. Charter forfeited Nov. 30, 1927. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** 1 patented claim, Lelande dist.; Wallace.

WEST HECLA MINING CO.

Office: Spokane, Wash., Box 1620. **Officers:** Dr. T. A. Russell, Pres.; J. V. Pohlman, Sec., both of Spokane, Wash. **Inc.:** Feb. 18, 1907. **Capital:** 1,500,000 shares; par value $1; 1,450,000 shares issued. **Property:** 3 patented claims, Lelande dist.; Burke. **Development:** Principally by 1 tunnel 1650 ft. long. **Ore:** Lead-silver.

WEST HUNTER MINING CO., LTD.

Office: Wallace. **Officers:** Ray Morrison, Pres., Kellogg; Herman Marquardt, Sec., Wallace. **Inc.:** July 29, 1915. **Capital:** 1,500,000 shares; par value 10c; all shares issued. **Property:** 1 patented, 9 unpatented claims, Hunter dist.; Mullan. **Development:** About 2700 ft. of tunnels. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Annual labor only. A stock assessment of 1c was levied on Aug. 3, 1929.

WEST MAMMOTH MINING CO.

Office: 2404 W. 2d Ave., Spokane, Wash. **Officers:** H. C. Lambach, Pres., Seattle, Wash.; A. A. Booth, Sec., Spokane. **Inc.:** July 30, 1926. **Capital:** 1,500,000 shares; par value 25c; 375,000 shares issued. **Property:** Lease and option on property owned by Headlight Mining Co., Ltd., and Big Divide Mining Co., Ltd. **Development:** By 2 tunnels: Headlight, 1300 ft long; Silvermoon, 2190 ft. long. **Plant:** Electrically-driven compressor; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 6. **Remarks:** Property under lease and option to North American Mining & Smelting Corporation, which extended the principal tunnel 750 ft. Late in the year the option was forfeited.

WESTERN MINES, LTD.

Office: Wallace. **Officers:** J. B. Ellis, Pres.-Mgr., Wallace; C. E. Collier, Sec., Spokane, Wash. **Inc.:** Mar. 16, 1928. **Capital:** 5,000,000 shares; par value $1; 2,102,490 shares issued. **Property:** Lease and option on property of Bell of the West Mining Co. **Men employed:** Average, 10. **Remarks:** Erection of buildings and installation of equipment, commenced in 1928, completed, and work started on sinking the new shaft during the year.

WESTERN PACIFIC MINING CO.

Office: Wallace. **Officers:** J. Fred Markwell, Sec., Sanger, Calif. **Inc.:** Apr. 6, 1922. Charter forfeited Nov. 30, 1929. **Capital:** 2,500,000 shares; par value 10c; all shares issued. **Property:** 10 patented, 2 unpatented claims, Lelande dist.; Burke. Under option to United Metals Co.

WESTERN UNION MINING CO.

Office: Wallace. **Officers:** Harry L. Day, Pres.-Mgr.; W. B. Heitfield, Sec., both of Wallace. **Inc.:** Jan. 27, 1916. **Capital:** 2,000,000 shares; par value 10c; 1,997,656 shares issued. **Property:** Western Union group; 11 patented, 19 unpatented claims, Evolution dist.; Wallace. **Development:** Principally by 4 tunnels: No. 3, 3000 ft. long, and No. 4, 7000 ft. long; and a vertical shaft 477 ft. deep, with 4 intermediate levels. Total development, approximately 18,000 ft. **Plant:** I-R and Gardner-Ricks electrically-driven compressors; air-driven hoist; complete mining equipment and camp. **Ore:** Lead-silver. **Remarks:** Mine operated throughout the year by lessees, who produced a small tonnage of ore.

WILBUR MINING CO., LTD.

Office: Wallace. **Officers:** A. T. Jenkins, Pres.; H. H. Miller, Sec., both of Wallace. **Inc.:** Nov. 24, 1906. **Capital:** 2,000,000 shares; par value 25c; 1,300,000 shares issued. **Property:** Wilbur group; 19 unpatented claims, Evolution dist.; Wallace. **Development:** Developed through No. 4 Western Union tunnel. **Ore:** Lead-silver. **Remarks:** Control of this company is held by the Western Union Mining Co. Annual labor only. A stock assessment of 5 mills was levied on July 11, 1929.

WILLOW CREEK MINING CO.

Office: 303 Hyde Blk., Spokane, Wash. **Officers:** Andrew Hedin, Pres.-Mgr.; John E. Hoppe, Sec., both of Spokane, Wash. **Inc.:** Jan. 25, 1924. **Capital:** 1,500,000 shares; par value 5c; 976,000 shares issued. **Property:** 23 unpatented claims, Hunter dist.; Mullan. **Development:** Principal tunnel 1800 ft. long. **Plant:** A water-driven compressor and complete mining equipment. **Ore:** Silver-lead. **Men employed:** Average, 2. **Remarks:** A small amount of work during the year, the money for which was derived from stock assessments.

WISCONSIN MINING CO.

Office: Kellogg. **Officers:** W. W. Papesh, Pres.-Mgr.; S. A. Germo, Sec., both of Kellogg. **Inc.:** Mar. 13, 1913. **Capital:** 1,500,000 shares; par value $1; 450,000 shares issued. **Property:** Wisconsin group; 5 unpatented claims Yreka dist.; Kellogg. **Development:** 1 tunnel 700 ft. long and a vertical shaft 100 ft. deep. **Plant:** Water-driven compressor; hoist; and complete mining equipment. **Ore:** Lead-silver. **Remarks:** Annual labor only.

WOLVERINE MINING CO., LTD.

Office: McConnell Hotel, Kellogg. **Officers:** P. C. Harrington, Pres.-Mgr.; Harold M. Gleeson, Sec., both of 304 Lindelle Bldg., Spokane, Wash. **Inc.:** Aug. 4, 1909. **Capital:** 1,250,000 shares; par value $1; 1,501,863 shares issued. **Property:** Wolverine group; 7 unpatented claims, Big Creek, Yreka dist.; Kellogg. **Development:** By 3 tunnels: No. 1, 450 ft. long; No. 2, 315 ft. long; No. 3, 87 ft. long; and an inclined shaft 400 ft. long. **Plant:** Hoist, 1 Sullivan and 1 I-R compressor, all electrically driven; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 8. **Remarks:** Installed additional compressor and new hoist, both electrically driven; extended shaft 150 ft. to the 500-ft. level; and performed a large amount of drifting on this level, which resulted in opening a substantial showing of new ore.

WONDERFUL MINING CO., LTD.

Office: Wallace. **Officers:** H. E. Howes, Vice-Pres.; A. H. Featherstone, Sec., both of Wallace. **Inc.:** Oct. 15, 1906. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Wonderful group; 4 patented claims, St. Joe dist.; Mullan. **Remarks:** Idle for a number of years.

WYOMING MINING & MILLING CO., LTD.

Office: Wallace. **Officers:** Alfred Page, Pres., Spokane, Wash.; A. W. Hoover, Sec.; Frederick Burbidge, Mgr., both of Wallace. **Inc.:** May 3, 1901. **Capital:** 1,000,000 shares; par value 10c; 935,554 shares issued. **Property:** Wyoming group; 11 patented claims, Yreka dist.; Kellogg. **Development:** Principally by 2 tunnels: Ranger, 2150 ft. long; Wyoming, 500 ft. long. Total development, approximately 5400 ft. **Ore:** Lead-zinc-silver. **Remarks:** Idle.

YAKIMA-SHOSHONE MINING CO.

Office: Standard Stock Exchange Bldg., Spokane, Wash. **Officers:** E. S. Crane, Pres.; W. J. Crane, Mgr., both of Kellogg; A. P. Grommesch, Sec., Yakima, Wash. **Inc.:** Oct. 11, 1928. **Capital:** 1,500,000 shares; par value 10c; 1,325,100 shares issued. **Property:** Nellie and Plainview groups; 2 patented, 10 unpatented claims, Evolution dist.; Kellogg. **Development:** By 5 tunnels, the principal one of which is No. 4, 800 ft. long, in which is a shaft 200 ft. deep. **Plant:** Electrically-driven C. P. compressor; hoist; complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 4. **Remarks:** Small amount of work during the year.

YOLANDA MINING CO.

Office: 618 Peyton Bldg., Spokane, Wash. **Officers:** J. E. Riley, Pres.-Mgr., Tekoa, Wash.; E. D. Wilcox, Sec., Spokane, Wash. **Inc.:** Unknown; never filed in Idaho. **Capital:** 15,000 shares preferred, par value $1; 2,420,000 shares common, par value 20c; 1750 shares preferred, 44,000 shares common issued. **Property:** Lease and option on property of Idora Mining Co., Ltd. **Men employed:** Average, 3. **Remarks:** Small amount of development work during the year.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
American Placer	Summit	Joseph Laveigne	Murray
Anchor et al.	Summit	Mike Melley	Murray
Ancient Gravel	Yreka	George H. Heller	Kellogg
Birthday Group	St. Joe	Wes. J. Horsky	Falcon
Bismark Lode	Eagle	Robt. T. Horn Est.	Murray
Blackhawk Group	Hunter	Chas. M. Baillie	Mullan
Black Hill	Beaver	John Thiard	Delta
Blue Eagle Gr.	Yreka	Walter Owens	Kellogg
Blue Grouse	Evolution	C. M. Patterson	Wallace
Bonanza	Eagle	Jas. Boland	Murray
Boulder Placer	Eagle	Clay Giles	Murray
Bull Pine	Evolution	O. J. Holtz	Kellogg
Carney Copper	Hunter	James Carney	Mullan
Carruthers Placer	Eagle	E. N. Harwood	Billings, Mont.
Castle Rock et al.	Placer Center	A. C. Livingston	Wallace
Comstock Group	Lelande	J. H. Smith	Wallace

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Corby Group	Yreka	John Steffes	Kellogg
Cornucopia	Eagle	Francis Frohling	Murray
Cougar Gr.	Yreka	Geo. Smith	Kellogg
Creighton Gr.	Hunter	Mrs. S. P. Domer	Spokane, Wash.
Daddy Mining Co.		Robert T. Horn	Murray
Eagle Placer	Eagle	Archie Smith	Murray
Eldorado Gr.	Eagle	James Leary et al.	Wallace
Eldorado	Summit	R. B. Lundy	Wallace
Eleventh Hour	Evolution	Victor Langley	Wallace
Empress	Beaver	Hugh Mabin	Wallace
Enterprise Group	Yreka	Fred G. Donaldson	Kellogg
Fahey Gr.	Evolution	John Fahey	Spokane, Wash.
Fay et al.	Yreka	Fred G. Donaldson	Kellogg
Ferguson Gr.	Summit	C. B. Ferguson	Murray
Florence Group	Eagle	Frank Rose	Murray
Frances Jeanne	Eagle	W. A. Taylor	Murray
Freeman Gr.	Evolution	Jesse Freeman et al.	Wallace
Friday	Beaver	E. M. Smith	Murray
Galena	Lelande	A. W. McCune	Salt Lake City, U.
Geneva	Hunter	John Guedelhofer	Mullan
Gilbert Placer	Beaver	W. A. Mather	Murray
Gold Back	Eagle	J. D. Stoltman	Murray
Gold Circle	Summit	William Wylie	Murray
Golden Chest	Beaver	Vivian Green	45 W. 34th St., New York City
Golden Gate	St. Joe	E. A. Patrick	Spokane, Wash.
Great Western &	Summit	Dunlap & Smith	Murray
Highland Chief	Yreka	H. T. Gilbert	Kellogg
Homestake Gr.	Lelande	L. J. Oatman et al.	Burke
Horseshoe Pl.	Beaver	Charles H. Wilson	Murray
Indicator	Yreka	Chas. Kaufman	Wallace
Ionia Lode	Summit	Albert Otto	Murray
Iron Clad	Yreka	Henry Lamb	Kellogg
Jewel Gulch	Evolution	Jasper Allamno	Osburn
Joyce Gr.	Beaver	C. B. Ferguson	Murray
Jumbo Gr.	Eagle	Chas. J. Johnson	Murray
Kellida Gr.	Yreka	W. F. Ide	Kellogg
Leroi Gr.	Placer Center	John Guedelhofer	Mullan
Liberal King Gr.	Yreka	Leslie Lamb	Kellogg
Lion Gr.	Summit	Wm. Wylie	Murray
Little Pittsburgh	Yreka	Gus Smith	Kellogg
Lonesome Pine Gr.	Evolution	H. L. Jaynes	Osburn
Lucky Bill Gr.	Eagle	Chas. T. Johnson	Murray
Lucky Boy	Summit	D. A. Finlayson	Murray
Lucky Strike	Summit	M. E. Lewis	Moscow
McLean Gr.	Placer Center	C. H. McLean	Wallace
Midas Gr.	Placer Center	Henry Lalonde	Wallace
Midnight	Hunter	Forest Clark	Mullan
Midnight Pl.	Beaver	W. A. Mather	Murray
Morning Star	Eagle	Mike Franks	Murray
Mother Lode	Eagle	John F. Murphy	Wallace
Nellie Potter	Eagle	David Goodman	Murray
Ninety Seven	Hunter	H. Thompson	Wallace
Old Timber	Eagle	Louis Feldman	Murray
Olympia	Lelande	A. G. Kerns Est.	Wallace
Olympia Gr.	Yreka	Armond McKinnis	Kellogg
Omaha Group	Lelande	August Paulsen Est.	Spokane, Wash.
Osakis Gr.	Placer Center	A. L. Fisher	Wallace
Ostrog Gr.	Yreka	N. Petrinovich	Wardner
Panama Gr.	Evolution	Mrs. Mary Crowley	Wallace
Paradox	Summit	Charles Nordquist	Murray

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Paymaster	Yreka	Jas. E. Hoskins	Kellogg
Peerless Gr.	Placer Center	E. M. Burt et al.	Wallace
Peterson Gr.	Hunter	Chris Peterson	Mullan
Pilot Group	Eagle	J. D. Stoltman	Murray
Prudent	Summit	P. R. Kimball	Murray
Renown Gr.	Placer Center	A. D. Marshall	Wallace
St. Joe	Evolution	C. M. Patterson	Osburn
Sargent	Evolution	C. Sargeant	Osburn
Senator Gr.	Hunter	Jennie Gribble	Mullan
Seward Camp	Eagle	James R. Wood	Murray
Sherlock Group	St. Joe	Frank M. Rose	Wallace
Shipka	Eagle	Godfrey Kohl	Murray
Silver King	Yreka	Hector McRae	Kellogg
Silver Reef	Yreka	Herman J. Rossi	Wallace
Silver Star	Beaver	E. R. Oxley	Murray
Slim Show	St. Joe	Nels Dahlberg	Iron Mt., Mont.
Spokane Central	Yreka	Sam Orlandini	Kellogg
Spokane Gr.	Yreka	Robt. F. Schneider	Kellogg
Steve Corcoran Gr.	Yreka	Chas. Gullickson	Wallace
Tam O'Shanter	Evolution	David C. Coates	Spokane, Wash.
Toledo Group	Lelande	M. J. Farrell	Burke
Tommy Hawk	Yreka	Alex Vouchard	Kellogg
Troy Group	Hunter	L. E. Hanley	Wallace
Uncle Sam Gr.	Hunter	Joe Huber et al.	Mullan
Victor	Lelande	A. D. Marshall	Wallace
Vindicator Group	Yreka	Charles Kaufman	Kellogg
Virgo et al.	Evolution	Sigurd Thorkelson	Wallace
Vulcan Gr.	Yreka	J. C. Bennington	Kellogg
Waddell Group	Summit	Frank Hall	Murray
Wallace Group	Evolution	Jos. Peila	Wallace
Wardner Gr.	Yreka	John Bogovich	Wardner
Whipsaw Placer	St. Joe	Frank A. Heller	Bonners Ferry
Wild & Wooley	Beaver	J. A. Prichard	Prichard
Williams Gr.	Evolution	Jesse Freeman	Wallace
Winnie	Eagle	W. M. Smith	Murray
Yankee Group	Evolution	Dennis Blake	Kellogg

BIBLIOGRAPHY

See pages 71-72-73 for publisher's address, meaning of reference marks, and abbreviations.

The Coeur d'Alene silver-lead mines, by J. C. Clayton: Eng. and Min. Jour., vol. 45, pp. 108-109, Feb. 11, **1888.**§

Bitterroot Forest Reserve, by R. U. Goode: Nat. Geog. Mag., vol. 9, pp. 387-400, **1898.**§

Coeur d'Alene mining region by W. C. Clarke: Mines and Minerals, vol. 20, pp. 561-562, July, **1900.***

Survey of the boundary line between Idaho and Montana from the international boundary to the crest of the Bitterroot Mountains, by R. U. Goode: U. S. Geol. Survey Bull. 170, **1900.**‡

Coeur d'Alene mining region, by Arthur Lakes: Mines and Minerals, vol. 20, pp. 303-304, February, **1900.***

Ore deposits of Yreka district, Idaho, by E. McCormick: Eng. and Min. Jour., vol. 69, p. 404, Apr. 7, **1900.**§

Geology and water resources of Nez Perce County, Idaho, by I. C. Russell: U. S. Geol. Survey Water-Supply Papers 53 and 54, **1901.**‡*

Mining and milling in the Coeur d'Alene, Idaho, by J. R. Finlay: Eng. and Min. Jour., vol. 75, p. 87, Jan. 10, **1903.**§

Mining industry of the Coeur d'Alene, by J. R. Finlay: Trans. Am. Inst. Min. Eng., vol. 33, pp. 235-271, **1903**§; Mines and Minerals, vol. 24, p. 497, May, **1904.***

A geological reconnaissance across the Bitterroot Range and Clearwater Mountains in Montana and Idaho, by Waldemar Lindgren: U. S. Geol. Survey Prof. Paper 27, pp. 108-111, **1904.***

Economic features of northern Idaho and northwestern Montana, by D. F. MacDonald: U. S. Geol. Survey Bull. 285, pp. 41-52, **1905.***

Coeur d'Alene district, by F. L. Ransome: Min. Mag., vol. 12, pp. 26-32, July, **1905.***

Ore deposits of the Coeur d'Alene district, Idaho, by F. L. Ransome: U. S. Geol. Survey Bull. 260, pp. 274-303, **1905.***

Ore deposits in the St. Joe River Basin, Idaho, by A. J. Collier: U. S. Geol. Survey Bull. 285, pp. 129-139, **1905.***

The Coeur d'Alene in 1905, by S. A. Easton: Eng. and Min. Jour., vol. 81, p. 11, Jan. 6, **1906.**§

The Murray gold belt, Idaho, by T. L. Lammers: Min. and Sci. Press, vol. 94, pp. 636-637, May 18, **1907.***

The north side of the Coeur d'Alene district, by H. S. Auerbach: Eng. and Min. Jour., vol. 86, pp. 65-70, July 11, **1908.**§

Tungsten ore deposits of the Coeur d'Alene, by H. S. Auerbach: Eng. and Min. Jour., vol. 86, pp. 1146-1148, Dec. 12, **1908.**§

The relation between certain ore-bearing veins and gangue fissures, by F. L. Ransome: Econ. Geology, vol. 3, pp. 331-337, June-July, **1908.**§

The geology and ore deposits of the Coeur d'Alene district, Idaho, by F. L. Ransome and F. C. Calkins: U. S. Geol. Survey Prof. Paper 62, **1908.***

Coeur d'Alene mining district, by J. P. Rowe: Min. World, vol. 29, pp. 739-740, Nov. 14, **1908**; vol. 29, pp. 777-778, Nov. 21, **1908**; vol. 29, pp. 843-845, Dec. 5, **1908.***

Mining in the Coeur d'Alene district, by J. P. Rowe: Mines and Minerals, vol. 28, pp. 549-551, July, **1908.***

The geology and ore deposits of the Coeur d'Alene district, by F. L. Ransome and F. C. Calkins, reviewed by E. R. Buckley: Econ. Geology, vol. 4, pp. 178-186, **1909.**§

Geology and ore deposits of the Coeur d'Alene, by F. C. Calkins, discussion of review by E. R. Buckley: Econ. Geology, vol. 4, pp. 258-261, April, **1909.**§

Microstructure of a complex ore from Frisco mine, by William Campbell: Eng. and Min. Jour., vol. 87, pp. 260-261, Jan. 30, **1909.**§

A geological reconnaissance in northern Idaho and northwestern Montana, by F. C. Calkins, with notes on the economic geology by D. F. MacDonald: U. S. Geol. Survey Bull. 384, **1909.***

Notes on geology of Snowstorm mine, Idaho, by George Huston: Eng. and Min. Jour., vol. 90, pp. 1109-1110, Dec. 3, **1910.**§

Geology and mineralization of the upper St. Joe River Basin, Idaho, by J. T. Pardee: U. S. Geol. Survey Bull. 470, pp. 39-61, **1910.***

Geology of the St. Joe-Clearwater region, Idaho, by F. C. Calkins and E. L. Jones, Jr.: U. S. Geol. Survey Bull. 530, pp. 75-86, **1911.***

Economic geology of the region around Mullan, Idaho, and Saltese, Montana, by F. C. Calkins and E. L. Jones, Jr.: U. S. Geol. Survey Bull. 540, pp. 167-211, **1912.***

Genesis of the silver-lead ores in the Wardner district, Idaho, by O. H. Hershey: Min. and Sci. Press, vol. 104, June 1, pp. 750-753; June 8, pp. 786-790; June 15, pp. 825-827, **1912.** (Published later as a pamphlet by Min. and Sci. Press.)**

Reply to Hershey's paper on Wardner district, by F. L. Ransome: Min. and Sci. Press, vol. 105, pp. 143-144, Aug. 3, **1912.***

The Coeur d'Alene mining district, by F. R. Ingalsbe: Eng. and Min. Jour., vol. 96, pp. 156-158, July 26, **1913.**§

Secondary enrichment in the Caledonia mine, Coeur d'Alene district, Idaho, by E. V. Shannon: Econ. Geology, vol. 8, pp. 565-570, Sept. **1913.**§

Origin of lead, zinc, and silver in the Coeur d'Alene, by O. H. Hershey: Min. and Sci. Press, vol. 107, Sept. 27 and Oct. 4, **1913.***

New developments in the Coeur d'Alene, by H. I. Ellis: Eng. and Min. Jour., vol. 100, pp. 337-340, Aug. 28, **1915.**§

The application of the apex law at Wardner, Idaho, by F. T. Greene: Trans. Am. Inst. Min. Eng., vol. 52, pp. 555-562, September, **1915.**§

The copper beds of the Coeur d'Alene, by George Huston: Min. and Sci. Press, vol. 110, pp. 145-147, Jan. 23, **1915.***

Metallurgy in the Coeur d'Alene, by H. A. Megraw: Eng. and Min. Jour., vol. 100, pp. 827-830, Nov. 20, **1915.**§

Origin and distribution of ore in the Coeur d'Alene, by O. H. Hershey, published for the author as a pamphlet by the Min. and Sci. Press, 32 pp., **1916.****

Tungsten, Murray, Idaho, Bull. 128, Amer. Inst. Min. Eng., p. 1173, **1917**: Trans. Amer. Inst. Min. Eng. 58, p. 224, **1917.**§

Genesis of the Success zinc-lead deposit, Coeur d'Alene district, Idaho, by J. B. Umpleby: Econ. Geology, vol. 12, pp. 138-153, Feb.-March, **1917.**§

Flotation in the Coeur d'Alene, by C. T. Rice: Eng. and Min. Jour., vol. 105, pp. 707-716, April 20, **1918.**§

Differential flotation of lead and zinc, by W. L. Ziegler: Eng. and Min. Jour., vol. 105, pp. 741-742, April 20, **1918.**§

Recovering caved stopes in narrow veins, by C. T. Rice: Eng. and Min. Jour., vol. 105, pp. 1069-1075, June 15; vol. 106, pp. 1-7, July 6; vol. 106, pp. 243-248, Aug. 10, **1918.** (Hecla mine.)§

Differential flotation at Wallace, by C. T. Rice: Eng. and Min. Jour., vol. 106, p. 482, Sept. 14, **1918.**§

Driving and timbering transfer chutes, by C. T. Rice: Eng. and Min. Jour., vol. 106, pp. 881-993, Dec. 7, **1918.** (Hecla mine.)§

The mining districts of northern Idaho, by E. K. Soper: Min. and Sci. Press, vol. 116, pp. 122-124, **1918.***

Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****

A reconnaissance of the Pine Creek district, Idaho, by E. L. Jones, Jr.: U. S. Geol. Survey Bull. 710, pp. 1-36, **1919.**‡

Linarite and leadhillite from Idaho, by E. V. Shannon: Am. Mineralogist, vol. 4, No. 8, pp. 93-94, August, **1919.**§

A preliminary report on the clays of Idaho, by F. H. Skeels: Idaho Bureau of Mines and Geology Bull. 2, **1920.****

The Bunker Hill Enterprise, by T. A. Rickard: Min. and Sci. Press, vol. 120, Jan. 3, Jan. 10, Jan. 24, Feb. 7, Feb. 21, March 6, April 3, April 10, May 15, and May 29, **1920**; vol. 121, Aug. 14, Sept. 4, Sept. 18, **1920.** Also issued in pamphlet form.*

Petrography of some lamprophyric dike rocks of the Coeur d'Alene mining district, Idaho, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 57, pp. 475-495, Sept. 2, **1920.**‡

The Bunker Hill Smelter, by T. A. Rickard: Min. and Sci. Press, vol. 122, Jan. 8, **1921.***

Coeur d'Alene Lake, Idaho, and the overflow lands, by R. W. Davenport: U. S. Geol. Survey Water-Supply Paper 500, **1921.***

Mining methods of Hecla Mining Co., by J. F. McCarthy and C. H. Foreman: Mining & Metallurgy, vol. 4, No. 195, March, **1923**; Trans. Am. Inst. Min. Eng., vol. 72, pp. 319-340, **1925.**§

Mining methods at Bunker Hill & Sullivan mines, by H. M. Childs and S. A. Easton: Mining & Metallurgy, vol. 4, No. 195, March, **1923**; Trans. Am. Inst. Min. Eng., vol. 72, pp. 305-318, **1925.**§

Geology and ore deposits of Shoshone County, Idaho, by J. B. Umpleby and E. L. Jones, Jr.: U. S. Geol. Survey Bull. 732, **1923.**‡

Summary of Hecla reconstruction, by E. L. Wood: Mining & Metallurgy, vol. 5, No. 210, June, **1924.**§

Reconstruction methods at the Hecla mine, by A. C. Stevenson: Mining & Metallurgy, vol. 5, No. 210, June, **1924.**§

History of the Hecla mine, Burke, Idaho, by J. F. McCarthy: Mining & Metallurgy, vol. 5, No. 210, June, **1924.**§

Hindered settling classification in relation to table concentration of Idaho lead-zinc ores, by A. W. Fahrenwald: U. S. Bureau of Mines, Reports of Investigation, Serial No. 2618, June, **1924.****

The Osburn fault, Idaho, by J. B. Umpleby: Jour. Geology, vol. 32, No. 7, Oct.-Nov., **1924.**§

The Bunker Hill smelter, by F. M. Smith: Mining Truth, vol. 9, pp. 2-4, Dec. 1, **1924.**§

Notes on western lead smelters, by A. B. Parsons: Eng. and Min. Jour., vol. 119, pp. 876-883, May 30, **1925.** (Bunker Hill smelter.)§

Deformation in ores, Coeur d'Alene district, Idaho, by W. A. Waldschmidt: Econ. Geology, vol. 20, pp. 573-586, Sept.-Oct., **1925.**§

Big silver-lead producer in Idaho (Hecla mine), by W. E. Carr: Compressed Air Mag., vol. 30, pp. 1375-1379, Sept. **1925.**§

Mining methods of the Morning mines, by Frederick Burbidge: Trans. Am. Inst. Min. Eng., vol. 72, pp. 341-344, **1925.**§

Bunker Hill & Sullivan M. & C. Co.'s South mill, by R. S. Handy: Twenty-seventh Ann. Rept. Min. Industry of Idaho, **1925.****

Hecla Mining Company's mill, by W. L. Zeigler: Twenty-seventh Ann. Rept. Min. Industry of Idaho, **1925.****

Tamarack & Custer Cons. Min. Co.'s mill: Twenty-seventh Ann. Rept. Min. Industry of Idaho, **1925.****

Gold Hunter Mines, Inc., mill, by J. E. Quinlan: Twenty-seventh Ann. Rept. Min. Industry of Idaho, **1925.****

Federal Mining & Smelting Co., Morning mill: Twenty-seventh Ann. Rept. Min. Industry of Idaho, **1925.****

Constitution M. & M. Co.'s mill, by W. P. White: Twenty-seventh Ann. Rept. Min. Industry of Idaho, **1925.****

Federal Mining & Smelting Co., Page mill, by H. G. Washburn: Twenty-eighth Ann. Rept. Min. Industry of Idaho, **1926.****

Callahan Zinc-Lead Co., Galena mill: Twenty-eighth Ann. Rept. Min. Industry of Idaho, **1926.****

Concentrating lead-silver ore at Hecla mine, by W. L. Zeigler: Eng. & Min. Journal, vol. 122, pp. 444-450, Sept. 18, **1926.**§

The conduct and value of mine rescue stations, by K. T. Sparks: Min. Con. Journal, vol. 12, No. 6, pp. 452-456, June, **1926.**§

Solving a problem in silver-lead ore concentration (Wardner), by E. W. Ellis: Eng. and Min. Jour., vol. 122, pp. 815-816, Nov. 20, **1926.**§

Some Coeur d'Alene geology, by J. E. Berg: Mining and Metallurgy, vol. 8, July, **1927.**§

Operating methods at the Morning mine, by C. E. Wethered and S. H. Fairweather: Mining and Metallurgy, vol. 8, July, **1927.**§

Milling practice at Morning mill, by M. P. Dalton and G. S. Price: Mining and Metallurgy, vol. 8, July, **1927.**§

The Hecla flotation plant, by W. L. Ziegler: Mining and Metallurgy, vol. 8, Aug., **1927.**§

Concreting the Morning shaft, by J. H. Johnson: Eng. and Min. Jour., vol. 124, pp. 285-288, Aug. 20, **1927.**§

The Federal Mining and Smelting Company Page mill, by H. G. Washburn: Min. Con. Journal, vol. 13, pp. 729-730, Sept., **1927.**§

Galena flotation concentrator, Lake Gulch, Idaho, by W. L. Ziegler: Technical Publication No. 8-B.7, Amer. Inst. Min. Eng., Aug. **1927**; Flotation Practice, A. I. M. E., pp. 182-184, **1928.**§

Flotation practice in the Coeur d'Alene district, Idaho, by A. W. Fahrenwald: Technical Publication No. 1-B.1, Amer. Inst. Min. Eng., July, **1927**; Min. Con. Journal, vol. 13, pp. 699-704, Sept., **1927**; Flotation Practice, A. I. M. E., pp. 107-132, **1928.**§

Concentration of lead-silver ore at Hecla mine, Gem, Idaho, by W. L. Ziegler: Technical Publication No. 7-B.6, Amer. Inst. Min. Eng., Aug., **1927**; Min. Con. Journal, vol. 13, pp. 683-684, Sept., **1927**; Flotation Practice, A. I. M. E., pp. 175-181, **1928.**§

The Sullivan electrolytic zinc plant of Sullivan Mining Co., by U. C. Tainton: Twenty-ninth Ann. Rept. Min. Industry of Idaho, **1927.***
Safety first at the Bunker Hill mine, by H. M. Childs: Min. Con. Journal, vol. 14, pp. 51-56, Jan., **1928.**§
Mining methods of the Hecla mine, by C. H. Foreman: Min. Con. Journal, vol. 14, pp. 381-383, June, **1928.**§
History of the Hecla mine; pt. 1, by J. F. McCarthy, Compressed Air Mag., vol. 33, pp. 2447-2449, June, **1928**; pt. 2, by E. L. Wood, Compressed Air Mag., vol. 33, pp. 2473-2475, July, **1928**; pt. 3, by A. C. Stevenson, Compressed Air Mag., vol. 33, pp. 2507-2509, Aug., **1928.**§
The Sullivan electrolytic zinc plant, by U. C. Tainton: Eng. & Min. Jour., vol. 126, pp. 856-860, Dec. 1, **1928.**§
New electrolytic zinc plant of Sullivan Mining Company, by R. M. Miller: Min. Con. Journal, vol. 15, pp. 70-74, Jan., **1929.**§
Mining practice at Bunker Hill & Sullivan, by U. E. Brown: Min. Con. Journal, vol. 16, pp. 21-24, Jan., **1930.**§
Milling practice at the Morning mill, by M. P. Dalton and G. S. Price: Min. Con. Journal, vol. 16, pp. 25-26, Jan., **1930.**§

TETON COUNTY

Teton is one of the southeastern counties, being bounded on the east by the State of Wyoming, on the south by Bonneville County, on the west by Madison County, and on the north by Fremont County. Containing an area of but 463 square miles, it is the second smallest county in the State. The 1920 census accredited it with a population of 3921, or 8.5 persons to the square mile, the larger part of which is located in the Teton River valley. Practically all the county is farming land, and the principal industries are wheat, potato and stockraising.

The county is served by the Teton State highway, good county roads, and the Ashton-Victor branch of the O. S. L. Railroad. Driggs is the largest town and county seat.

The principal mineral resources of Teton County are coal, phosphate rock, natural gas, limestone, and asbestos; and there are excellent possibilities for the discovery of petroleum. This county is one of the few in the State in which coal occurs in commercial quantity. Compared with the coal produced at Rock Springs, Wyoming, it is equal in quality and similar in appearance. As well as being of excellent quality for domestic and industrial purposes, it is especially adaptable for powdered coal.

The principal coal-bearing area is the Horseshoe district, seven miles west of Driggs. This district has never been sufficiently developed to prove the number or extent of the coal beds. Those which have been proved vary from one to eleven feet in thickness and repose at an angle of approximately 45 degrees. The Horseshoe district has been examined by the U. S. Geological Survey and by the U. S. Bureau of Mines in cooperation with the Idaho Bureau of Mines and Geology. The reports issued by these organizations are listed in the bibliographies, to which the reader is referred for complete descriptions, analyses, and tonnage estimates.

The most active enterprise in this county during 1929 was the Grand Teton Oil Co., a new organization which acquired a large part of the holdings of the Tieton Valley Land & Leasing Co. and its equipment. A large additional acreage was obtained and complete new standard well-drilling equipment was installed. Both rigs were placed on new locations, known as Blevins No. 1 well and Bevan No. 1 well; and drilling was maintained throughout the greater part of the year. The two wells reached depths of 1800 feet and 1376 feet, respectively.

GRAND TETON OIL CO.

Office: Earl Bldg., Idaho Falls. **Officers:** Geo. W. Edgington, Pres., Idaho Falls; Leo. F. Smith, Sec., Portland, Ore. **Inc.:** Aug. 9, 1928. **Capital:** 250,000 shares; par value $1; 150,133 shares issued. **Property:** Oil and gas lease on 7500 acres patented and government land lying 11 miles west

of Driggs. **Development:** Blevins No. 1 well, 1800 ft. deep; Bevan No. 1 well, 1376 ft. deep. **Plant:** 2 complete well-drilling rigs and equipment. **Mineral sought:** Oil and gas. **Men employed:** Average, 11. **Remarks:** A new organization which acquired a large part of the holdings of the Tieton Valley Land & Leasing Co. and its equipment. A large additional acreage was obtained and complete new standard well-drilling equipment was installed; both rigs were placed on new locations, known as Blevins No. 1 well and Bevan No. 1 well; and drilling was maintained throughout the greater part of the year, the two wells reaching depths of 1800 ft. and 1376 ft., respectively. This company was one of the most active oil prospecting enterprises in the State during the year.

IDAHO COAL MINING CO.

Office: Driggs. **Officers:** Peter Mickelsen, Pres., Rexburg; J. F. Miller, Sec., Rigby; John R. Cluff, Mgr., Driggs. **Inc.:** Aug. 13, 1926. **Capital:** 100,000 shares; par value $1; 91,000 shares issued. **Property:** Government prospecting permit on 2160 acres, Horseshoe dist.; Sam. **Development:** By 3 tunnels: No. 1, 847 ft.; No. 2, 130 ft.; No. 3, 400 ft. **Plant:** Small gas-driven compressor. **Mineral sought:** Coal. **Men employed:** Average, 2. **Remarks:** No. 2 tunnel extended 140 ft. during the year.

SUPERIOR COAL MINING CO.

Office: Pocatello. **Officers:** Roy L. Black, Pres.; S. Hansen, Sec., both of Pocatello. **Inc.:** Dec. 24, 1924. **Capital:** 1,000,000 shares; par value $1; 150,000 shares issued. **Property:** Assignment of prospecting permits and applications for lease on 2400 acres; Horseshoe dist.; Sam. **Development:** By 8 short tunnels, the longest being 520 ft., all of which are drifts on coal veins; and an inclined shaft 158 ft. long. **Plant:** Steam-driven hoist. **Mineral sought:** Coal. **Men employed:** Average, 3. **Remarks:** In addition to extending the principal tunnel a distance of 100 ft., a large amount of prospecting work was done during the year.

TIETON VALLEY LAND & LEASING CO.

Office: Astoria, Ore. **Officers:** Theo. Brown, Pres.; Charles Anet, Sec., both of Astoria, Ore.; F. J. Johnston, Mgr., Driggs. **Inc.:** Aug. 11, 1923. **Capital:** 100,000 shares; par value $1; 95,253 shares issued. **Property:** Oil and gas lease on 6000 acres of patented land lying west of Driggs. **Development:** 1325-ft. well. **Plant:** No. 26 Star drilling rig and complete drilling equipment. **Mineral sought:** Oil and gas. **Remarks:** Equipment used and property developed on a royalty basis throughout the year by the Grand Teton Oil Co.

BIBLIOGRAPHY

See pages 71-72-73 for publisher's address, meaning of reference marks, and abbreviations.

A reconnaissance of the phosphate deposits in western Wyoming, by Eliot Blackwelder: U. S. Geol. Survey Bull. 470, pp. 452-481, **1910.***

The Horseshoe Creek district of the Teton Basin coal field, by E. G. Woodruff: U. S. Geol. Survey Bull. 541, pp. 379-388, **1912.***

A geological reconnaissance for phosphate and coal in southeastern Idaho and western Wyoming, by A. R. Schultz: U. S. Geol. Survey Bull. 680, **1918.**‡

A preliminary report on the mining districts of Idaho, by Thomas Varley and others: U. S. Bureau of Mines Bull. 166, pp. 90-103, **1919.**‡

Oil shale in western Montana, southeastern Idaho, and adjacent parts of Wyoming and Utah, by D. D. Condit: U. S. Geol. Survey Bull. 711, pp. 15-40, **1920.**‡

Coal in eastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 716, **1920.**‡

Petroleum possibilities of certain anticlines in southeastern Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Bull. 4, **1922.***

The Horseshoe Basin area of the Teton coal field in southeastern Idaho, by G. W. Evans: Idaho Bureau of Mines and Geology Pamphlet 10, **1924.***

VALLEY COUNTY

Valley County occupies the geographical center of the State. It is bounded on the north by Idaho, on the east by Lemhi and Custer, on the south by Boise, and on the west by Gem and Adams counties. It contains an area of 3779 square miles, and was accredited with a population of 2524 in the 1920 census, or 0.7 persons to the square mile. The principal industries are farming, stockraising, lumbering and mining. Cascade is the county seat.

The State highway, Payette, extending from Boise to Cascade, McCall, and New Meadows, is the principal highway; the Forest Service highways from Cascade to Knox and Yellow Pine, and from Knox into Deadwood Basin and Bear Valley, connecting with the Sawtooth Park and Payette highways, are practically completed and opened to travel. The Nampa-McCall branch of the O. S. L. Railroad is the only railroad in the county.

Isolation and lack of transportation have prevented mineral development and compelled many valuable properties to lie idle, but the system of forest roads which has been designated and partly constructed, is making many of the various sections accessible to travel, and is stimulating mining. When these roads are completed the largest undeveloped mineralized area in the State will become available to profitable development and exploitation.

The principal mineral resources of Valley County are gold (placer and lode), lead, silver, zinc, antimony, mercury, copper, tungsten, molybdenum, and monazite. Many mines containing these minerals are undeveloped but justify the finances to prove their possibilities, and many others warrant investigation. These properties and the possibilities in undiscovered veins present many opportunities to the investor, prospector, and development company.

Throughout the year the Bunker Hill & Sullivan M. & C. Co., at the Hall Interstate and Lost Pilgrim mines, continued to be one of the most outstanding development and new construction enterprises in central Idaho. Construction on its new mill, which was started in 1927, was fully completed, and it was placed in operation early in 1929. The ore-bins, crushing machinery, and building are sufficient for a daily capacity of 300 tons, although initial flotation equipment was installed for a daily capacity of 100 tons only. In addition to completing the mill, the company installed a large pipe line and a new hydroelectric power plant. Additional ore-bins were constructed at the mill; the 700-foot raise connecting the Independence tunnel and the Anderson tunnel was entirely rebuilt into a three-compartment operating raise; and the mine was placed in condition for uninterrupted production. More than 10,000 feet of entries have been driven on the Hall Interstate-Lost Pilgrim vein, and the ore reserves have been proved to a vertical depth of over 1000 feet. As the Hall Interstate-Lost Pilgrim vein occurs in granite or allied rocks, this enterprise is of value to the State in stimulating prospecting and encouraging the investment of capital for the development of the many similar occurrences which are found throughout the granite area of central Idaho. In past years, this area has been looked upon with disfavor, but this demonstration proves the potentialities of these veins.

One of the most important enterprises bearing on the future of south-central Idaho is the mine plant installed, buildings erected, new tunnel started, and road construction performed during 1929 by Fred W. Bradley, president of the Bunker Hill & Sullivan M. & C. Co., operating as the Yellow Pine Co. near Yellow Pine. During the year construction on a 12-mile highway from Yellow Pine to Meadow Creek was completed; a steam-driven compressor and complete mining equipment were installed at the Meadow Creek tunnel, and a small gas-driven compressor and complete mining equipment were installed at the Monday tunnel, both tunnels being on the Meadow Creek vein. The Monday tunnel is a projected new tunnel 8000 feet north of and 450 feet lower than the Meadow Creek tunnel. A large modern boarding and bunk house was constructed at the Monday tunnel, and a number of new buildings at the Meadow Creek tunnel. In addition to maintaining development work at the Meadow Creek tunnel, a large part of which consisted of diamond drilling, the company started work on the Monday tunnel and a projected new 10,000-foot tunnel to open the Cinnabar group, the latter being opposite

the Monday tunnel and at the same elevation. The road work, new plant installation, new construction, and mine developments conducted by this company were among the largest in south-central Idaho, and the activities of this company were instrumental in attracting a large amount of attention to this part of the State.

The Big Creek Gold Mines, Inc., is a new organization operating under lease and option the Janson group on Clover Creek, which is reached by a 16-mile trail from Edwardsburg. This company installed a small portable sawmill, pipe line, and water-driven compressor, and constructed five new mine and camp buildings.



TRANSPORTATION DURING WINTER MONTHS IN CENTRAL VALLEY COUNTY

The Amalgamated Red Metals Mines Co. is a new organization holding the Ellison group, which is located near the divide between Profile and Big Creeks and is reached by a five-mile trail from the new Yellow Pine-Meadow Creek highway. This company installed a sawmill, small hydroelectric power plant, compressor, and 25-ton mill. New mill, mine, and camp buildings were erected; and a small amount of development work was performed. All of the equipment was transported to the property on horseback.

The Keystone Gold Mines., Inc., a new organization at the Werdenhoff mine on Big Creek, maintained active development work throughout the year.

In the Thunder Mountain district, McRae and Davis maintained active work at the Sunnyside mine throughout the summer months. In addition to the foregoing, this district received a large amount of investigation during the year from those seeking new mining enterprises.

AMALGAMATED RED METALS MINES CO.

Office: 217 Symons Bldg., Spokane, Wash. **Officers:** P. A. Summerland, Pres.; H. W. Power, Sec., both of Spokane, Wash. **Inc.:** Apr. 4, 1929. **Capital:** 1,500,000 shares; par value $1; 750,000 shares issued. **Property:** Red Metals group; 6 unpatented claims, Profile Gap, Yellow Pine dist.; Yellow Pine. **Development:** By 4 short tunnels. **Plant:** MINE: Small electrically-driven compressor; complete mining equipment and camp. MILL: 25-ton concentrator. **Ore:** Silver. **Men employed:** Average, 10. **Remarks:** New mill, mine, and camp buildings were erected, a sawmill, small hydroelectric power plant, compressor, and 25-ton mill installed; and a small amount of development work performed. All equipment had to be transported to the property on horseback over a 5-mile trail from the new Yellow Pine-Meadow Creek highway.

BIG CREEK GOLD MINES, INC.

Office: 618 Idaho Bldg., Boise. **Officers:** C. B. Faraday, Pres., Mountain Home; C. E. Winstead, Sec.; B. F. Goldman, Mgr., both of Boise. **Inc.:** June 9, 1928. **Capital:** 3,000,000 shares; no par value; 2,000,000 shares issued. **Property:** 17 unpatented lode claims and 480 acres unpatented placer claims, part of which are held under lease and option from Janson Bros., Edwardsburg dist.; Edwardsburg. **Development:** Janson Bros. group: By 3 tunnels: No. 1, 350 ft. long; No. 2, 200 ft. long; No. 3, 125 ft. long. **Plant:** Water-driven compressor; sawmill; complete mining equipment and camp. **Ore:** Gold. **Men employed:** Average, 12. **Remarks:** Sawmill, pipe line, and water-driven compressor installed, a large amount of lumber cut, and 5 new buildings erected during the year, all of which was performed under difficulties, as equipment was transported 16 miles on horseback.

BUNKER HILL & SULLIVAN MINING & CONCENTRATING CO.

(See Shoshone County.)

Officers: F. W. Bradley, Pres., 1022 Crocker Bldg., San Francisco, Calif.; Stanly A. Easton, Mgr., Kellogg; James W. Gwinn, Local Mgr., Bernard, via Cascade. **Property:** Lease and option on mines owned by Hall Interstate Mining Co., and Lost Pilgrim Mining Co., Deadwood dist.; Cascade, 52 miles; Bernard. **Development:** Principally by the Independence tunnel 7000 ft. long, in which is a 700-ft. 3-compartment raise; total development, over 10,000 ft. on both groups. **Plant:** MINE: 150-kw. hydroelectric



MILL, OFFICE, AND BOARDING HOUSE, BUNKER HILL & SULLIVAN M. & C. CO. AT HALL INTERSTATE MINE

power plant operating under a 510-ft. head; 400-kw. hydroelectric power plant; 385-cu.-ft. I-R compressor; complete mining equipment and camp. MILL: 100-ton flotation concentrator. **Ore:** Lead-silver-zinc. **Men employed:** Average, 35.

REMARKS

The properties controlled by this company were acquired in May, 1924, after many months of negotiation; immediately thereafter arrangements were completed for the construction of the necessary buildings and the installation of the equipment.

A large two-story boarding-house, a power-house, shop, barn, and outbuildings were built. The 150-kilowatt power plant was constructed, and the compressor and mining equipment were installed; mining operations were commenced on October 24, 1924, and have since been conducted without interruption.

The development campaign has consisted of extending the Independence tunnel of the Hall group a distance of 7000 ft., of which approximately 3000 ft. is on the Hall Interstate-Lost Pilgrim vein. The Independence tunnel and the Anderson tunnel are connected by a 700-ft. 3-compartment operating raise. By 1927 sufficient ore had been developed to warrant the installation of a mill, on which construction was started in 1928 and fully completed early in 1929. The ore-bins, crushing machinery, and building are sufficient for a daily capacity of 300 tons, although initial flotation equipment was installed for a daily capacity of 100 tons only. Lack of power prevented milling operations, and during 1929 a new hydroelectric power plant was installed, new ore-bins were erected, and the mine was placed in position for continuous production. This enterprise is one of the largest and most important in south-central Idaho and is of particular interest because the ore bodies occur in old gneissic and granitic rocks.

CASCADE VALLEY CORPORATION

Office: Fulton Nat'l Bank Bldg., Atlanta, Ga. **Officers:** N. S. Turner, Pres., Covington, Ga.; Ronald Ransom, Sec., Atlanta, Ga. **Inc.:** Apr. 27, 1925. **Capital:** 600 shares; par value $100; all shares issued. **Property:** Sunday group; 7 patented claims, Edwardsburg dist.; Edwardsburg.

COPPER CAMP MINING CO.

Office: Edwardsburg. **Officers:** W. H. Brittain, Pres., Atlanta, Ga.; Mrs. Annie Edwards, Sec.; Wm. A. Edwards, Mgr., both of Edwardsburg. **Inc.:** Oct. 19, 1928. **Capital:** 2,500,000 shares; par value $1; 1,400,000 shares issued. **Property:** Copper Camp, Atlanta, and Dixie groups; 30 unpatented claims, Edwardsburg dist.; Edwardsburg. **Ore:** Gold, silver, copper, lead.

DEADWOOD MINING CO., LTD.

Office: Boise. **Officers:** C. B. Steunenberg, Sec., Boise. **Inc.:** June 10, 1921. **Capital:** 1,000,000 shares; par value 10c; 307,504 shares issued. **Property:** Deadwood group; 8 unpatented claims, Deadwood dist.; Knox. **Development:** Principally by 1 tunnel, 600 ft. long. **Ore:** Lead-silver. **Remarks:** A small amount of development work during the year, funds for which were derived from stock assessments.

FERN QUICKSILVER MINING CO.

Office: Twin Falls. **Officers:** V. E. Morgan, Pres.; D. B. Edwards, Sec., both of Twin Falls. **Inc.:** Nov. 21, 1917. **Capital:** 1,500,000 shares; par value $1; 1,008,452 shares issued. **Property:** Fern group; 6 patented claims, Yellow Pine dist.; Yellow Pine. **Ore:** Mercury. **Remarks:** Idle. Property under option to National Mercury Corporation.

GOLD FORK MINING CO.

Office: 320 Idaho Bldg., Boise. **Officers:** W. E. Pierce, Pres.; W. Clyde Cox, Sec., both of Boise. **Inc.:** Jan. 18, 1916. **Capital:** 2000 shares; par value $100; all shares issued. **Property:** 1520 acres patented placer ground, Gold Fork dist.; Roseberry. **Ore:** Placer gold. **Remarks:** Idle throughout the year.

GREAT NORTHERN MINES CO.

Officers: Albert Hennessy, Pres., Yellow Pine. **Inc.:** Feb. 7, 1924. Charter forfeited Nov. 30, 1928. **Capital:** 100,000 shares; par value $1; all shares issued. **Property:** 11 unpatented claims, Yellow Pine dist.; Yellow Pine. **Development:** By 2 tunnels. **Ore:** Gold. **Remarks:** Property under option to and operated by Yellow Pine Co.

HALL INTERSTATE MINING CO.

Office: Boise. **Officers:** Chas. W. Mack, Sec., Boise. **Inc.:** Oct. 30, 1915. **Capital:** 1,000,000 shares; par value 25c; 155,500 shares issued. **Property:** Hall group; 5 unpatented claims, Deadwood dist.; Knox. **Development:** By 2 tunnels: Independence, 7000 ft. long; Anderson, 3000 ft. long. **Ore:** Lead-silver. **Remarks:** Under lease and option to Bunker Hill & Sullivan M. & C. Co.

HOLCOMB CO., LTD.

Office: Boise. **Officers:** Ario Pardee, Sec., 1600 Walnut St., Philadelphia; Chas. W. Mack, Mgr., Boise. **Inc.:** Apr. 20, 1908. **Capital:** 500,000 shares; par value $1; 169,280 shares issued. **Property:** 16 patented claims, Thunder Mountain dist.; Yellow Pine. **Ore:** Gold.

HURLEY CREEK MINING & MILLING CO.

Office: Cascade. **Officers:** Chas. C. Smith, Pres., Smiths Ferry; Forest E. Robb, Sec., Cascade. **Inc.:** Aug. 21, 1923. **Capital:** 1,000,000 shares; par value 10c; 697,776 shares issued. **Property:** Maloney group; 10 unpatented claims, unorganized dist.; Cabarton. **Development:** By 3 tunnels: No. 1, 450 ft. long; No. 2, 200 ft. long; No. 3, 1400 ft. long. **Ore:** Silver-gold-copper. **Men employed:** Average, 2. **Remarks:** This company is operating the Maloney group and actively developed the property during the greater part of the year.

IDAHO CENTRAL MINES CO.

Office: Mabton, Wash. **Officers:** A. L. Livingston, Pres.; J. R. Butler, Mgr., both of Mabton, Wash.; W. T. Livingston, Sec., Sunnyside, Wash. **Inc.:** May 12, 1927. **Capital:** 3,000,000 shares; par value $1; 1,533,000 shares issued. **Property:** Idaho Central group; 12 unpatented claims, Thunder Mountain dist.; Clover. **Development:** By 6 short tunnels. **Ore:** Copper-gold. **Remarks:** Small amount of work during the summer months.

INDEPENDENCE MINES & POWER CO.

Office: Topeka, Kan. **Officers:** W. H. Davis, Pres.; L. Biscoe, Sec., both of Topeka, Kan. **Inc.:** Apr. 27, 1906. **Capital:** 500,000 shares; par value 5c; 250,000 shares issued. **Property:** 10 patented claims, Big Creek dist.; Yellow Pine. **Development:** By 1 tunnel 500 ft. long. **Ore:** Copper-silver-gold. **Remarks:** Idle for many years.

KEYSTONE GOLD MINES, INC.

Office: 415 Mutual Life Bldg., Seattle, Wash. **Officers:** J. B. Mason, Pres., Seattle, Wash.; C. W. Mason, Sec., Tacoma, Wash. **Inc.:** Feb. 25, 1929. **Capital:** 2,000,000 shares; par value $1; 1,160,700 shares issued. **Property:** Werdenhoff group; 21 unpatented claims, Edwardsburg dist.; Warren; held under lease and option. **Development:** By 7 tunnels, the principal one of which is over 900 ft. long. **Ore:** Gold. **Men employed;** Average, 7. **Remarks:** Active development work throughout the year.

LOST PILGRIM MINING CO.

Office: Boise. **Officers:** Chas. W. Mack, Sec., Boise. **Inc.:** Nov. 22, 1921. **Capital:** 600,000 shares; par value $1; 355,144 shares issued. **Property:** Lost Pilgrim group; 8 unpatented claims, Deadwood dist.; Knox. **Development:** By 2 tunnels: No. 1, 400 ft. long; No. 2, 300 ft. long; and 1 vertical shaft 40 ft. deep, at the bottom of which is a 70-ft. drift; also by Independence tunnel. Total development, approximately 2500 ft. **Ore:** Silver-lead-zinc. **Remarks:** Under lease and option to Bunker Hill & Sullivan M. & C. Co.

NATIONAL MERCURY CORPORATION

Office: 927 Market St., Wilmington, Del. **Officers:** Benjamin C. Warnick, Pres.-Mgr., Philadelphia, Pa.; Geo. W. Smith, Sec., Twin Falls. **Inc.:** Filed in Idaho, Dec. 9, 1929. **Capital:** 50,000 shares Class A stock, par value $10; 100,000 shares Class B stock, no par value; 21,000 shares Class B issued. **Property:** Fern group; 6 patented claims, Yellow Pine dist.; Yellow Pine; held under lease and option from Fern Quicksilver Mining Co.



PARTIAL VIEW MEADOW CREEK CAMP, YELLOW PINE CO.

PROFILE-TAMARACK MINES CO.

Office: Yellow Pine. **Officers:** Geo. Webber, Pres.; Emil P. Slovarp, Sec., both of Henry Bldg., Portland, Ore.; H. T. Abstein, Mgr., Yellow Pine. **Inc.:** June 18, 1926. **Capital:** 20,000 shares; no par value; 10,300 shares issued. **Property:** 34 unpatented claims, Missouri and Profile creeks, Yellow Pine dist.; Yellow Pine. **Development:** Approximately 1000 ft. of workings on both groups. **Ore:** Lead-silver, copper-gold. **Men employed:** Average, 3. **Remarks:** Active development work throughout the summer months. A stock assessment was levied during the year.

PROSPECTORS MINING & DEVELOPING CO., LTD.

Office: Kuna. **Officers:** John R. Clark, Pres., Escalon, Calif.; Homer I. Clark, Sec.-Mgr., Kuna. **Inc.:** April 12, 1906. **Capital:** 50,000 shares; par value $1; 26,725 shares issued. **Property:** Golden Ibex group; on Wilson Creek, Thunder Mountain dist.; Meyers Cove. **Development:** Approximately 525 ft. of workings, the principal one of which is a tunnel 125 ft. long. **Ore:** Gold. **Men employed:** Average, 1. **Remarks:** Annual labor only.

RAPID CREEK MINING CO., LTD.

Office: Cascade. **Officers:** F. M. Kerby, Pres., Cascade; E. J. Geelan, Sec., McCall. **Inc.:** Nov. 1, 1928. **Capital:** 1,000,000 shares; par value 10c; 500,000 shares issued. **Property:** Rapid Creek group; 41 unpatented claims; McCall. **Ore:** Lead-silver- copper.

SMITH CREEK HYDRAULIC MINING CO., INC.

Office: 308 McCarty Bldg., Boise. **Officers:** A. C. Bunger, Pres.; H. M. Nelson, Sec.; J. K. Burns, Mgr., all of Boise. **Inc.:** Sept. 11, 1928. A reorganization of the Smith Creek Hydraulic Mining Co. **Capital:** 750,000 shares; no par value; 402,611 shares issued. **Property:** Smith Creek group; 20 unpatented placer claims, Edwardsburg dist.; Edwardsburg. **Ore:** Placer gold. **Men employed:** Average, 10. **Remarks:** Small amount of work during a period of 3 months.

SOUTH SALMON PLACER MINING CO.

Office: Nampa. **Officers:** C. G. Halliday, Pres.; L. L. Gray, Sec., both of Nampa. **Inc.:** Jan. 4, 1929. **Capital:** 100,000 shares; par value $1; 38,500 shares issued. **Property:** 10 unpatented placer claims and lease and

option on Wm. Reed ranch on South Fork of Salmon River, unorganized dist.; Knox. **Ore:** Placer gold. **Remarks:** Small amount of prospecting and road construction during the summer months.

UNITED MERCURY MINES CO.

Office: 605 Eastman Bldg., Boise. **Officers:** J. J. Oberbillig, Pres.-Mgr.; J. F. Koelsch, Sec., both of Boise. **Inc.:** Jan. 20, 1921. **Capital:** 5,000,000 shares; par value 10c; 4,416,141 shares issued. **Property:** 11 patented, 193 unpatented claims, consisting of 3 groups: Hermes, principal ore, cinnabar; Meadow Creek, principal ore, gold; Babbitt Metal, principal ore, antimony; Yellow Pine dist.; Yellow Pine. **Development:** Total development, approximately 10,000 ft. on all groups, consisting principally of No. 1 tunnel, 900 ft. long; No. 2 tunnel, 2700 ft. long, on Cinnabar group, and 1 tunnel 2700 ft. long on Meadow Creek group. **Plant:** A 6-cylindrical tube retort. **Ore:** Mercury, gold, silver, lead, and antimony. **Remarks:** Cinnabar and Meadow Creek groups under option to Yellow Pine Co., which see. Annual labor only on Babbitt Metal group.

WEST MOUNTAIN MINING CO.

Office: 529 E. Bannock St., Boise. **Officers:** John Alden, Pres.; H. A. Alden, Sec., both of Boise. **Inc.:** Mar. 8, 1922. **Capital:** 1,000,000 shares; par value 1c; 764,619 shares issued. **Property:** Silver Bell group; 13 unpatented claims, West Mountain dist.; Cascade. **Development:** By 2 tunnels: No. 1, 40 ft. long; No. 2, 700 ft. long. **Ore:** Lead-silver-gold-zinc. **Remarks:** Annual labor only.

YELLOW PINE CO.

Office: 1022 Crocker Bldg., San Francisco, Calif. **Officers:** Fred W. Bradley, Pres.; E. A. Griffin, Sec., both of San Francisco; Geo. Worthington, Supt., Stibnite. **Inc.:** Filed in Idaho May 25, 1928. **Capital:** 200,000 shares; par value $1; 62,605 shares issued. **Property:** Lease and option on Cinnabar group; 116 claims, and Meadow Creek group, 84 claims, owned by United Mercury Mines Co. **Development:** Meadow Creek group: Meadow Creek tunnel, 2700 ft. long; Monday tunnel, 300 ft. long. **Plant:** At Meadow Creek group: Steam-driven I-R compressor; air-driven hoist; steam-driven sawmill; complete mining equipment and camp. At Monday tunnel: Gas-driven compressor; complete mining equipment and camp.



NEW BOARDING HOUSE AT MONDAY TUNNEL, YELLOW PINE CO.

Ore: Mercury, gold-silver. **Men employed:** Average, 50. **Remarks:** Min plant installed, buildings erected, new tunnel started, and road con structed by this company during the year were among the largest an most important developments in south-central Idaho in 1929. Durin the year construction on a 12-mile highway from Yellow Pine to Meado Creek was completed; a steam-driven compressor and complete minin equipment were installed at the Meadow Creek tunnel, and a small gas driven compressor and complete mining equipment were installed at th Monday tunnel, both tunnels being on the Meadow Creek vein. The Mon day tunnel is a projected new tunnel 8000 ft. north of and 450 ft. lowe than the Meadow Creek tunnel. A large modern boarding and bun house was constructed at the Monday tunnel, and a number of ne buildings at the Meadow Creek tunnel. In addition to maintaining de velopment work at the Meadow Creek tunnel, a large part of which con sisted of diamond drilling, the company started work on the Monda tunnel and a projected new 10,000-ft. tunnel to open the Cinnabar group the latter being opposite the Monday tunnel and at the same elevation

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Baker Pl.	Deadwood	Wm. Baker	Cascade
Boyle Gr.	Yellow Pine	Cy Boyle	Yellow Pine
Buckeye et al.	Edwardsburg	Wm. Mitchell	Meyers Cove
Call Gr.	Yellow Pine	Ray Call	Yellow Pine
Cascade	Yellow Pine	Mike Popovich	Yellow Pine
Copper King	Yellow Pine	Crosby Brewer	Warren
Crater Lake	Yellow Pine	Wm. Lockpitch	Yellow Pine
Dewey	Thunder Mt.	R. A. Davis, Jr.	Nampa
Ellis Gr.	Deadwood	Jas. Ellis	Knox
Gold Fork Meadows Gr.	Unknown	W. H. Shane	Emmett
Gold Reef	Deadwood	Edw. Moran	Knox
Gold Ridge et al.	Yellow Pine	H. B. Abstein	Yellow Pine
Golden Gate Gr.	Yellow Pine	Mark Campbell	Yellow Pine
Golden Way Gr.	Big Creek	Geo. W. Laufer	Yellow Pine
Gum Boot et al.	Edwardsburg	E. M. Hussey et al.	Cascade
Hard Rock Gr.	Deadwood	Clay Kalfus	Knox
Hill Top et al.	Unorganized	Nick Randa	Donnelly
Homestake	Yellow Pine	Albert Hennessy	Cascade
Independence	Edwardsburg	J. B. Eldridge	Boise
Jensen Gr.	Edwardsburg	Jensen Bros.	Clover
Keystone Gr.	Deadwood	Mitchell Jeannott	Pioneerville
Lake City Pl.	Lake City	Jacob Storer	McCall
Link	Deadwood	Bedan Davis	Cascade
Lucky Strike	Hurdy Cr.	D. J. Cain	Cascade
Ludwig Gr.	Edwardsburg	Anthony Ludwig	Edwardsburg
Maxwelton	Yellow Pine	Boyle & Holum	Yellow Pine
Merry Blue Gr.	Deadwood	J. Goecke	Cascade
Muck Flats et al.	Unorganized	J. H. Schlehuber	Cambridge
.....	Edwardsburg	Mattie Mahan	Clover
Pathfinder Gr.	Profile	Crosby Brewer	Warren
Pioneer	Yellow Pine	A. C. Behne	Yellow Pine
Profile Gap Gr.	Profile	Sam Wilson	Yellow Pine
Ramey Ridge	Edwardsburg	James Hand	Clover
Red Metal	Profile	Chas. Ellison Est.	Yellow Pine
Rubarbe Pl.	Yellow Pine	Vernon White	Yellow Pine
Ruby Hill	Lake City	L. L. Alsager	Emmett
Silver Blossom Gr.	Unknown	E. T. Horine	Cascade
Silver Shield	Hurdy Cr.	Charles Hardin	Cabarton
Smith Cr. Gr.	Edwardsburg	John Routsen	Warren
Snow Shoe	Big Creek	Jacob Jensen	Clover
Sparkling Spgs. Gr.	Unorganized	O. D. Bradbury	Yellow Pine
Stadium	Yellow Pine	Kennedy and Elliott	Yellow Pine

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Sunday et al.	Edwardsburg	Wm. A. Edwards	Yellow Pine
Sunnyside	Thunder Mt.	Dan McRae	McCall
Taylor			
Ramby 1, 2, 3	Deadwood	Harold Taylor	Cascade
Thomson et al.	Edwardsburg	W. G. Thomson	Vale, Ore.
Union Gr.	Unorganized	J. L. Tyson et al.	Cabarton
Valley Gr.	Deadwood	Lee Bunch et al.	Boise
Warm Spring	Unorganized	E. H. Heller	Cascade

BIBLIOGRAPHY

See pages 71-72-73 for publisher's address, meaning of reference marks, and abbreviations.

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey, Twentieth Ann. Rept., pt. 3, pp. 75-256, **1900.***

Thunder Mountain and Mackay, Idaho, by R. N. Bell: Min. and Sci. Press, vol. 84, p. 62, Feb. 1, **1902.***

Geology of Thunder Mountain and central Idaho, by R. N. Bell: Eng. & Min. Jour., vol. 73, pp. 791-793, June 7, **1902.**§

Facts about Thunder Mountain, by R. N. Bell: Eng. and Min. Jour., vol. 74, pp. 273-275, Aug. 30, **1902.**§

Thunder Mountain, by W. E. L'Hame: Mines and Minerals, vol. 21, p. 558, July, **1901**; and vol. 24, pp. 207-209, December, **1903.***

Central Idaho gold district, by S. P. Jellum: Northwest Min. News, vol. 3, pp. 83-91, 107-114, 134-139, **1908**; vol. 4, pp. 2-6, 31-37, 66-73, **1909.***

Big Creek gold district, Idaho, by R. N. Bell: Eng. and Min. Jour., vol. 94, pp. 891-892, Nov. 9, **1912.**§

Quicksilver and antimony discoveries in central Idaho, by R. N. Bell: Idaho Mining Dept. Bull. 1, **1918.****

Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****

Geology of the Yellow Pine cinnabar mining district, Idaho, by E. S. Larsen and D. C. Livingston: U. S. Geol. Survey Bull. 715, **1920.***

A reconnaissance in south central Idaho embracing Thunder Mountain, Big Creek, Stanley Basin, Sheep Mountain, and Seafoam districts, by J. B. Umpleby and D. C. Livingston: Idaho Bureau of Mines and Geology Bull. 3, pp. 3-12, **1920.****

Antimony and quicksilver deposits in the Yellow Pine district, Idaho, by F. C. Schrader and C. P. Ross: U. S. Geol. Survey Bull. 780, pp. 137-167, **1926.**‡

Ore deposits in Tertiary lava in the Salmon River Mountains, Idaho, by C. P. Ross: Idaho Bureau of Mines and Geology, Pamphlet 25, **1927.****

WASHINGTON COUNTY

Washington is one of the southwestern counties, adjoining and lying north of Payette and Gem counties, east of Gem, and east and south of Adams County. The Snake River, which flows north, forms the entire western boundary. The county contains an area of 1479 square miles, and was accredited with a population of 9424 in the 1920 census. It is primarily an agricultural and stockraising community; that part which occupies the Snake River Valley is intensively cultivated, and is the location of the larger part of the population. Weiser is the county seat.

The North and South highway extends from the southern to the northern boundary and is situated about in the geographical center. Branch roads leading to all the settlements are maintained by the county; these are kept in good repair and open to travel the larger part of the year. The county is served by three railroads, the Pacific and Idaho Northern, which extends from Weiser to New Meadows; the main line of the O. S. L. Railroad, and the Huntington-Homestead, Oregon, branch of the same road.

The principal mineral resources are silver, copper, gold, lead, zinc, manganese, diatomaceous earth, pyrites, gypsum, clay, and garnet, practically all of which occur in the three mining districts—Washington, Cuddy Mountain, and Heath—the principal of which is the Washington, or Mineral, district. At one time the Mineral district was a large producer of silver; two blast furnaces were in operation, and the camp of Mineral was a good-sized town; but it has been deserted for many years, the smelters have been dismantled, and the district has almost reverted to its primitive condition. Nearly all the deposits are high-grade silver-copper ores, rather complex, and in some mines partly oxidized, but amenable to modern flotation methods. Many of the deposits in this district are extensive, a large tonnage of ore is available, and there appears to be no reason why the district should not be receiving more attention than it has during the past few years, as there are many properties that are worthy of investigation and development. Large deposits of pyrites and disseminated copper ore also occur in this district.

An event of importance to this county and to southern Idaho was the entry of the Idaho Mineral Mining Co.—a Nevada organization—into the Mineral district. Late in the year this company acquired practically all of the principal properties adjacent to the old town of Mineral and consisting of two groups on each side of Dennett Creek; a small gas-driven compressor and complete mining equipment were installed, and active development work was commenced.

The Crystal Dome Oil & Gas Co., a new organization whose property lies between the towns of Payette and Weiser, erected an 84-foot derrick, installed a standard steam-driven drilling rig, and commenced operations in sinking a 12-inch well. At the close of the year the well had reached a depth of 950 feet.

In the Cuddy Mountain district the Cuddy Mountain Gold Mining Co. was active throughout the summer months; and G. T. Hamill produced and shipped a carload of high-grade silver-lead ore. Press reports were to the effect that a new discovery of lead-silver ore was made in this district during the year.

CRYSTAL DOME OIL & GAS CO.

Office: Box 1573, Boise. **Officers:** Paul G. Savic, Pres.; Charles F. Reddoch, Sec., both of Boise; R. L. Battan, Mgr., Letha. **Inc.:** Aug. 8, 1929. **Capital:** 6000 shares; par value $25; 4224 shares issued. **Property:** Oil and gas leases on 6000 acres near Weiser. **Development:** 12-in. well 950 ft. deep. **Plant:** 84-ft. wooden derrick; standard steam-driven rig; complete drilling equipment. **Mineral sought:** Oil and gas. **Men employed:** Average, 5. **Remarks:** Equipment installed and operations commenced in November.

CUDDY MOUNTAIN GOLD MINING CO.

Office: 103 Park Ave., New York City. **Officers:** J. N. Bishop, Pres.; W. S. Gordon, Sec., both of New York City; W. E. Freehafer, Mgr., Council. **Inc.:** Mar. 27, 1926. **Capital:** 300,000 shares; par value $1; shares issued, unknown. **Property:** Cuddy Mountain group; 20 unpatented claims, Cuddy Mountain dist.; Council. **Development:** By 2 tunnels: No. 1, 600 ft. long; No. 2, 250 ft. long. **Plant:** Sawmill; small steam-driven amalgamation mill; complete mining equipment and camp. **Ore:** Gold. **Men employed:** Average, 3. **Remarks:** Active development work throughout the summer months.

EDNA MAY MINES CO., INC.

Office: Cambridge. **Officers:** Geo. Larsen, Pres., Ustick; J. A. Boone, Sec., Cambridge. **Inc.:** Aug. 13, 1926. Charter forfeited Nov. 30, 1929. **Capital:** 1,200,000 shares; par value 25c; 618,538 shares issued. **Property:** 21 unpatented claims, Heath dist., Council. **Development:** Principally by 1 tunnel 400 ft. long. **Ore:** Lead-copper. **Men employed:** Average, 3. **Remarks:** Small amount of work during the summer months.

IDAHO MINERAL MINING CO.

Office: Goldfield, Nev. **Officers:** A. I. D'Arcy, Pres.-Mgr.; H. G. McMahon, Sec., both of Goldfield, Nev. **Inc.:** Nov. 22, 1929. **Capital:** 1,000,000 shares; par value 10c; 500 shares issued. **Property:** Darris and Silver Still groups; 14 unpatented claims held under lease and option, Mineral dist.; Home, Ore. **Development:** Darris group: Principally by 1 tunnel 350 ft. long. **Plant:** Gas-driven compressor; complete mining equipment. **Ore:** Silver. **Men employed:** Average, 8. **Remarks:** Late in the year this company acquired the Darris group and the property owned by the Silver Still Mining Co., installed its equipment, and commenced an active development campaign.

IDAHO-OREGON COAL MINING CO.

Office: 1018 Idaho St., Boise. **Officers:** A. E. Price, Pres.-Mgr.; A. Affleck, Sec., both of Boise. **Inc.:** Nov. 5, 1920. **Capital:** 100,000 shares; par value $1; 48,000 shares issued. **Property:** Government prospecting permit on 1282 acres near Cobb Siding, Weiser. **Development:** By 1 tunnel 500 ft. long. **Mineral sought:** Coal.

SILVER STILL MINING CO.

Office: Weiser. **Officers:** John G. Still, Pres., Huntington, Ore.; E. R. Coulter, Sec., Weiser. **Inc.:** Aug. 21, 1924. **Capital:** 10,000 shares; par value $1; all shares issued. **Property:** 10 unpatented claims, Mineral dist.; Home, Ore. **Development:** 6 short tunnels, 1 shaft. **Ore:** Silver-copper. **Remarks:** Under option to Idaho Mineral Mining Co.

STANDARD DRILLING & DEVELOPMENT CO.

Office: Weiser. **Officers:** J. M. DeLay, Pres.-Mgr.; P. M. Weber, Sec., both of Weiser. **Inc.:** Apr. 1, 1929. **Capital:** 500,000 shares; par value $1; no shares issued. **Property:** Oro Hondo group; 4 unpatented claims, unorganized dist.; Weiser. **Development:** By 1 tunnel 300 ft. long. **Ore:** "Free gold."

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Alcorn Gr.	Cuddy Mt.	J. I. Burden	Council
Bay Horse et al.	Washington	U. S. Metals Co.	Huntington, Ore.
Copper Bell Gr.	Washington	J. R. Weaver	Home, Ore.
Copper King Ext.	Heath	H. H. Mack	Baker, Ore.
Cuddy Mt. Gr.	Cuddy Mt.	W. E. Freehafer	Council
Darius Gr.	Washington	Mrs. J. G. Burnham	Home, Ore.
Eagle Gr.	Washington	John G. Still	Huntington, Ore.
Edna May	Heath	Roy Howland	Homestead, Ore.
Egan Gr.	Washington	Emil Melzer Est.	Baker, Ore.
Enterprise Gr.	Washington	Shane & McCorkle	Home, Ore.
Fernwood	Heath	Wm. Ulrich	Huntington, Ore.
Iron Mt. Gr.	Washington	John Seigwein	Weiser
Jonsail	Heath	E. C. Jones	Huntington, Ore.
Keystone	Cuddy Mt.	G. T. Hamill	Fruitvale
Last Chance Gr.	Cuddy Mt.	Frank Peck	Council
L. T. Claim	Cuddy Mt.	L. J. Thibault	Council
Magdalene Gr.	Washington	J. R. Weaver	Home, Ore.
No Business Canon	Cuddy Mt.	Howland & Levander	Fruitvale
Pin Money Gr.	Mineral	F. J. Kennedy	Council
Porcupine Gr.	Cuddy Mt.	J. T. Morris	Council
Raymond	Heath	Paul Raymond, Sr.	Heath
Rinehart Gr.	Cuddy Mt.	Rinehart & Bloomfield	Council
River Bank Gr.	Cuddy Mt.	Earl Kerr	Council
S. & R. Gr.	Cuddy Mt.	Summercamp & Riley	Payette
Sunshine Idaho Gr.	Cuddy Mt.	H. A. Arnold	Council
View of the Valley	Heath	J. H. Schlehuber	Cambridge

BIBLIOGRAPHY

See pages 71-72-73 for publisher's address, meaning of reference marks, and abbreviations.

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey, Twentieth Ann. Rept., pt. 3, **1900.***

The gold belt of the Blue Mountains of Oregon, by Waldemar Lindgren: U. S. Geol. Survey, Twenty-second Ann. Rept., pt. 2, pp. 562, 568, 579, 585, 592, 626, 629, 638, 641 and 752-756, **1901.***

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Oil and gas prospects near Vale, Oregon, and Payette, Idaho, by C. W. Washburne: U. S. Geol. Survey Bull. 431, pp. 26-55, **1909.***

The I. X. L. copper prospect, by R. N. Bell: Eng. and Min. Jour., vol. 108, p. 400, Sept. 6, **1919.**§

Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****

A preliminary report on the clays of Idaho, by F. H. Skeels: Idaho Bureau of Mines and Geology Bull. 2, **1920.***

The copper deposits of the Seven Devils and adjacent districts, by D. C. Livingston and F. B. Laney: Idaho Bureau of Mines and Geology Bull. 1, **1920.***

Gypsum deposits of the United States, by R. W. Stone and others: U. S. Geol. Survey Bull. 697, pp. 99-100, **1920.**‡

Oil and gas possibilities of eastern Oregon, by J. P. Buwalda: Oregon Bureau of Mines and Geology, vol. 3, No. 2, **1921.***

A preliminary reconnaissance of the gas and oil possibilities of southwestern and south-central Idaho, by J. P. Buwalda: Idaho Bureau of Mines and Geology Pamphlet 5, **1923.****

A geologic reconnaissance of the Mineral and Cuddy Mountain mining district, Washington and Adams counties, Idaho, by D. C. Livingston: Idaho Bureau of Mines and Geology Pamphlet 13, **1925.****

DELINQUENT MINING COMPANIES

The Idaho mining law, section 5474, Idaho Compiled Statutes, was enacted with the intent to assist the inspector of mines in properly discharging his official duties. The Blue Sky law, as applicable to mining companies, section 5320, Idaho Compiled Statutes, was enacted on the assumption that if a mining company publicly files the facts relative to its mine and organization, this information should be sufficient to indicate the character and extent of the company and its undertaking.

The forms on which the reports are to be made to the inspector are mailed out in May of each year. These forms are so arranged that the required facts can be given with little effort, and as ignorance of the law is no excuse, there must be other reasons why many reports are not filed and why many that are filed are not complete. Possibly there might be some excuse for an inactive company neglecting to comply with the law, but none can be offered for a company that is operating, and most particularly when the stock is being actively marketed or when stock assessments are being levied.

Every effort possible has been put forth during the year to get a report from all mining companies operating in Idaho whose charters are in good standing. This effort has not been entirely successful, and, believing that the list of "Delinquent Mining Companies" as published in previous annual reports has been informative, a similar list for 1929 is included.

Companies whose corporate charters are in good standing, but who have failed to file annual reports with inspector of mines, as provided in sections 5320 and 5474 of Idaho Compiled Statutes:

COMPANY NAME	OFFICER	P. O. ADDRESS
Alder Development Co.	Lester S. Harrison	Kellogg
Bard M. & M. Co.	Fred C. Daeufer	517 Ziegler Bldg., Spokane, Wash.
Bear Top Lead Mines	Marguerite Schick	Wallace
Beaverhead Mining Co.	Grant W. Soule	Dubois
Big Ben Gold Mining Co.	C. H. Seagrave	Gooding
Blacktail Cons. Mng. Co.	Albert M. Nash	516 McDowall Bldg., Seattle, Wash.
Blue Grouse Mining Co., Ltd.	D. A. Callahan	Wallace
Boise Mng., Mill. & Smelt. Co.	M. J. Minton	Boise
Bonner Mining Co.	J. A. Henderson	Oakesdale, Wash.
Border Mining Co.	C. L. Wickstrom	Bonners Ferry
Burnt Cabin Mining Co.	C. O. Jennings	Coeur d'Alene
Butte Antelope Mining Co.	H. E. Lisonbee	Salt Lake City, Utah
Castle Creek M. & M. Co.	W. P. Nelson	Boise
Central Idaho M. & M. Co.	W. A. Newton	Dixie
Clearwater Gold & Copper Mng. Co., Ltd.	John H. Wourms	Wallace
Clearwater Lime Products Co.	L. A. Strickfaden	Lewiston
Clearwater Placer Mining Co.	Chas. H. Ennis	601 Hutton Bldg., Spokane, Wash.
Cleveland Mining Corporation	C. C. Ames	Cleveland
Climax Silver-Lead Mining Co.	H. V. Edwards	Wallace
Cobra M. & M. Co.	W. C. Kirby	Lewiston
Coeur d'Alene Mt. Mng. Co.	Jas. E. McDowell	Coeur d'Alene
Consolidated Metals, Inc.	Geo. D. Evans	Wallace
Copper Queen Mining Co., Inc.	Dan Laverty	Pardee
Cynide Gold Mining Co., Ltd.	C. A. Ritchie	Bonners Ferry
Delta Leasing Co.	W. A. Smith	Wallace
Discovery Gulch Mining Co.	E. H. Miley	530 N. Harrison St., Pocatello
Eagle Creek Gold Mining Co.	W. H. Hanson	Wallace
East Standard Mining Co.	J. E. Gyde	Wallace
East Star Mining Co.	Lars W. Johnson	Moore
Eureka M. & M. Co.	W. R. Prowell	Wenatchee, Wash.

COMPANY NAME	OFFICER	P. O. ADDRESS
Gaiety Mt. Gold Mines Co.	Geo. H. Cochran	279 Forest Ave., Englewood, N. J.
Gilmore-Mt. Boy Mining Co.	Enoch Stewart	Gilmore
Golden Chariot Mining Co.	John A. Bagley	412 Templeton Bldg., Salt Lake City, Utah
Golden Scepter Mining Co., Ltd.	C. F. Halvorson	3321 N. Nevada St., Spokane, Wash.
Golden Trail Mining Co.	J. R. Hall	Hansen
Grey Eagle M. & M. Co.	Walter H. Hanson	Wallace
Hailey Tramway Co.	Guy M. Snyder	215 Felt Bldg., Salt Lake City, Utah
Hennessy-Burns Mining Co.	Jos. F. Whelan	Wallace
Howey Mines Co.	Geo. H. McGinnis	Kellogg
Hummer Mining Co.	Chase A. Clark	Mackay
Idaho Manganese Mining Co.	Geo. L. Smith	Cleveland
Idaho Mines Corporation	W. H. Hanson	Wallace
Idaho Silver Magnet Mines Co.	Thos. Fahey	Spokane, Wash.
Illinois Mining Co.	M. G. Sacrider	Mountain Home
Irbis Placer Association	G. S. DeWolf	Grangeville
Latah Mining Co., Ltd.	R. W. Sutliff	Hutton Bldg., Spokane, Wash.
Leadbell Mining Co.	W. R. Godfrey	Lava Hot Springs
Lead Cliff Mining Co.	C. L. Wickstrom	Bonners Ferry
Lead Cons. Mining Co.	H. I. Monks	Bonners Ferry
Lemhi-Union Co.	W. H. Gilliam	Rexburg
Lime Peak Copper Co.	L. B. Reeder	214 Couch Bldg., Portland, Ore.
Little Mint Mining Co.	J. F. Whelan	Wallace
Mac D'Palm Mining Co.	E. B. Palmer	Kellogg
McGregor Mining Co.	L. L. Ruthruff	Kellogg
Meadow Creek Gold Placer Co.	F. E. Lukens	Boise
Melon Valley Oil Ass'n, Inc.	S. A. Webber	Buhl
Messenger Mines	Ruth Hodges	Wallace
Metals Mining Co.	G. A. Cunningham	E. 327 Boone Ave., Spokane, Wash.
Metals Mining Co.	S. A. Anderson	Bonners Ferry
Minerva M. & M. Co., Ltd.	Henry A. Jones	730 Bakewell Bldg., Pittsburgh, Pa.
Missoula Copper Mining Co.	J. R. Bean	Wallace
National Copper Mines Co.	R. Fennell	606 Lewis Bldg., Portland, Ore.
National Hydraulic Mines Co.	Albert E. Small	Boise
North Idaho Development Co.	Eric Larson	Bonners Ferry
Oakley M. & M. Co.	John H. Fairchild	Oakley
Ox Bow Mining Co.	Lee Bunch	Boise
Papurel & Graham Mt. Mng. Co.	Jos. F. Whelan	Wallace
Patterson Mines Corporation	Finis Bentley	Pocatello
Patuxent Mining Co.	D. A. Callahan	Wallace
Perseverance Mines Co., Inc.	Geo. R. Colvin	Boise
Phemspace Mines Co.	P. A. Wagner	721 7th St., Rochelle, Ill.
Pullman M. & M. Co.	A. B. Baker	Pullman, Wash.
Rockford Mining Co., Ltd.	Walter H. Hanson	Wallace
Ruby Mining Co.	John Ball	83 Crowley Road, Riverside, Ill.
Sabina Mines Co.	Jas. A. Wayne	Wallace
Seattle Mng. & Dev. Co.	O. W. Nelson	Coeur d'Alene
Silver Lode M. & M. Co.	D. Williams	Kellogg
Silver Reef Mining Co.	H. C. Buhler	Box 558, Spokane, Wash.
Silver Star Mng. & Dev. Co.	Mrs. H. B. Caines	St. Maries

COMPANY NAME	OFFICER	P. O. ADDRESS
South Gilmore Mining Co.	Richard Martin	Idaho Falls
Tammany Oil Co.	V. F. Lorang	Lewiston
Tuscumbia Mining Co., Ltd.	Morton Webster	Wallace
Union Mining Project	J. F. Gearon & Co.	Dexter-Horton Bldg., Seattle, Wash.
Unity Gold Mines Co.	Granville Eyman	Warren
Vendetta Chief Mining Co.	Helen C. McPhee	Wallace
Verde-May Mining Co., Ltd.	Walter H. Hanson	Wallace
Wallace Silver-Lead Mines Co.	Walter H. Hanson	Wallace
Washington Mining Co.	Paul Leuschel	Wallace
Western Manganese Co.	E. G. Frawley	Pocatello
Western States All Metals Corp.	Claude Huffman	Lewiston

Companies whose corporate charters are in good standing, but who have failed to file annual reports with the inspector of mines, as provided in sections 5320 and 5474 of Idaho Compiled Statutes, and who levied one or more stock assessments during 1929:

COMPANY NAME	OFFICER	P. O. ADDRESS
Echo Mining Co., Ltd.	Walter H. Hanson	Wallace
Hamburg American Copper M. & M. Co.	August Lock	Kellogg
Silver Dale & Big Hill Mng. Co.	D. W. Knudson	Kellogg
Torino Mining Co.	Jos. F. Whelan	Wallace

Companies whose corporate charters were forfeited on November 30, 1929, or prior thereto, who have failed to file annual reports for 1929 with inspector of mines as provided in sections 5320 and 5474 of Idaho Compiled Statutes, and who have levied one or more stock assessments during 1929:

COMPANY NAME	OFFICER	P. O. ADDRESS
Elizane Carney Copper Mng. Co.	Catherine A. Bean	Mullan

Companies whose names were gleaned from the press, whose forms of organization are unknown, and who have failed to file annual reports with the inspector of mines, as provided in sections 5320 and 5474 of Idaho Compiled Statutes:

COMPANY NAME	OFFICER	P. O. ADDRESS
Atlas Mines, Inc.	R. M. Taylor	Sandpoint
British-American M. & S. Corp.	....	507 Empire State Blg., Spokane, Wash.
Caribou Copper Co.	Daniel Konold	Ogden, Utah
Chatterton Mining Co.	Byron Chatterton	Swan Lake
Cuprum Mines Co.	E. M. Morton	Yeon Bldg., Portland, Ore.
Golden Mines, Ltd.	Elza Des Jardins	Golden
Gold Star Mining Co.	... .	Orogrande
Great Western Copper Co.	Jackson C. Hill	Coeur d'Alene
Hunter Creek Mines Corp.	Fred W. Julian	Spokane
Idaho Cons. Mng. Co.	Fred L. Viel	Salmon
Lead Belt Mines, Inc.	C. S. Cresser	Moore
Merger Mines Corporation	Walter H. Hanson	Wallace
Metallic Mining Co.	Miller Wright & Co.	501 Hutton Bldg., Spokane, Wash.
Secesh Drdg., Mng. & Mlg. Co.	S. S. Bassett	Spokane, Wash.
United Oil Co.	Geo. Gildersleeve	Monroe
Zanetti Mining Co.	Henry & Pierce	618 American Bk. Blg., Seattle, Wash.

GENERAL BIBLIOGRAPHY

See pages 71-72-73 for publisher's address, meaning of reference marks, and abbreviations.

For production statistics, discussions on geology, description of mines and mining districts (location and production), see all volumes of: U. S. Geol. Survey Mineral Resources, U. S. Bureau of Mines Mineral Resources, Reports of Idaho Inspector of Mines, and the Annual Reports of the Director of the United States Mint.

GENERAL REFERENCES

Contributions to economic geology, by S. F. Emmons and E. C. Eckel: U. S. Geol. Survey Bull. 285, **1906.***

Retracement of the boundary line between Idaho and Washington from the junction of Snake and Clearwater rivers northward to the international boundary, by R. B. Marshall: U. S. Geol. Survey Bull. 466, **1911.**‡

An old erosion surface in Idaho, by J. B. Umpleby: Jour. Geology, vol. 20, pp. 139-147, **1912.**§

The mining districts of the western United States, by J. M. Hill, with a geological introduction, by Waldemar Lindgren: U. S. Geol. Survey Bull. 507, **1912.***

Useful minerals of the United States, by Samuel Sanford and R. W. Stone: U. S. Geol. Survey Bull. 585, pp. 63-68, **1914.***

Useful minerals of the United States, by F. C. Schrader et al.: U. S. Geol. Survey Bull. 624, pp. 115-121, **1917.***

Gold dredging in the United States, by Charles Janin: U. S. Bureau of Mines Bull. 127, **1918.**‡

An old erosion surface in Idaho: Is it Eocene? by J. L. Rich: Econ. Geology, vol. 13, pp. 120-136, March, **1918.**§

The Idaho peneplain, by Waldemar Lindgren (Discussion): Econ. Geology, vol. 13, pp. 486-488, Sept., **1918.**§

An old erosion surface in Idaho, by D. C. Livingston (Discussion of Mr. Rich's article): Econ. Geology, vol. 13, pp. 488-492, Sept., **1918.**§

A preliminary report on the mining districts of Idaho, by Thomas Varley et al.: U. S. Bureau of Mines (in cooperation with the Univ. of Idaho) Bull. 166, **1919.**‡

Types of Rocky Mountain structure in southeastern Idaho (abstract with discussion by G. W. Stose): Geol. Soc. America Bull., vol. 31, No. 1, pp. 126-127, March 31, **1920.**§

Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon, No. 2398: U. S. Nat. Museum Proc., vol. 60, art. 3, pp. 1-133, **1921.**‡

Igneous geology of southeastern Idaho, by G. R. Mansfield: Geol. Soc. America Bull., vol. 32, pp. 249-266, **1921.**§

Boundaries, areas, geographic centers and altitudes of the United States and the several states, by E. M. Douglas: U. S. Geol. Survey Bull. 689, **1923.** (Idaho, p. 210.)‡

Power resources of Snake River between Huntington, Oregon, and Lewiston, Idaho, by W. G. Hoyt: U. S. Geol. Survey Water-Supply Paper 520C, pp. 27-51, **1924.**‡

Zonal distribution of gold, silver, lead, and copper ores in Idaho, by F. A. Thomson and Fritz McGonigle: Eng. and Min. Jour., vol. 120, pp. 216-218, Aug. 8, **1925.**§

The future of Idaho as a mineral producer, by F. A. Thomson: Mining Congress Journal, vol. 11, pp. 536-538, Nov., **1925.**§

The minerals of Idaho, by E. V. Shannon: U. S. Nat. Mus. Bull. 131, **1926.**‡

Geological setting of Idaho batholith, by R. H. Beckwith: Pan-Am. Geologist, vol. 45, no. 5, pp. 359-376, June, **1926.**§

Salient features of the geology of south-central Idaho, by C. P. Ross: Washington Acad. Sci. Jour., vol. 18, p. 268, **1928.**§

The lead industry of Idaho, by Stanly A. Easton: Min. Con. Journal, vol. 15, p. 842, Nov., **1929.**§
The mining industry of Idaho, by Stewart Campbell: Min. Con. Journal, vol. 15, pp. 947-949, Dec., **1929.**§
Cretaceous and Tertiary planation in northern Idaho, by A. L. Anderson: Jour. Geology, vol. 37, Nov.-Dec., **1929.**§

CINNABAR

U. S. Geol. Survey Mineral Resources, **1917**, pt. 1, pp. 414-415.*
Quicksilver and antimony discoveries in Central Idaho, by R. N. Bell: Idaho Mining Department Bull. 1, **1918.****
Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****
Geology of the Yellow Pine cinnabar mining district, Idaho, by E. S. Larsen and D. C. Livingston: U. S. Geol. Survey Bull. 715, **1920.***

COAL

Description of the Boise quadrangle, by Waldemar Lindgren: U. S. Geol. Survey Geol. Atlas, Folio No. 45, **1898.** (Boise and Gem counties.)*
A geological reconnaissance across the Bitterroot Range and Clearwater Mountains, in Montana and Idaho, by Waldemar Lindgren: U. S. Geol. Survey Prof. Paper 27, pp. 111-113, **1904.** (Clearwater County.)*
Lignite in the Goose Creek district, Cassia County, Idaho, by C. F. Bowen: U. S. Geol. Survey Bull. 531, pp. 252-262, **1911.***
Coal at Horseshoe Bend and Jerusalem Valley, Boise County, Idaho, by C. F. Bowen: U. S. Geol. Survey Bull. 531, pp. 245-251, **1911.***
A geological reconnaissance in southeastern Idaho, by A. R. Schultz and R. W. Richards: U. S. Geol. Survey Bull. 530, p. 281, **1911.** (Bonneville County.)*
The Horseshoe Creek district of the Teton Basin coal field, by E. G. Woodruff: U. S. Geol. Survey Bull. 541, pp. 379-388, **1912.** (Teton County.)*
The Orofino coal field, Clearwater, Lewis, and Idaho counties, Idaho, by C. T. Lupton: U. S. Geol. Survey Bull. 621, pp. 99-108, **1915.***
A geologic reconnaissance for phosphate and coal in southeastern Idaho and western Wyoming, by A. R. Schultz: U. S. Geol. Survey Bull. 680, pp. 64-79, **1918.** (Teton, Bonneville, and Caribou counties.)‡
Preliminary report on the Horseshoe district of the Teton coal basin, southeastern Idaho, by G. W. Evans: A preliminary report on the mining districts of Idaho, by Thomas Varley and others: U. S. Bureau of Mines Bull. 166, pp. 90-103, **1919.** (Teton County.)‡
Coal in eastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 716, **1920.** (Fremont, Teton, Madison, and Bonneville counties.)‡
The Horseshoe Basin area of the Teton coal fields in southeastern Idaho, by G. W. Evans: Idaho Bureau of Mines and Geology Pamphlet 10, **1924.***

MONAZITE

The monazite sands, by Waldemar Lindgren: Mining districts of Idaho Basin and Boise Ridge: U. S. Geol. Survey, Eighteenth Ann. Rept., pt. 3, pp. 677-679, **1898.***
Useful minerals in the black sands of the Pacific slope, by D. T. Day and R. H. Richards: U. S. Geol. Survey Mineral Resources, **1905**, pp. 1175-1258.*
Monazite in Idaho, by D. B. Sterrett: U. S. Geol. Survey Mineral Resources, **1909**, pt. 2, pp. 898-903.*
An occurrence of monazite in northern Idaho, by F. C. Schrader: U. S. Geol. Survey Bull. 430, pp. 184-191, **1909.***

OIL AND GAS

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***
Notes on geology of southwestern Idaho and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Bull. 217, **1903.**‡

Gas and oil prospects near Vale, Oregon, and Payette, Idaho, by C. W. Washburne: U. S. Geol. Survey Bull. 431, pp. 26-55, **1909.** (Payette County.)*
A geologic reconnaissance for phosphate and coal in southeastern Idaho and western Wyoming, by A. R. Schultz: U. S. Geol. Survey Bull. 680, pp. 79-81, **1918.** (Teton, Bonneville, and Caribou counties.)‡
Oil shale in western Montana, southeastern Idaho, and adjacent parts of Wyoming and Utah, by D. D. Condit: U. S. Geol. Survey Bull. 711, pp. 15-40, **1920.**‡
Oil and gas possibilities of eastern Oregon, by J. P. Buwalda: Oregon Bureau of Mines and Geology, vol. 3, No. 2, **1921.** (Southwestern Idaho.)*
Petroleum possibilities of certain anticlines in southeastern Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Bull. 4, **1922.***
Oil in Idaho? by K. C. Heald: Am. Assoc. Petroleum Geologists Bull., vol. 6, No. 5, pp. 472-473, Sept.-Oct., **1922.**§
Oil shale of the Rocky Mountain region, by D. E. Winchester: U. S. Geol. Survey Bull. 729, **1923.**‡
Notes on the geology of eastern Bear Lake County, Idaho, with reference to oil possibilities, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 7, **1923.****
Geology and water resources of the Goose Creek Basin, Cassia County, Idaho, by A. M. Piper: Idaho Bureau of Mines and Geol. Bull. 6, **1923.****
A preliminary reconnaissance of the gas and oil possibilities of southwestern and south-central Idaho, by J. P. Buwalda: Idaho Bureau of Mines and Geology Pamphlet 5, **1923.****
Possibilities of petroleum in Power and Oneida Counties, Idaho, by A. M. Piper: Idaho Bureau of Mines and Geology Pamphlet 12, **1924.****
Geology and oil possibilities of Bingham, Bonneville, and Caribou counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Bull. 8, **1924.****
Oil possibilities of southeastern Idaho, by V. R. D. Kirkham: Mining and Metallurgy, vol. 6, No. 218, Feb., **1925.**§

PHOSPHATE

(Principal references only)

The Bear River formation and its characteristic fauna, by C. A. White: U. S. Geol. Survey Bull. 128, **1895.***
Phosphate deposits in western United States, by F. B. Weeks and W. F. Ferrier: U. S. Geol. Survey Bull. 315, pp. 449-462, **1907.***
Phosphate deposits in western United States, by F. B. Weeks: U. S. Geol. Survey Bull. 340, pp. 441-447, **1908.***
Preliminary report on the phosphate deposits in southeastern Idaho and adjacent parts of Wyoming and Utah, by H. S. Gale and R. W. Richards: U. S. Geol. Survey Bull. 430, pp. 457-531, **1909.***
The fauna of the phosphate beds of the Park City formation in Idaho, Wyoming and Utah, by G. H. Girty: U. S. Geol. Survey Bull. 436, **1910.**‡
Preliminary reports on a portion of the Idaho phosphate reserve, by R. W. Richards and G. R. Mansfield: U. S. Geol. Survey Bull. 470, pp. 371-439, **1910.***
A geologic reconnaissance in southeastern Idaho, by A. R. Schultz and R. W. Richards: U. S. Geol. Survey Bull. 530, pp. 267-284, **1911.***
Geology of the phosphate deposits northeast of Georgetown, Idaho, by R. W. Richards and G. R. Mansfield: U. S. Geol. Survey Bull. 577, **1914.**‡
Revision of the Beckwith and Bear River formations of southeastern Idaho, by G. R. Mansfield and P. V. Roundy: U. S. Geol. Survey Prof. Paper 98, pp. 75-84, **1916.***
Phosphate deposits in Idaho, by R. N. Bell: Eng. and Min. Jour., vol. 104, pp. 293-294, Aug. 18, **1917.**§
A geologic reconnaissance for phosphate and coal in southeastern Idaho and western Wyoming, by A. R. Schultz: U. S. Geol. Survey Bull. 680, **1918.**‡
Geography, geology, and mineral resources of the Fort Hall Indian Reservation, Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 713, **1920.**‡

Phosphate mine of Anaconda Copper Company, by C. E. Nighman: Twenty-fifth Ann. Rept., Min. Industry of Idaho, **1923.***
Phosphate deposits of Idaho and their relation to the world supply, by V. R. D. Kirkham: Trans. Am. Inst. Min. Eng., vol. 71, pp. 308-338, **1925.**§
Geography, geology, and mineral resources of part of southeastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Prof. Paper 152, **1927.****
The Idaho phosphate field, by G. R. Mansfield: Mining and Metallurgy, vol. 9, No. 253, Jan., **1928.**§

SNAKE RIVER GOLD

Sixth Ann. Rept. U. S. Geol. and Geog. Survey Terr., by F. H. Bradley, p. 266, **1873.***
Eleventh Ann. Rept. U. S. Geol. and Geog. Survey Terr., by Orestes St. John, pt. 1, pp. 321-474, **1883.***
Treatment of the fine gold in the sands of Snake River, Idaho, by Thomas Egleston: Trans. Am. Inst. Min. Eng., vol. 18, pp. 597-609, **1889.**§
Snake River gold fields, by Don Maguire: Mines and Minerals, vol. 20, pp. 56-58, September, **1899.***
Hydraulic pumping plant on the Snake River, Idaho, for power irrigation and treatment of gold sands, by John Birkinbine: Trans. Am. Inst. Min. Eng., vol. 30, p. 518, **1900.**§
Gold dredging on Snake River in Idaho, by F. Powell: Eng. and Min. Jour., vol. 70, pp. 395-396, Oct. 6, **1900.**§
Gold in Snake River gravel bars, by W. H. Washburn: Min. and Sci. Press, vol. 81, p. 610, **1900.***
The gold belt of the Blue Mountains of Oregon, by Waldemar Lindgren: U. S. Geol. Survey, Twenty-second Ann. Rept., pt. 2, pp. 759-762, **1901.***
Dredging for fine gold in Idaho, by R. N. Bell: Eng. and Min. Jour., vol. 72, pp. 241-242, **1902.**§
The origin of the fine gold of the Snake, by R. N. Bell: Eng. and Min. Jour., vol. 73, pp. 143-144, **1902.**§
The origin of the fine gold in Snake River, Idaho, by J. H. Shockley: Eng. and Min. Jour., vol. 73, pp. 280-281, **1902.**§
Description of the Nampa quadrangle, by Waldemar Lindgren and N. F. Drake: U. S. Geol. Survey Geol. Atlas, Folio No. 103, **1904.***
Useful minerals in the black sands of the Pacific slope, by D. T. Day and R. H. Richards: U. S. Geol. Survey Mineral Resources, **1905,** pp. 1175-1258.*
Investigation of black sands from placer mines, by D. T. Day and R. H. Richards: U. S. Geol. Survey Bull. 285, pp. 150-164, **1906.***
Gold development in central Uinta County, Wyoming, and at other points on Snake River, by A. R. Schultz: U. S. Geol. Survey Bull. 315, pp. 71-88, **1906.***
The gold of the Snake River, by R. N. Bell: Min. and Sci. Press, vol. 94, p. 542, Apr. 27, **1907.***
Fine gold of Snake River, by C. B. Irvine: Min. World, vol. 29, p. 916, **1908.***
A geologic reconnaissance in southeastern Idaho, by A. R. Schultz and R. W. Richards: U. S. Geol. Survey Bull. 530, pp. 282-283, **1911.***
Geology and geography of a portion of Lincoln County, Wyoming, by A. R. Schultz: U. S. Geol. Survey Bull. 543, pp. 121-129, **1914.***
Notes on the fine gold of Snake River, Idaho, by J. M. Hill: U. S. Geol. Survey Bull. 620, pp. 271-294, **1915.***
A geological reconnaissance for phosphate and coal in southeastern Idaho and western Wyoming, by A. R. Schultz: U. S. Geol. Survey Bull. 680, pp. 78-79, **1918.**‡
Annual reports of the Idaho Inspector of Mines, **1899** to **1919.***

1929 METAL PRODUCTION

The total value of the gold, silver, lead, zinc, and copper produced in Idaho in 1929 was $35,016,005.32, an increase of $5,414,979.88 over that of 1928, which was $29,601,025.44. The production of gold remained stationary; there was a substantial increase in the production of silver and lead; the production of zinc and copper was practically doubled; and the value of the output, which has been exceeded but four times during the history of the State, was the largest of any year since 1918. Excepting Elmore and Lemhi counties, every metal-producing county witnessed a substantial increase in production; that of Custer County increased more than three times; that of Butte County almost doubled; and Valley County entered the list of important producing counties. The number of producers was the same as in 1928, but there was a loss in the number of small producers, particularly placers, and a marked gain in the number of substantial producers. This big increase is indicative of the expansion that the mining industry is witnessing, the prosperity enjoyed during the year, and the possibilities that Idaho offers for the development of new mines.

Shoshone County continued to maintain its position as the principal mining county in the State and made a record increase in the production of the five chief metals, particularly zinc and copper, which was almost double that of the previous year. Its rank in percentage as compared with the rest of the State was a little less, being 92.82 per cent in 1928 and 91.48 in 1929. Its total production in 1929 was $32,030,870.21 as against $27,474,740.39 in 1928, thus accounting for a large part of the total State increase between the two years. This county was first in the production of lead, silver, and zinc; Boise County was first in the production of gold; and Custer County was first in the production of copper, while Shoshone County stood second, all its copper being derived as a by-product from lead-silver ores.

The respective rank of the principal mining counties in point of total production was: Shoshone, Custer, Blaine, Butte, Boise, Lemhi, Bonner, Idaho, Owyhee, and Valley.

Gold

The 1929 output of gold was 20,741.62 ounces, valued at $428,729.29, a decrease of 1.67 ounces and $34.52 as compared with that of 1928, which was 20,739.95 ounces valued at $428,694.77. The stationary position of gold was more significant than the figures indicate. The South Park Dredging Co., Elmore County, which was a large producer of gold in 1928, was idle in 1929, and the production of the Idawa Gold Mining Co., Boise County, was considerably less than for 1928. These two large decreases were offset by the famous Gold Hill & Iowa mine of the Talache Mines, Inc., Boise County, which returned to a productive basis; the large increase in production from the Empire copper mine of the Mackay Metals, Custer County; and an increase in production from all the gold mines in Idaho County.

The respective rank of the leading mining counties in point of total gold produced was: Boise, Custer, Idaho, Owyhee, Shoshone, Lemhi, and Blaine. The principal gold-producing companies and their respective ranks were: Idawa Gold Mining Co., Talache Mines, Inc., both of Boise County; Mackay Metals, Custer County; Idaho Gold Dredging Co., Boise County; Unity Gold Mines Co., Idaho County; American Gold Dredging Corporation, Owyhee County; S. O. Miiller, Idaho County; Boise Placer Co., Boise County; and Hailey Triumph Mines Co., Blaine County.

Silver

The output of silver increased from 8,987,484.00 ounces with a value of $5,228,558.70 in 1928 to 9,446,654.44 ounces with a value of $5,006,065.59 in 1929, an increase of 459,170.44 in ounces and a decrease of $222,493.11 in value. The decrease in value was due to a decrease in price from $0.58176 per ounce in 1928 to $0.52993 per ounce in 1929. The large increase in production is significant, as it indicates an increase in output of lead and zinc ores, from which over 80 per cent of the silver is derived.

Shoshone, Custer, and Blaine counties each showed a marked increase in production. The 1929 silver production in Shoshone County was 8,786,525.25

ounces valued at $4,656,243.33, as compared with 8,472,560.00 ounces valued at $4,928,996.51 in 1928; that of Blaine County for the respective years was 203,589.87 ounces valued at $107,888.38 and 181,507 ounces valued at $105,593.51; and that of Custer County was 114,000 ounces valued at $66,320.64 in 1928 as compared with 259,119.02 ounces valued at $137,314.94 in 1929. The record production for Shoshone County, 93.02 per cent of the total for the State, indicates the importance of mining in the Coeur d'Alene district, particularly as Idaho produces one-third of all the silver of the United States. The order of prominence of the principal silver-producing counties was: Shoshone, Custer, Blaine, Bonner, Butte, Lemhi, Boise, Valley, and Owyhee. The largest producers in Shoshone County were: Bunker Hill & Sullivan M. & C. Co., Sunshine Mining Co., Hecla Mining Co., Federal M. & S. Co., Dayrock Mining Co., Tamarack & Custer Consolidated Mining Co., Gold Hunter Mines, Inc., Sherman Lead Co., Golconda Lead Mines, Sullivan Mining Co., Sidney Leasing Co., and Callahan Zinc-Lead Co. In other counties the most important producers were: Livingston Mines Corporation, Ramshorn mine, and Mackay Metals, in Custer County; Whitedelf Mining & Development Co. and Hope Mining Co., in Bonner County; Hailey Triumph Mines Co. and Independence mine of the Federal M. & S. Co., in Blaine County; Wilbert Mining Co., Ltd., in Butte County; and the Bunker Hill & Sullivan M. & C. Co. at Hall Interstate-Lost Pilgrim mines, in Valley County.

Lead

The production of lead increased from 302,590,871 pounds valued at $19,078,354.41 in 1928 to 312,151,644 pounds valued at $21,329,321.83 in 1929, an increase of 9,560,773 in pounds and of $2,250,967.42 in value. The average price of lead in 1928 was 6.305 cents per pound, while in 1929 it was 6.833 cents per pound, thus indicating that the large gain in value was due to a correspondingly large gain in production.

Shoshone County furnished 95.00 per cent of the State total with a production of 296,546,000 pounds, an increase of 7,006,764 pounds over that of the previous year. The mines in Blaine, Butte, Bonner, and Custer counties all recorded a substantial increase; Valley County entered the list as a new lead-producing county; and Lemhi County suffered a decline, due to idleness of the mines at Gilmore during a large part of the year.

The importance of Idaho as a lead-producing State, and particularly of Shoshone County, is apparent from the fact that the State ranks second in the United States and produces approximately one-fourth of the entire output of the nation.

The order of prominence of the principal lead-producing counties was: Shoshone, Custer, Butte, Blaine, Bonner, Lemhi, and Valley.

The Bunker Hill & Sullivan M. & C. Co. maintained its record as the largest lead-producing company in the State, if not in the United States; the Federal M. & S. Co. was second; and the Hecla Mining Co. was third. The other large lead-producing companies in Shoshone County, in their order of prominence, were: Tamarack & Custer Consolidated Mining Co., Sullivan Mining Co., Sherman Lead Co., Dayrock Mining Co., Gold Hunter Mines, Inc., Golconda Lead Mines, Sidney Leasing Co., Jack Waite Consolidated Mining Co., Sunshine Mining Co., Callahan Zinc-Lead Co., Constitution Mining & Milling Co., Humming Bird Mining Co., and Hayes Co. Important lead producers in other counties were: United Idaho Mining Co. and Clarke Bros. at the old Viola mine, Lemhi County; Livingston Mines Corporation and Ramshorn mine, Custer County; Whitedelf Mining & Development Co. and Hope Mining Co., Bonner County; Wilbert Mining Co., Ltd., Butte County; Hailey Triumph Mines Co. and the Independence mine of the Federal M. & S. Co., Blaine County; Sunset Mining Co., Bear Lake County; and Bunker Hill & Sullivan M. & C. Co. at the Hall Interstate and Lost Pilgrim mines, Valley County.

Zinc

The 1929 production of recoverable zinc was greater than that of any year since mining began in Idaho. It exceeded the 1928 production by 36,432,980 pounds and $2,733,038.20 in value. The total production was 110,767,523 pounds valued at $7,213,181.10 as compared with 74,334,543 pounds valued at $4,480,142.90 in 1928.

The satisfactory price level which zinc maintained throughout the year and the market afforded zinc producers by the Sullivan electrolytic zinc plant at Kellogg were dominant factors in stimulating production. The improvements in milling practice, particularly in flotation, were responsible for an increase in recoveries and grade of concentrate produced. In 1929 the price of zinc averaged 6.512 cents a pound, as compared with a price of 6.027 cents a pound in 1928.

The Anaconda Copper Mining Co. of Anaconda, Montana, and the Sullivan Mining Co. were the principal buyers of zinc concentrate. The metal produced by the latter company is the highest grade zinc ever obtained; new methods had to be devised for its analysis, and it is selling at a premium in price over any other zinc metal. The operation of this plant has greatly stimulated the production of zinc ores.

Shoshone, Blaine, Custer, and Valley were the only counties that produced a marketable zinc product. The production of Blaine County was obtained principally from the Triumph mine of the Hailey Triumph Mines Co.; that of Custer County from the Livingston mine of the Livingston Mines Corporation; and that of Valley County from the Hall Interstate and Lost Pilgrim mines of the Bunker Hill & Sullivan M. & C. Co. The principal zinc-producing companies in Shoshone County were: Federal M. & S. Co., Sullivan Mining Co., Sidney Leasing Co., Tamarack & Custer Consolidated Mining Co., Bunker Hill & Sullivan M. & C. Co., Golconda Lead Mines, Constitution Mining & Milling Co., Humming Bird Mining Co., and Jack Waite Consolidated Mining Co.

Copper

The output of copper in 1929 was more than twice the 1928 production, and exceeded that of any year since 1918. In addition to this very marked increase in production, there was a great increase in value, due to the increase in the price of copper over that of the previous year.

The 1929 production of copper was 5,736,497 pounds valued at $1,038,707.51 as compared with 2,644,301 pounds valued at $385,274.66 in 1928, an increase of 3,092,196 pounds and $653,432.85 in value. The price of copper averaged 18.017 cents a pound in 1929, and 14.57 cents a pound in 1928. The increase in production was due to the continuous operation of the Empire copper mine, owned by Mackay Metals, in Custer County, and to an increase in production by the Winder-Stillman Copper Co. and the Harmony Mines Co., both in Lemhi County, as well as to the increased output of lead-zinc ores in Shoshone County.

The order of prominence of the principal copper-producing counties was: Custer, Shoshone, and Lemhi. The principal copper-producing companies or mines were: The Mackay Metals, in Custer County; the Winder-Stillman Copper Co. and the Harmony Mines Co., in Lemhi County. Excepting the copper produced by these companies and a few isolated small shipments, the remainder of the copper produced in the State was associated with lead-zinc-silver ores and was recovered by the smelters as a by-product.

STATISTICS

The production statistics are based upon the gross metal content of all ores or bullion produced and sold from Idaho mines during 1929. The tabulation constitutes the production as reported to the inspector's office; reports have been verified in every possible manner; and no estimates have been used in the compilation. If any error exists in the totals, it is due to unreported production, and as production statements were furnished by all the large producers, the margin of error is very small. Any unreported production would cause these figures to be larger than the amounts set forth, so this compilation represents, as nearly as possible, the correct minimum production.

The values have been figured from the average price of metals for the year, based on New York and St. Louis quotations, as published in the Engineering & Mining Journal.

1929 METAL PRODUCTION BY COUNTIES

Number of Producers				Value
	ADA COUNTY			
3	Gold	18.03	oz.	$ 372.68
	Silver	5.08	oz.	2.69
				$ 375.37
	BLAINE COUNTY			
23	Gold	326.55	oz.	$ 6,749.79
	Silver	203,589.87	oz.	107,888.38
	Lead	3,725,670.00	lbs.	254,575.03
	Zinc	5,767,770.00	lbs.	375,597.18
	Copper	13,808.00	lbs.	2,500.21
				$ 747,310.59
	BOISE COUNTY			
22	Gold	12,924.83	oz.	$ 267,156.24
	Silver	9,559.93	oz.	5,066.09
	Lead	4,394.00	lbs.	300.24
	Copper	1,523.00	lbs.	275.77
				$ 272,798.34
	BONNER COUNTY			
6	Gold	4.57	oz.	$ 94.46
	Silver	92,743.74	oz.	49,147.69
	Lead	1,848,400.00	lbs.	126,301.17
	Copper	1,720.00	lbs.	311.44
				$ 175,854.76
	BUTTE COUNTY			
4	Gold	20.80	oz.	$ 429.94
	Silver	56,826.08	oz.	30,113.84
	Lead	3,948,573.00	lbs.	269,805.99
	Copper	150.00	lbs.	27.16
				$ 300,376.93
	CLARK COUNTY			
2	Silver	247.90	oz.	$ 131.37
	Lead	31,802.00	lbs.	2,173.03
				$ 2,304.40
	CLEARWATER COUNTY			
4	Gold	45.83	oz.	$ 947.31
	Silver	9.83	oz.	5.21
				$ 952.52
	CUSTER COUNTY			
17	Gold	2,568.63	oz.	$ 53,093.58
	Silver	259,119.02	oz.	137,314.94
	Lead	5,055,932.00	lbs.	345,471.83
	Zinc	955,178.00	lbs.	62,201.19
	Copper	2,935,106.00	lbs.	531,459.64
				$ 1,129,541.18
	ELMORE COUNTY			
2	Gold	34.22	oz.	$ 707.33
	Silver	29.88	oz.	15.83
				$ 723.16

Number of Producers				Value
	GEM COUNTY			
2	Gold	59.70 oz.	$	1,234.00
	Silver	581.00 oz.		307.89
	Lead	4,347.00 lbs.		297.03
	Copper	112.00 lbs.		20.28
			$	1,859.20
	IDAHO COUNTY			
12	Gold	2,218.24 oz.	$	45,851.02
	Silver	3,250.54 oz.		1,722.56
	Lead	615.00 lbs.		42.02
	Copper	120.00 lbs.		21.73
			$	47,637.33
	LEMHI COUNTY			
23	Gold	387.91 oz.	$	8,018.10
	Silver	15,979.37 oz.		8,467.95
	Lead	731,113.00 lbs.		49,956.95
	Copper	933,003.00 lbs.		168,938.85
			$	235,381.85
	OWYHEE COUNTY			
10	Gold	1,205.65 oz.	$	24,920.79
	Silver	8,196.21 oz.		4,343.42
	Copper	38.00 lbs.		6.88
			$	29,271.09
	SHOSHONE COUNTY			
50	Gold	637.26 oz.	$	13,172.16
	Silver	8,786,525.25 oz.		4,656,243.33
	Lead	296,546,000.00 lbs.		20,262,988.18
	Zinc	103,903,129.00 lbs.		6,766,171.76
	Copper	1,835,173.00 lbs.		332,294.78
				$32,030,870.21
	TWIN FALLS COUNTY			
3	Gold	14.11 oz.	$	291.65
	Silver	347.61 oz.		184.21
			$	475.86
	VALLEY COUNTY			
5	Gold	232.15 oz.	$	4,798.54
	Silver	8,831.07 oz.		4,679.85
	Lead	74,533.00 lbs.		5,092.84
	Zinc	141,446.00 lbs.		9,210.96
	Copper	6,531.00 lbs.		1,182.57
			$	24,964.76
	MISCELLANEOUS COUNTIES			
6	Gold	43.14 oz.	$	891.70
	Silver	812.06 oz.		430.33
	Lead	180,265.00 lbs.		12,317.51
	Copper	9,213.00 lbs.		1,668.20
			$	15,307.74
	STATE TOTALS			
194	Gold	20,741.62 oz.	$	428,729.29
	Silver	9,446,654.44 oz.		5,006,065.59
	Lead	312,151,644.00 lbs.		21,329,321.83
	Zinc	110,767,523.00 lbs.		7,213,181.10
	Copper	5,736,497.00 lbs.		1,038,707.51
		TOTAL		**$35,016,005.32**

Number of Producers	MISCELLANEOUS MINERALS		Value
	Building stone and coal		$ 10,600.00
	Limestone	42,350 tons	64,354.00
	Phosphate rock	43,750 tons	175,000.00
	Manganese	1,226 tons	25,320.00
	TOTAL		**$ 275,274.00**
	1929 GRAND TOTAL		**$35,291,279.32**

ANNUAL METAL OUTPUT FOR IDAHO SINCE 1903

(Statistics for 1903 to 1920, inclusive, from U. S. Geol. Survey Mineral Resources. Statistics for 1921, 1922, 1923, 1924, 1925, 1926, 1927, and 1928 from Annual Reports, Mining Industry of Idaho.)

1903

Gold	65,850 oz.	$	1,361,119
Silver	7,398,970 oz.		3,951,790
Lead	213,143,618 lbs.		9,135,335
Copper	569,484 lbs.		78,589
	Total value	$	14,526,833

1904

Gold	82,739 oz.	$	1,710,365
Silver	7,666,382 oz.		4,389,004
Lead	233,096,375 lbs.		10,197,966
Zinc	2,600 lbs.		130
Copper	5,087,518 lbs.		635,940
	Total value	$	16,933,405

1905

Gold	52,033 oz.	$	1,075,618
Silver	8,679,093 oz.		5,242,172
Lead	259,812,428 lbs.		12,211,184
Zinc	1,228,449 lbs.		72,479
Copper	7,321,585 lbs.		1,142,167
	Total value	$	19,743,620

1906

Gold	55,588 oz.	$	1,149,100
Silver	9,018,815 oz.		6,042,606
Lead	255,014,446 lbs.		14,535,823
Zinc	2,065,597 lbs.		126,001
Copper	9,558,913 lbs.		1,844,870
	Total value	$	23,698,400

1907

Gold	60,755 oz.	$	1,255,911
Silver	8,415,431 oz.		5,554,185
Lead	233,823,854 lbs.		12,392,664
Zinc	6,985,732 lbs.		412,158
Copper	10,890,731 lbs.		2,178,146
	Total value	$	21,793,064

1908

Gold	69,827	oz.	$ 1,443,459
Silver	7,469,981	oz.	3,959,090
Lead	206,827,816	lbs.	8,686,768
Zinc	37,410	lbs.	1,758
Copper	10,041,850	lbs.	1,325,524
Total value			$ 15,416,599

1909

Gold	70,329	oz.	$ 1,453,822
Silver	7,041,633	oz.	3,661,649
Lead	215,986,285	lbs.	9,287,410
Zinc	1,351,010	lbs.	72,954
Copper	9,115,489	lbs.	1,185,014
Total value			$ 15,660,849

1910

Gold	53,060	oz.	$ 1,096,842
Silver	7,369,742	oz.	3,979,661
Lead	228,258,839	lbs.	10,043,389
Zinc	5,603,114	lbs.	302,568
Copper	7,037,292	lbs.	893,736
Total value			$ 16,316,196

1911

Gold	66,389	oz.	$ 1,372,387
Silver	8,196,136	oz.	4,343,952
Lead	272,556,525	lbs.	12,265,044
Zinc	8,340,249	lbs.	475,394
Copper	5,152,937	lbs.	644,117
Total value			$ 19,100,894

1912

Gold	66,816	oz.	$ 1,381,214
Silver	8,294,745	oz.	5,101,268
Lead	284,185,657	lbs.	12,788,355
Zinc	13,905,502	lbs.	959,479
Copper	7,492,152	lbs.	1,236,205
Total value			$ 21,466,521

1913

Gold	65,043	oz.	$ 1,344,559
Silver	9,989,193	oz.	6,033,473
Lead	317,871,945	lbs.	13,986,366
Zinc	23,173,953	lbs.	1,297,741
Copper	9,592,966	lbs.	1,486,910
Total value			$ 24,149,049

1914

Gold	55,743	oz.	$ 1,152,315
Silver	12,479,516	oz.	6,901,172
Lead	348,526,069	lbs.	13,592,517
Zinc	42,012,435	lbs.	2,142,634
Copper	6,445,187	lbs.	857,210
Total value			$ 24,645,848

1915

Gold	57,069	oz.	$ 1,179,731
Silver	11,769,128	oz.	5,966,948
Lead	345,999,466	lbs.	16,261,975
Zinc	70,153,234	lbs.	8,699,001
Copper	6,978,713	lbs.	1,221,275
		Total value	$ 33,328,930

1916

Gold	53,977	oz.	$ 1,115,810
Silver	12,300,873	oz.	8,093,974
Lead	375,081,781	lbs.	25,880,643
Zinc	86,505,219	lbs.	11,591,699
Copper	8,478,281	lbs.	2,085,657
		Total value	$ 48,767,783

1917

Gold	38,933	oz.	$ 804,809
Silver	12,029,338	oz.	9,912,175
Lead	393,559,521	lbs.	33,846,119
Zinc	79,854,136	lbs.	8,145,122
Copper	7,827,574	lbs.	2,136,928
		Total value	$ 54,845,153

1918

Gold	33,999	oz.	$ 702,816
Silver	9,172,340	oz.	9,172,340
Lead	294,695,993	lbs.	20,923,416
Zinc	45,161,712	lbs.	4,109,716
Copper	6,533,888	lbs.	1,613,870
		Total value	$ 36,522,158

1919

Gold	34,503	oz.	$ 713,238
Silver	5,579,056	oz.	6,248,543
Lead	182,341,898	lbs.	9,664,121
Zinc	15,994,229	lbs.	1,167,579
Copper	3,122,763	lbs.	580,834
		Total value	$ 18,374,315

1920

Gold	23,490	oz.	$ 485,590
Silver	7,326,794	oz.	7,986,205
Lead	249,609,976	lbs.	19,968,798
Zinc	27,932,326	lbs.	2,262,518
Copper	2,538,396	lbs.	467,065
		Total value	$ 31,170,176

1921

Gold	26,750.76	oz.	$ 552,938
Silver	6,184,989.73	oz.	6,184,989
Lead	210,100,194.00	lbs.	9,559,558
Copper	1,380,168.00	lbs.	172,521
Zinc	1,818,313.00	lbs.	94,006
		Total value	$ 16,564,014

1922

Gold	22,178.39 oz.	$ 458,427.32
Silver	6,149,336.15 oz.	6,149,336.15
Lead	205,132,588.00 lbs.	11,762,302.60
Zinc	5,596,514.00 lbs.	394,666.17
Copper	3,225,762.00 lbs.	431,671.47
	Total value	$19,196,403.71

1923

Gold	35,506.23 oz.	$ 733,913.78
Silver	7,669,393.43 oz.	6,158,099.48
Lead	255,266,476.00 lbs.	18,550,214.82
Zinc	34,690,620.00 lbs.	2,292,009.26
Copper	4,183,495.00 lbs.	603,303.12
	Total value	$28,337,540.46

1924

Gold	26,237.21 oz.	$ 542,323.12
Silver	7,774,747.00 oz.	5,192,053.79
Lead	260,356,490.00 lbs.	21,081,065.00
Zinc	21,310,559.00 lbs.	1,351,941.86
Copper	3,146,997.00 lbs.	409,864.89
	Total value	$28,577,248.66

1925

Gold	20,108.41 oz.	$ 415,640.82
Silver	7,708,938.55 oz.	5,324,178.41
Lead	265,302,880.00 lbs.	23,930,319.78
Zinc	37,110,647.00 lbs.	2,828,573.51
Copper	3,370,016.00 lbs.	473,217.65
	Total value	$32,971,930.17

1926

Gold	14,754.64 oz.	$ 304,978.39
Silver	7,522,881.88 oz.	4,672,236.26
Lead	283,305,553.00 lbs.	23,845,828.39
Zinc	53,922,120.00 lbs.	3,956,265.95
Copper	1,381,334.00 lbs.	190,555.03
	Total value	$32,969,864.02

1927

Gold	15,592.01 oz.	$ 322,286.86
Silver	8,896,293.08 oz.	5,014,840.42
Lead	312,770,885.00 lbs.	21,127,673.28
Zinc	64,479,833.00 lbs.	4,024,831.18
Copper	2,362,863.00 lbs.	305,281.90
	Total value	$30,794,913.64

1928

Gold	20,739.95 oz.	$ 428,694.77
Silver	8,987,484.00 oz.	5,228,558.70
Lead	302,590,871.00 lbs.	19,078,354.41
Zinc	74,334,543.00 lbs.	4,480,142.90
Copper	2,644,301.00 lbs.	385,274.66
	Total value	$29,601,025.44

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THIRTY-SECOND
ANNUAL REPORT

OF THE

Mining Industry

of IDAHO

FOR THE YEAR

1930

STEWART CAMPBELL
INSPECTOR OF MINES

THIRTY-SECOND
ANNUAL REPORT

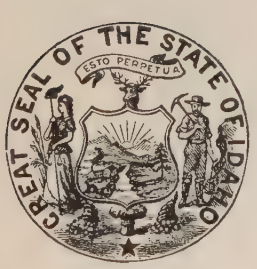
OF THE

Mining Industry

of IDAHO

FOR THE YEAR

1930



STEWART CAMPBELL
INSPECTOR OF MINES

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LETTER OF TRANSMITTAL

To His Excellency,
THE HONORABLE H. C. BALDRIDGE,
Governor of Idaho.

SIR:

In compliance with the provisions of section 5480, Idaho Compiled Statutes, I have the honor to transmit herewith the annual report of the inspector of mines for the year ended December 31, 1930.

Respectfully submitted,

STEWART CAMPBELL,
Inspector of Mines.

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Anaconda Copper Mining Co.: Phosphate Mine ..... 25th, 1923, p. 26*
Anaconda Copper Mining Co.: Inclined Top Slice Stoping Method: ..... 31st, 1929, p. 28*
Artificial Sunshine for Mine Workers: ..... 31st, 1929, p. 14*
Building Stone (Idaho): ..... 26th, 1924, p. 17*
Bunker Hill Hoist: ..... 26th, 1924, p. 32*
Burke Fire: ..... 25th, 1923, p. 14*
Electricity in Coeur d'Alene District: ..... 30th, 1928, p. 31*
Foreword
- Annual Reports: ..... 23d, 1921, p. 3
- Bunker Hill Solarium: ..... 31st, 1929, p. 13
- Delinquent Mining Companies: ..... 25th, 1923, p. 5
- Fake Promotions and Dishonorable Promoters: ..... 27th, 1925, p. 5
- Idaho Copper Corporation v. Stewart Campbell, Libel: ..... 28th, 1926, p. 5; 30th, 1928, p. 7
- Idaho Laws Relative to Reports to Inspector of Mines: ..... 24th, 1922, p. 5
- Mining Promotions—Investments: ..... 26th, 1924, p. 5; 29th, 1927, p. 7
- Platinum: ..... 31st, 1929, p. 13
- Public Lands: ..... 31st, 1929, p. 7

Forest Reserves, Ownership of Timber on Unpatented Mining Claims in: ..... 30th, 1928, p. 28
Hecla Mining Co., New Hoist: ..... 31st, 1929, p. 19*
Idaho Portland Cement Co.: ..... 31st, 1929, p. 30*
Milling Practice in Idaho
- Bunker Hill & Sullivan M. & C. Co., South Mill: ..... 27th, 1925, p. 18*
- Callahan Zinc-Lead Co. Galena Mill: ..... 28th, 1926, p. 20*
- Constitution M. & M. Co. Mill: ..... 27th, 1925, p. 34*
- Federal M. & S. Co. Morning Mill: ..... 27th, 1925, p. 32*
- Federal M. & S. Co. Page Mill ..... 28th, 1926, p. 16*
- Gold Hunter Mines, Inc., Mill: ..... 27th, 1925, p. 29*
- Hecla Mining Co. Mill: ..... 27th, 1925, p. 21*
- Hercules Custom Mill: ..... 31st, 1929, p. 23*
- Idawa Gold Mining Co. Belshazzar Mill: ..... 29th, 1927, p. 38*
- Milling in the Coeur d'Alene: ..... 27th, 1925, p. 16*
- Tamarack & Custer Cons. Mining Co. Mill: ..... 27th, 1925, p. 25*

Mine Rescue and First Aid in the Coeur d'Alene: ..... 25th, 1923, p. 18*; 26th, 1924, p. 36*; 27th, 1925, p. 37*; 28th, 1926, p. 22*; 29th, 1927, p. 40*; 30th, 1928, p. 35*; 31st, 1929, p. 51
Patent Surveys, Applicable as Annual Labor: ..... 31st, 1929, p. 16
Phosphate: ..... 25th, 1923, p. 25
Platinum, Predatory Assayers: ..... 27th, 1925, p. 6; 28th, 1926, p. 7
State Mineral Exhibit: ..... 26th, 1924, p. 11*
Sullivan Electrolytic Zinc Plant: ..... 29th, 1927, p. 33*

*Illustrated.

NAMES, ADDRESSES, ABBREVIATIONS AND SYMBOLS USED IN BIBLIOGRAPHIES

Am. Geology.....American Geology†

Am. Inst. Min. Eng. Trans.....
American Institute of Mining and Metallurgical Engineers Transactions
29 West 39th St., New York City.

Am. Jour. Sci.....American Journal of Science
Tuttle, Morehouse & Taylor Co., 123 Temple St., New Haven, Conn.

Am. Mineralogist.....American Mineralogist
Princeton, N. J.

California Jour. Tech.....California Journal of Technology
University of California, Berkeley, Calif.

Canada Geol. Survey Ann. Rept.....Canada Geological Survey Annual Report
Ottawa, Canada.

Canadian Min. Inst. Jour.....Canadian Mining Institute Journal
Drummond Bldg., Montreal, Quebec, Canada.

Colorado Sci. Soc. Proc.....Colorado Scientific Society Proceedings†

Columbia School of Mines Quart.....Columbia School of Mines Quarterly
Columbia University, New York City.

Compressed Air Mag.....Compressed Air Magazine
Bowling Green Bldg., 11 Broadway, New York City.

Econ. Geology .....Economic Geology
University of Illinois, Urbana, Ill.

Eng. and Min. Jour.....Engineering and Mining Journal
Tenth Ave. & 36th St., New York City.

Eng. and Min. Jour.-Press.....Engineering and Mining Journal-Press†

Franklin Inst. Jour.....Franklin Institute Journal
15 South 7th St., Philadelphia, Pa.

Geol. Soc. America.....Geological Society of America
Museum of Natural History, Columbus Ave. & 77th St., New York City.

Idaho Ann. Rept. Min. Industry.....
.....Idaho Annual Report of the Mining Industry
Idaho Bureau of Mines and Geology, Moscow, Idaho.

Jour. Geology.....Journal of Geology
University of Chicago Press, Chicago, Ill.

Mines and Minerals.....Mines and Minerals†

Min. Con. Journal.....Mining Congress Journal
American Mining Congress, 841 Munsey Bldg., Washington, D. C.

Min. and Eng. World.....Mining and Engineering World†

Mining and Metallurgy
American Institute of Mining and Metallurgical Engineers, Inc.,
29 West 39th St., New York City.

Min. Mag.....Mining Magazine†

Min. Reporter.....Mining Reporter†

Min. and Sci. Press.....Mining and Scientific Press†

Min. World.....Mining World†

Nat. Geog. Mag.....National Geographic Magazine
National Geographic Magazine Society, Hubbard Memorial Hall,
Washington, D. C.

New York Acad. Sci. Trans.....New York Academy of Science Transactions
New York Academy of Science, New York City

No. ..... Number

Northwest Min. News.....Northwest Mining News†
Northwest Science, Spokane, Wash.

Pacific Miner.....Pacific Miner†

p., pp.....page, pages

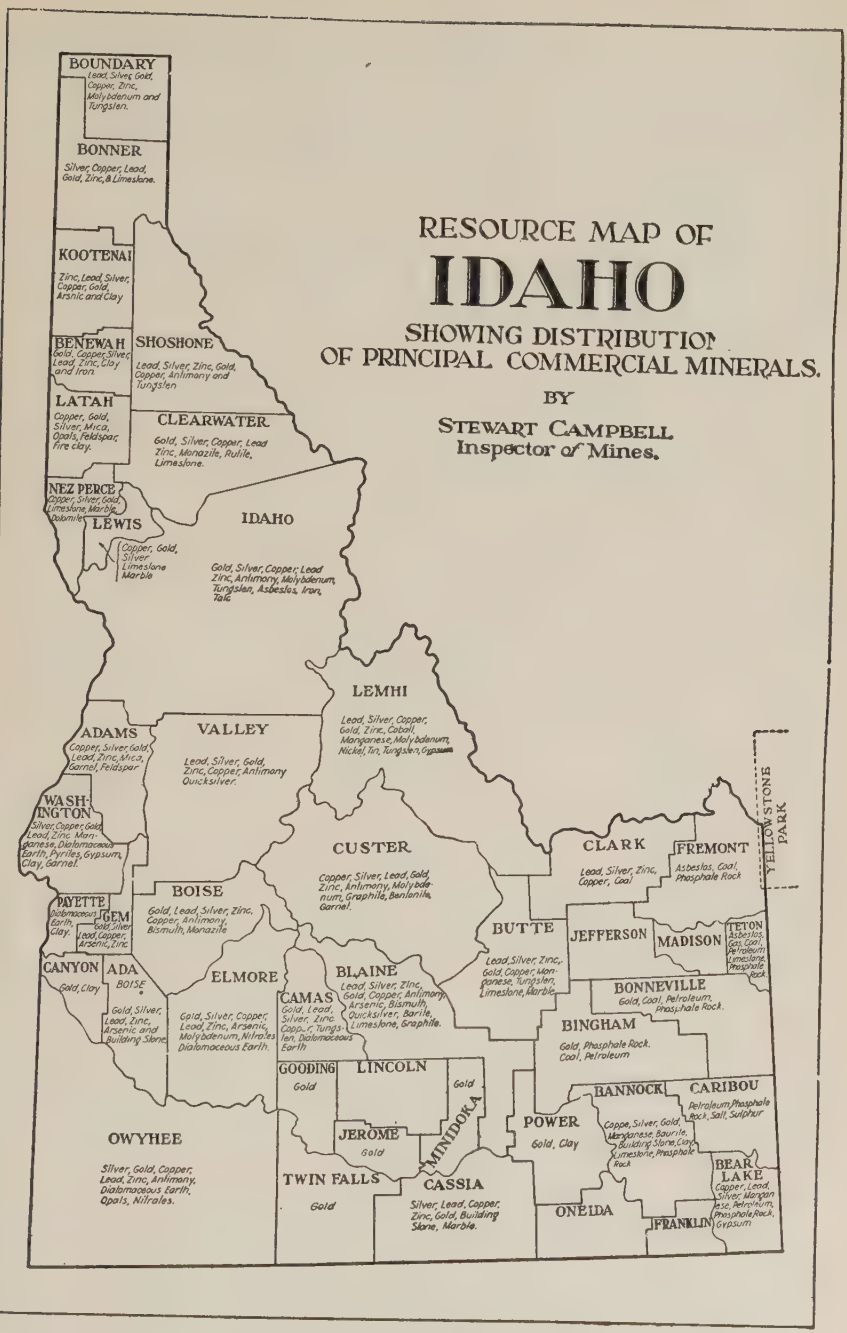
Pan-Am. Geologist.....Pan-American Geologist, Des Moines, Iowa

pt. ..... part

Proc. Int. Min. Cong.....Proceedings International Mining Congress
International Mining Congress, Washington, D. C.
Salt Lake Min. Review.....Mining Review
Walker Bank Bldg., Salt Lake City, Utah.
Sci. Am. Suppl.....Scientific American Supplement
New York City.
ser. ..... series
sess. ..... session
U. S. Bureau of Mines Bull.....U. S. Bureau of Mines Bulletin¶
U. S. Bureau of Mines I. C.....U. S. Bureau of Mines Information Circular¶
U. S. Bureau of Mines R. I.....
.....U. S. Bureau of Mines Reports of Investigations¶
U. S. Geol. and Geog. Survey.....U. S. Geological and Geographical Survey†¶
U. S. Geol. Survey Ann. Rept.....U. S. Geological Survey Annual Report†¶
U. S. Geol. Survey Bull.....U. S. Geological Survey Bulletin¶
U. S. Geol. Survey Geol. Atlas.....U. S. Geological Survey Geologic Atlas¶
U. S. Geol. Survey Mon.....U. S. Geological Survey Monograph¶
U. S. Geol. Survey Prof. Paper....U. S. Geological Survey Professional Paper¶
U. S. Nat. Mus. Proc.....U. S. National Museum Proceedings¶
Univ. of Idaho.....University of Idaho, Moscow, Idaho
vol. ..... volume
Washington Acad. Sci. Jour.....Washington Academy of Science Journal
211 Church St., Easton, Pa.

SYMBOLS

*.....Available in libraries only. Publication out of print.
**.....Can be procured from publisher.
§.....Not available for general distribution; may possibly be procured from publisher.
‡.....Can be purchased from Superintendent of Documents, Government Printing Office, Washington, D. C.
†.....Publication suspended.
¶.....Address: Washington, D. C.


RESOURCE MAP OF
IDAHO
SHOWING DISTRIBUTION
OF PRINCIPAL COMMERCIAL MINERALS.
BY
STEWART CAMPBELL
Inspector of Mines.
BOUNDARY
Lead, Silver, Gold, Copper, Zinc, Molybdenum and Tungsten.
BONNER
Silver, Copper, Lead, Gold, Zinc, & Limestone.
KOOTENAI
Zinc, Lead, Silver, Copper, Gold, Arsnic and Clay
BENEWAH
Gold, Copper, Silver, Lead, Zinc, Clay and Iron.
SHOSHONE
Lead, Silver, Zinc, Gold, Copper, Antimony and Tungsten
LATAH
Copper, Gold, Silver, Mica, Opals, Feldspar, Fire clay.
CLEARWATER
Gold, Silver, Copper, Lead Zinc, Monazite, Rutile, Limestone.
NEZ PERCE
Copper, Silver, Gold, Limestone, Marble, Dolomite
LEWIS
Copper, Gold, Silver, Limestone Marble
IDAHO
Gold, Silver, Copper, Lead Zinc, Antimony, Molybdenum, Tungsten, Asbestos, Iron, Talc
LEMHI
Lead, Silver, Copper, Gold, Zinc, Cobalt, Manganese, Molybdenum, Nickel, Tin, Tungsten, Gypsum
ADAMS
Copper, Silver, Gold, Lead, Zinc, Mica, Garnet, Feldspar
VALLEY
Lead, Silver, Gold, Zinc, Copper, Antimony Quicksilver.
WASHINGTON
Silver, Copper, Gold, Lead, Zinc, Manganese, Diatomaceous Earth, Pyrites, Gypsum, Clay, Garnet.
CUSTER
Copper, Silver, Lead, Gold, Zinc, Antimony, Molybdenum, Graphite, Bentonite, Garnet.
CLARK
Lead, Silver, Zinc, Copper, Coal
FREMONT
Asbestos, Coal, Phosphate Rock
YELLOWSTONE PARK
PAYETTE
Diatomaceous Earth, Clay.
GEM
Gold, Silver, Lead, Copper, Arsenic, Zinc
BOISE
Gold, Lead, Silver, Zinc, Copper, Antimony, Bismuth, Monazite
BUTTE
Lead, Silver, Zinc, Gold, Copper, Manganese, Tungsten, Limestone, Marble.
JEFFERSON
MADISON
TETON
Asbestos, Gas, Coal, Petroleum, Limestone, Phosphate Rock
CANYON
Gold, Clay
ADA
BOISE
Gold, Silver, Lead, Zinc, Arsenic and Building Stone.
ELMORE
Gold, Silver, Copper, Lead, Zinc, Arsenic, Molybdenum, Nitrates, Diatomaceous Earth.
BLAINE
Lead, Silver, Zinc, Gold, Copper, Antimony, Arsenic, Bismuth, Quicksilver, Barite, Limestone, Graphite.
CAMAS
Gold, Lead, Silver, Zinc, Copper, Tungsten, Diatomaceous Earth
BONNEVILLE
Gold, Coal, Petroleum, Phosphate Rock.
BINGHAM
Gold, Phosphate Rock. Coal, Petroleum
GOODING
Gold
LINCOLN
Gold
MINIDOKA
BANNOCK
CARIBOU
Petroleum, Phosphate Rock, Salt, Sulphur
POWER
Gold, Clay
Copper, Silver, Gold, Manganese, Baurite, Building Stone, Clay, Limestone, Phosphate Rock
JEROME
Gold
OWYHEE
Silver, Gold, Copper, Lead, Zinc, Antimony, Diatomaceous Earth, Opals, Nitrates.
TWIN FALLS
Gold
CASSIA
Silver, Lead, Copper, Zinc, Gold, Building Stone, Marble.
ONEIDA
FRANKLIN
BEAR LAKE
Copper, Lead, Silver, Manganese, Petroleum, Phosphate Rock, Gypsum

INTRODUCTION

The report for the year ending December 31, 1930, presents detailed information concerning Idaho mining companies in the form of a directory. It is, in fact, a handbook rather than a formal report. Its plan is not new, but is the one adopted by the inspector when he first took office. His first report, that of 1921, was largely an experiment, but it received such favorable press comment, notably by the Engineering and Mining Journal, the foremost mining magazine of the United States, that the plan has been followed in all subsequent reports.

Idaho is the only state in the Union which is presenting the data relative to its mineral resources and mining industry in this form. The merit and popularity of the report are proved by the continually increasing demand for copies of it, as well as by the efforts which those interested in mining in other states have made toward having their state governments publish a similar report.

Unincorporated companies have been included on the same basis as incorporated companies whenever their officers have furnished data.

Corporations that have forfeited their charters, and that have failed to file their reports as required by law, have been considered as legally dead; therefore no mention is made of them.

The list of prospects published in the Twenty-third Annual Report was the first of its kind ever compiled in Idaho. It became a guide to those looking for mines, thus proving that its compilation was worth while. Subsequent lists have been extensively used, and in a number of cases examinations and sales of properties have resulted. The list of prospects contained in this report was corrected and brought down to date in the Thirtieth Annual Report, and few changes have been made since.

Many of the prospects listed are worthy of more prominent mention, but it is impossible to give more than the owner's name and address, name of mine and its general location, unless the owner should file a report with the inspector. The furnishing of detailed information by owners of prospects would not only assist in displaying the mining possibilities of Idaho, but might often prove an attractive advertisement of the property. Blank forms of these reports are always gladly furnished to all individuals requesting them.

Much information concerning the geology, mineralogy and mineral resources of Idaho has been collected and published by the U. S. Geological Survey, the U. S. Bureau of Mines, and the Idaho Bureau of Mines and Geology. Much is also contained in the various reports of the inspector of mines and in journals dealing with mining and geology. In order to make this information readily available to the public, in 1921 the inspector indexed this material according to counties and subjects and published it in his report. The indexing has been kept up to date, and so far as is known, each county bibliography contains references to all material of any importance that has ever been published concerning that county. Publications relating to specific minerals found in the State are listed also under the "General Bibliography" in the back of the report. The usefulness of the bibliographies has been further increased by including publishers' addresses and information as to whether each particular reference can be procured or not. Symbols have been added as a guide to facilitate explaining this information. Practically all of the publications listed are found in the inspector's library, and arrangements have been made so that copies of those not on file can be procured when requested. However, **these publications may be consulted in all large libraries.**

NEWSPAPERS

As pointed out in previous years, the visits which the inspector makes to the numerous mining counties are necessarily so short that they are inadequate to enable him to keep directly in touch with all mining activities, so that it is always necessary that he supplement his personal information by that gleaned from the press. Most of the publishers located in mining communities have been very willing to furnish gratuitous subscriptions of their newspapers to the office of the inspector. This courtesy is greatly

appreciated, and has been of much assistance in enabling the inspector to keep abreast of the mining news. Accordingly, the State of Idaho, through the inspector of mines, extends its thanks to the following:

Arco Advertiser	Arco
Idaho County Free Press	Grangeville
Kellogg-Wardner News	Kellogg
The Mackay Miner	Mackay
Mining Truth	Spokane
Mullan News	Mullan
Pend d'Oreille Review	Sandpoint
Priest River Times	Priest River
Recorder Herald	Salmon
The Salt Lake Mining Review	Salt Lake City
The Wallace Miner	Wallace
Wallace Press-Times	Wallace
The Weiser Signal	Weiser

MINERAL MARKET INFORMATION

As there has continued to be a demand for possible markets for uncommon minerals and metals, the lists prepared in 1921, which include the names and addresses of the purchasers or users, have been revised and brought up to date as nearly as it was possible to do so, through the courtesy and cooperation of Mr. Frank J. Katz, Chief Engineer, Division of Mineral Statistics, U. S. Bureau of Mines.

Aluminium	Fluorspar	Pumice
Antimony	Fullers Earth	Radium
Arsenic	Graphite	Silica Sand
Asbestos	Gypsum	Sodium
Barytes	Magnesium	Strontium
Bauxite	Magnesite	Talc
Bismuth	Manganese	Tin
Cadmium	Mica	Titanium
Chromium	Molybdenum	Tripoli
Cobalt	Monazite	Tungsten
Diatomaceous Earth	Nickel	Uranium
Feldspar	Platinum	Vanadium

LIBRARY

The library, which was started by the present mine inspector during 1921, and which now consists of over 4,000 volumes, is believed to be the largest library of its kind in the State. It contains virtually every publication of the U. S. Geological Survey and U. S. Bureau of Mines, most of the U. S. Mint Reports, numerous volumes published by the geological surveys of other states, and many volumes of journals dealing with mining and geology.

Except a few articles published in old issues of the various journals, everything of importance dealing with the mining industry of Idaho, including geology, mineralogy and mineral resources, is contained in the library. Whenever requests are made for any of the missing articles, photographic copies are procured from the publishers or from some large research library.

The following magazines are regularly received: Engineering and Mining Journal; Mining Review; Mining Truth; The Mining Congress Journal; Mining and Metallurgy; The Mining Journal; Rock Products; Compressed Air Magazine; The Explosive Engineer; Economic Geology; and Asbestos. Complete files of these magazines are being preserved for reference use. Although most of them have been received only since 1921, the file of the Engineering and Mining Journal is virtually complete for the past 20 years, the present mine inspector having donated to the State his personal files of this journal for the years 1911 to 1920, inclusive.

The library is equipped with the U. S. Geological Survey Finding List of States, Areas and Subjects, which makes it possible to locate quickly and completely all publications of the U. S. Geological Survey concerning the

geology and mineral resources of any state of the United States or concerning any particular mineral.

Visitors are always welcome to consult the books of the library or to read the magazines. The office is open from 9 a. m. to noon and from 1 p. m. to 5 p. m. In the absence of the inspector, the secretary will be glad to assist visitors in finding desired information.

In order to accommodate readers who find it inconvenient to consult books in the library at the inspector's office, the practice of lending books for a period of not over two weeks has been established, and they are mailed out to all responsible persons within the State upon request. A few rare volumes, now out of print, and of which the library contains no duplicates, and books frequently called for at the office, cannot be mailed out. Individuals not personally acquainted with the inspector, when writing in for books, should accompany their requests by letters of introduction or recommendation from some reliable person in their community personally known to the office, or by a letter from the nearest public library.

MINING LAWS

In May, 1929, the inspector caused to be published a new edition of the Idaho mining laws, for which a special appropriation was passed by the 1929 Legislature. This pamphlet contains all amendments and new laws relative to mining passed by that session of the Legislature, thus making the edition entirely up to date. It also contains extracts from the United States mining laws, and from the Idaho corporation and reclamation laws. This pamphlet is for free distribution and will be mailed on request to anyone interested.

PLATINUM

The black, graphitic lime shale beds near Lucile, Idaho County, continued to be used as a basis for exploiting the public. According to the promoters this rock contains gold, platinum and other rare metals which can be recovered only by secret methods known to the promoters. Strange as it may seem, a large amount of stock and "units" were sold on this hypothesis, and the investors were gullible enough to invest without investigating either the stock salesmen, promoters, or their secret methods of recovering the rare metals.

These "mineral" deposits were visited by the inspector in 1929, and the samples taken by him were assayed by the United States Bureau of Mines, which was unsuccessful in detecting even the presence of any rare metals. The results were given to the press, together with a warning to the public. Apparently the warning was of no avail.

Another method for enticing the public into rare metal ventures which was in vogue during the year was the salting of so-called black sands with platinum filings and then having the material assayed by competent and reliable assayers. Invariably sufficient platinum had been added to give a high assay return, and these returns were then used as the lure.

No credence whatsoever should be placed in rare metal assays, in reported high values in these metals which any promoter or questionable assayer may proclaim, or in secret methods for the recovery of rare metals until a thorough investigation of the promoters, assayers, their methods of recovery, and the reliability of the samples has been made. State and Federal Bureaus will gladly assist in such an investigation.

GENERAL REVIEW AND 1930 ACTIVITIES

The year 1930 for lead, silver, and zinc mining was one of curtailment in production, plant construction, new enterprises, and mine development work. Most of the large companies reduced their production, and some of them suspended entirely. The totals of production, number of men employed, and expenditures for construction and mine plant installation were the smallest that the State has witnessed for many years. The Sherman Lead Co. was the only new dividend paying company; however, the dividend paid in 1930 was from 1929 profits, and production was suspended in March. Practically all of the large mines, whether they suspended production or not, maintained an active development campaign throughout the year. This work, with scarcely an exception, greatly increased the known ore reserves. A large number of companies improved their mine and mill plants. With increased ore reserves and surface plants in excellent condition the mining of these metals is in a position to return rapidly to normalcy as soon as prices reach a higher level.

Gold mining received more attention and experienced more activity than during the preceding year. Practically all of the operating companies were continuously active; a large number of new enterprises were started; the number of new discoveries and of disclosures in operating mines exceeded that in many years; and the interest shown by mining companies, promoters, brokers, and prospectors was greater than that of any year during the past 10 years. The inspector's office received more inquiries about gold mines, placer mines, and placer mining possibilities than the total of all years during this period. The major part of expenditures for mine plant installations and mine development was made for gold mining enterprises, particularly in Valley, Idaho, Lemhi, and Boise counties. The impetus gold mining received during the year, the substantiality of the discoveries and disclosures, and the many opportunities that the State offers for the development of gold mines of importance warrant the assertion that this phase of the mining industry is again returning to an important position.

The phosphate resources received more attention and more new enterprises were started to develop them than during any year since their first exploitation. The most important of these new enterprises was that of the Solar Development Co., a subsidiary of the Consolidated Mining & Smelting Co. of Trail, B. C., which started work in Bear Lake County. The Agricultural Potassium-Phosphate Co. of California, Ltd., was another organization which started operations.

That the mining industry of Idaho is on a firm foundation and is in a healthy condition at the close of the year, can best be realized through an outline of the principal events and activities during 1930.

1. Increased ore reserves of producing mines.
2. New ore disclosures of importance.
3. New dividend-paying mines.
4. New reduction plants.
5. Principal activities, new enterprises, and new mine plants.

1. Increased Ore Reserves of Producing Mines:

The principal producing mining companies which increased the ore reserves of their mines by new development work were: Bunker Hill & Sullivan M. & C. Co., Hecla Mining Co., Sherman Lead Co., Federal Mining & Smelting Co. at the Morning mine, Sunshine Mining Co., Jack Waite Mining Co., Sidney Leasing Co. at the Sidney mine, Golconda Lead Mines, Callahan Zinc-Lead Co. at the Galena mine, Constitution Mining & Milling Co., Dayrock Mining Co., all in Shoshone County; Talache Mines, Inc., at the Gold Hill & Iowa mine, in Boise County; F. O. Miiller and son at the Lone Pine group, in Idaho County; Bunker Hill & Sullivan M. & C. Co. at the Hall Interstate and Lost Pilgrim mines, in Valley County.

2. New Ore Disclosures of Importance:

The principal new ore disclosures and new discoveries of importance at non-producing mines and prospects were: Golconda Lead Mines, Mayflower group, and the Douglas Mining Co. on the 300-foot level, both in Shoshone County; Golden Anchor Mining Co., Marshall Lake district, John Larson in the Elk City district, both in Idaho County; Paris Mining & Milling Co. in Bear Lake County.

3. New Dividend-Paying Mines:

The Sherman Lead Co., in Shoshone County, was the only new dividend-paying company; however, the dividend was from 1929 profits, and production was suspended in March.

4. New Reduction Plants:

The most important new construction work and new plant installations in Shoshone County were: The completion of the enlargement of the Bunker Hill smelter to almost double its former capacity, and the remodeling of all mills by the Bunker Hill & Sullivan M. & C. Co., to conform with the most recent developments in flotation; the completion of the cadmium electrolytic plant of the Sullivan Mining Co.; completion of the new mill by the Pine Creek Lead-Zinc Co.; the new mill of the Jack Waite Mining Co.; the new mill at Wardner of John P. George, operator of the Roberts lease in the Last Chance mine; the enlargement of the mill of the Sunshine Mining Co.: and the starting of construction of a mill by the Mutual Mines Development Co.

The principal new milling plant construction in other counties was: Liberty Gem Mines, Inc., in Blaine County, which completed construction of a 50-ton mill; Goldstone Mines Corporation in Lemhi County, which completed the construction of its 100-ton fine-grinding, amalgamation and flotation mill; Coeur d'Alene Beauty Bay Mining & Milling Co., in Kootenai County, which installed a 50-ton fine-grinding, flotation concentrator; and the starting of construction of new mills by the Ruby Creek Mining Co., in Clearwater County, and by the Hope Mining Co., in Bonner County.

5 Principal Activities, New Enterprises, and New Mine Plants:

The outstanding new enterprises, new mine plant installations, and active companies, in addition to the foregoing, were as follows: In **Valley County** the expenditures made by the Yellow Pine Co. for power plant installation, new mining equipment, new buildings, and mine development work were the largest in southern Idaho. This company has inaugurated one of the largest mine development campaigns ever undertaken in the history of the State, and the expenditures indicate that a new mining district of magnitude is being established. The Bunker Hill & Sullivan M. & C. Co., at the Hall Interstate and Lost Pilgrim mines, maintained active production and mine development work throughout the year and added additional buildings and new equipment. In **Idaho County**, Elk City district, the principal new enterprises were those of the Cal-Idaho Mining Co., a hydraulic operation at the Gold Hill placer; the Day Development Co., of Wallace, which acquired the Center Star group; and the investigations of the "dike" deposits by a large mining organization. In the Ten Mile, or Golden, district, the Buffalo-Idaho Mining Co., the Sentinel Mines Corporation, and two concerns whose organization is unknown were active throughout the year. The Sherman Howe Mining Co., in the Marshall Lake district, constructed new mine buildings, enlarged its plant, maintained development work, and produced a substantial amount of bullion. In **Bear Lake County** the Sunset Mining Co. and the Utah-Idaho Mining & Milling Co. In **Benewah County** the Rainbow Mining & Milling Co. advanced its tunnel approximately 1,000 feet. In **Blaine County** the work of the Homestake Mines Corporation resulted encouragingly; the Silver Star-Queens Mines, Inc., reopened over 1,000 feet of the Lusk tunnel, and the Hailey Triumph Mines Co. maintained production and development until June. In **Boise County** the Talache Mines, Inc., at the Gold Hill and Iowa mine, erected new buildings, and improved the mine and mill plant; Idawa Gold Mining Co. maintained production without interruption; the Mineral Mining Co. completed the construc-

tion and installation of its mill and did a large amount of mine development work; the Missouri Mining Co. was active for eight months; the American Mines Development Co., at its calcite mine near Banks, installed new bins, grinding plant, and an aerial tramway; the Idaho Gold Dredging Corporation operated its dredge throughout the summer months; the dredge of the Crooked River Mining Co. at the Kempner ranch was further altered and was operated for a short period. In **Bonner County** the Whitedelf Mining & Development Co. maintained production and development without interruption; the Idaho Lakeview Mines Co. extended the principal shaft 200 feet and performed a large amount of development work; Explorers, Inc., a new company, at the Boyer group, diamond-drilled the property. In **Boundary County** the Silver Spoon Mining Co., and J. I. Zigler, two new enterprises, commenced work. In **Butte County** the Wilbert Mining Co. maintained production and development work, and the Horn Silver Consolidated Mines Co. was active throughout the year. In **Camas County** the Consolidated Mines Syndicate was active for 10 months, and the Silver Star-Queens Mines, Inc., in cooperation with the U. S. Forest Service, constructed the remaining 6 miles of highway between Fairfield and the Silver Star mine; the Perseverance Mines Co., Inc., was active during a short period. In **Cassia County** the Silver Hills Mining Co. constructed new camp buildings and installed a gas-driven compressor and complete mining equipment. In **Clearwater County** the Clearwater Lime Co. enlarged its mine plant and produced a large tonnage; the Sewell Lime Co., a new organization, commenced work; the Ruby Creek Mining Co. installed additional equipment; and the Independence Placer Mining Co. was active during the summer months. In **Custer County** Mackay Metals maintained active work and production until August; the Seafoam Mines Corporation worked during the summer months and operated its mill intermittently; the Aztec Mining & Milling Co. constructed a new boarding house and completed installation of a small Gibson mill; the Mackay Leasing Co. extended a crosscut in the Cossack tunnel of the Mackay Metals; and the Pigtail Placer, Inc., installed a small amount of hydraulic equipment. In **Elmore County** the St. Joseph Lead Co., at the Boise-Rochester and Monarch groups, maintained development work until July; the Consolidated Mines Syndicate, in the Volcano district, installed a small gas-driven compressor and commenced driving a long tunnel. In **Gem County** the American Mines Development Co. extended its tunnel approximately 1,000 feet. In **Kootenai County** the Caribou Mining Co., Royal Mining Co., Silver Tip Mining Association, Blue Bird Mining Co., Burnt Cabin Mining Co., and the Great Western Copper Co. were active during a large part of the year. In **Lemhi County** lessees at the Pittsburgh-Idaho, Allie, and Latest Out mines, in the Gilmore district, produced and marketed a substantial tonnage of high-grade lead-silver ore; the Lead Mountain Mining Co., in the Nicholia district, completed its vertical shaft to a depth of 400 feet; the Goldstone Mines Corporation installed a hydroelectric plant and new mining equipment; the Winder-Stillman Con produced a substantial tonnage during the early part of the year; the property of the Harmony Mines Co. was operated by lessees; and the Hecla Mining Co. was active in developing a new discovery on Allison Creek. In **Owyhee County** the Exploration Co. of California, at the Golconda group in the South Mountain district, maintained active exploration work throughout the year; and the American Gold Dredging Corporation operated its dredge during the early spring months. In **Teton County** the Grand Teton Oil Co. extended its Blevins No. 1 well a distance of 1,500 feet to a total depth of 3,300 feet. In **Washington County** the Idaho Mineral Mining Co., a subsidiary of the Goldfield Deep Mines Co. of Nevada, was active in the Mineral district throughout the year; and the Crystal Dome Oil & Gas Co., near Weiser, drilled a new well to a depth of 1,865 feet.

The principal new mine plant construction and installations in **Shoshone County** during 1930 were as follows: Bunker Hill & Sullivan M. & C. Co. mills and smelter; Federal Mining & Smelting Co. enlarged the mining and milling plant at the Page mine, and further remodeled the Morning mine; Sullivan Mining Co. completed construction of the cadmium electrolytic plant; Jack

Waite Mining Co. constructed 3 miles of railroad grade and installed new mine equipment; Golconda Lead Mines installed a new electrically driven hoist and compressor and enlarged its mining plant; Tamarack & Custer Mining Co. sank a 200-foot winze in No. 7 tunnel; Pine Creek Lead-Zinc Mining Co. rehabilitated the principal tunnel and enlarged the mine plant; the Atlas Mining Co. constructed ore bins and a 2,000-foot aerial tramway; the Granada Lead Mines, Inc., and the Metropolitan Mines Corporation, Ltd., each installed a power line, an electrically driven compressor, and complete mining equipment; the Bunker Chance Mining Co. installed an electrically driven compressor and complete mining equipment; the New Jersey Consolidated Mines Co., at the King of Pine Creek mine, installed large electrically driven pumps and extended the vertical shaft to the 300-foot level; the Coeur d'Alene Mines Corporation, Stratton Silver Summit, Inc., Mutual Mines Development Co., General Mines Corporation, Ajax Mining Co., Independence Lead Mines Co., Little Sunshine Mining Co., Coeur d'Alene Mining & Smelting Co., United Metals Co., and the Pearson Mining Co. were active throughout the year.

These and many others are extensively reviewed by counties throughout the outline which follows:

Adams County

This county experienced but little mining activity during the year, and no new enterprises were started. The Idaho Copper Co., whose properties were placed under receivership in November, 1927, continued in receivership until October, 1929, and no development work of any kind has been performed since then. A few prospectors in the Council Mountain, Heath and Indian Creek districts increased their work over that of the previous year, and one marketed a small shipment of ore. The Kleinschmidt Bros. were active in developing the Blue Jacket in the Seven Devils district. The mica deposits in the Council Mountain district received more attention than in previous years, and the work done during the year greatly enhanced the possibility of these deposits being of commercial importance.

Bannock County

An important enterprise started in 1928 was that of the Idaho Portland Cement Co., near Inkom, about 12 miles south of Pocatello. This company acquired a large deposit of limestone, constructed a new railroad siding, and commenced installation of a 1500-barrel Portland cement plant. Construction was completed and the manufacture of cement started during 1929. The company's product is marketed under the trade name of "Eagle Brand." Operations were conducted throughout 1930, and a large tonnage of cement was manufactured and marketed.

Two manganese mines near Cleveland and one at Lava Hot Springs were active throughout the greater part of the year, and two of them produced and marketed a substantial tonnage of high-grade manganese ore.

Bear Lake County

One of the principal new activities, and one of great importance to the State, is that of the Solar Development Co. in acquiring and starting work on a phosphate mine near Paris. This company is a subsidiary of the Consolidated Mining & Smelting Co. of Trail, B. C. During 1929 and 1930 the latter company expended over $7,000,000 in the construction of an acid phosphate plant at Trail, and the phosphate rock which is being mined by the Solar Development Co. is being shipped to this plant for treatment. The property was acquired during the latter part of the year. Buildings were constructed, mining equipment was installed, and work was started on sinking an inclined shaft.

Another enterprise which appears to be of importance is that of the Agricultural Potassium-Phosphate Co. of California, Ltd. This company acquired 320 acres of phosphate land near Paris under lease and option,

rehabilitated the old mine workings, commenced active mining operations, and produced a small tonnage of phosphate rock, which was shipped to the company's manufacturing fertilizer plant at San Pedro, California.

The Paris Mining & Milling Co., Inc., whose activities are based on the development of a copper property near Paris, was incorporated and commenced active development during the year. Reports were to the effect that the work resulted in encountering an excellent showing of copper ore, and that a substantial tonnage was placed in storage.

The Sunset Mining Co. was active at its lead property near St. Charles. A substantial amount of mine development was done, and a small tonnage of high-grade ore was mined and placed in storage.

Utah-Idaho Mining & Milling Co., which is developing a copper property near Paris, rehabilitated its mine buildings and machinery and commenced sinking its vertical shaft an additional 100 feet.

Benewah County

The principal operation in this county was that of the Rainbow Mining & Milling Co., whose property is located in the St. Joe district, near Medimont. This company is driving a long crosscut tunnel, which was advanced approximately 1,000 feet during the year.

Two companies, whose properties are located near Round Top Mountain, did a small amount of development during the summer months. Their work and a slight increase in the number of prospectors gave this county a little more than its usual amount of mining activity.

Blaine County

The principal operation was that of the Hailey Triumph Mines Co., at the Triumph mine, which adjoins the North Star of the Federal Mining & Smelting Co. Both production and development were maintained until June, when production was suspended; but development, with a crew of 20 men, was continued until September, at which time all operations were suspended. The ore produced was shipped, crude, to a milling plant in Utah for reduction.

The Homestake Mines Corporation, whose property is located on Lake Creek, near Ketchum, was active for eight months in developing its property, the principal work being confined to the extension of its No. 6, or lowest, tunnel. The results of this work were very encouraging.

The Liberty Gem Mines, Inc., whose property is located 7 miles west of Hailey, devoted the entire year to the installation of electric power, construction of a mill building, and installation of milling machinery. These improvements were completed in December, after which mine development was resumed. This work consisted of sinking the principal vertical shaft, which is 100 feet deep, an additional 100 feet. This company's activities constituted the principal new mine plant installation of the year.

Silver-Star-Queens Mines, Inc., at the Queen of the Hills group, near Bellevue, was active in reopening the lower or Lusk tunnel. Over 1,000 feet of this tunnel was rehabilitated.

The Crooked River Mining Co., operating in the Muldoon district, actively developed its property under contract during the summer months.

The United Mines Co. of Idaho, Inc., which is also operating in this district, did a small amount of development and constructed a new camp building.

The Treasure Vault Mining Co., whose property is located west of Hailey, performed a small amount of development work.

The Utah Bellevue Mines Co., on its property near Bellevue, commenced driving a new tunnel during the early part of the year and continued without interruption.

Peter L. Kent, at the Lone Pine Tree group, near the Red Cloud mine on Deer Creek, maintained development without interruption throughout the summer months. Charles Sonneleitner, lessee at the Star mine, produced and marketed a small tonnage of high-grade lead ore. Lessees at the Baltimore and Parker groups, near Ketchum, maintained development without inter-

ruption. A. F. Peery, who is operating the Vienna mine, in the Sawtooth district, conducted active development during the early and latter parts of the year. The Day Development Co. of Wallace, which controls the Badger group, adjoining the property of the Liberty Gem Mines, Inc., performed a small amount of work during the summer months. Lessees produced and marketed a small tonnage of ore from the Independence and North Star mines owned by the Federal Mining & Smelting Co.

One of the principal geological publications issued during the year by the U. S. Geological Survey, in cooperation with the Idaho Bureau of Mines and Geology, was Bulletin 814, "Geology and Ore Deposits of the Wood River Region, Idaho," by J. B. Umpleby, L. G. Westgate, C. P. Ross, and D. F. Hewett. This bulletin completely describes the Wood River district. It is profusely illustrated with pictures and geologic maps. The findings and conclusions expressed in this publication are favorable for the return of this district as a substantial producer of lead-silver ore.

Boise County

The Gold Hill mine of the Talache Mines, Inc., continued to be the largest gold-producing mine in the State. The shaft was extended to the 850-foot level. The new ore opened on that level was of particular importance, not only because it increased the ore reserves, but because it proved the continuation of the ore with an increase in values as greater depth is obtained. The mine and mill were operated without interruption, new camp buildings were erected, and the mine and mill plants were improved.

The Idawa Gold Mining Co. continued to be an important producer of gold. Production, milling, and development work were conducted without interruption. The mine camp and mill were enlarged and improved, and a large amount of mine development work was performed. The Mineral Mining Co. completed the construction and alteration of its mill, did a large amount of mine development, and operated the mill intermittently. This company also started an extensive mine development campaign in December.

The Missouri Mining Co., Ltd., conducted an active mine development campaign and operated its mill intermittently until August, when operations were suspended on account of legal difficulties. The American Mines Development Co. at its calcite mine, near Banks, completed construction on ore bins and grinding plants and installed an aerial tramway connecting the mine and plant, which is located on the railroad siding. A small tonnage, which was sold to the agricultural and poultry industries, was produced and marketed. The Idaho Gold Dredging Corporation, which is operating a dredge on Grimes Creek, was active throughout the summer months and increased its production over that of the previous year. The Crooked River Mining Co., at the Kempner Ranch placer, changed its dredge from the flume type and conducted operations for a short period during the early part of the year, after which the dredge was again reconstructed and was operated at intervals during the summer months by a lessee. Late in the year the Continental Mining Co. and Inc. commenced the construction of a small gas-driven table concentrating mill at its property near Shafer Butte. Active mine development and construction work throughout the greater part of the year were conducted by the following: Boulder mine; Come Back Mining Co.; Franklin Placer Co.; Fryett Mining Co., Inc.; Penn Mining Co.; V. A. Thorn at the Banner mine; Jarvis Bros. at the Hayfork mine.

Bonner County

The Whitedelf Mining & Development Co. maintained production and development without interruption, and during the latter part of the year commenced work on extending its shaft an additional 200 feet. The development work done by the Hope Mining Co. increased its ore reserves. Late in the year this company commenced work on installing electric power and an 85-ton flotation concentrator. The Idaho Lakeview Mines Co. at the Hewer mine, in the Bayview district, extended the inclined shaft an addi-

tional 200 feet and performed a large amount of lateral development work during the early part of the year. The results were very encouraging. Explorers, Inc., a new company, which holds the Boyer group under lease and option, did a small amount of diamond drilling, the results of which were sufficiently favorable to warrant further development; and work was started in December in sinking a shaft.

Press reports were to the effect that active operations were conducted throughout the year and that a compressor and mining equipment were installed at the Silver Star group, near Cocolalla, by T. W. Roberts, who is holding the property under a lease and option, and financing the operations through the sale of "options." Prospecting and small development companies which were active during a large part of the year were: Amazon Mines, Inc.; Gene Lee Mines, Inc.; Minerva Silver, Inc.; North Idaho Mining & Development Co.; Syringa Mining Co.

The success with which the Whitedelf and Hope mines, in the Clark Fork section, are meeting greatly stimulated prospecting and development work. Activities were further stimulated by the publication of Bulletin 12 of the Idaho Bureau of Mines and Geology, "Geology and Ore Deposits of the Clark Fork District, Idaho," by A. L. Anderson, which was issued in March.

Boundary County

The year 1930 witnessed but little new activity and but a small improvement in development work by the old companies. Two new enterprises, the Silver Spoon Mining Co., Inc., whose property is in the Moyie Yaak district, near Meadow Creek, and J. I. Zigler, at the Donahoe property, in the Moyie Yaak district, near Copeland, installed small gas-driven compressors and commenced work on sinking shafts. The Metals Mining Co. and the Moyie Gold Copper Mining & Milling Co., Ltd., both expanded their operations over those of the previous year. The Idamont Lead-Zinc Mines Co. was active for a few months. An attempt was made to reorganize the companies controlling two lead-silver properties in the Katka district. Newspaper reports were to the effect that a new discovery of lead-silver was made on the Moyie River.

Butte County

The Wilbert Mining Co., operating in the Dome district, maintained active production and mine development. This company is one of the largest producers of lead-silver ore in southern Idaho, and the success with which it is meeting has been instrumental in attracting much attention to the mineral resources of this county. The Dahle Bros., at the Horn Silver mine, in the Lava Creek district, whose company is known as the Horn Silver Consolidated Mines Co., maintained active development throughout the year. This work increased the known resources of the mine. One small shipment of crude ore was marketed. The other companies in this district performed only the necessary annual labor; however, there was a substantial increase, over that of the previous year, in the number of prospectors who were active throughout the summer months.

Camas County

One of the largest expenditures and the one of most importance to the county was that of the Silver Star-Queens Mines, Inc., in constructing the remaining 6 miles of highway between Fairfield and the Silver Star mine at Carrietown. This work was done in cooperation with the U. S. Forest Service. Its completion makes the Carrietown section now accessible to a railroad by a standard forest highway.

The Consolidated Mines Syndicate, which is developing a prospect in the Willow Creek section, maintained exploration work with a small crew during 10 months of the year. The Perseverance Mines Co., Inc., was reorganized after an action brought by the stockholders in the U. S. Federal Court had removed the former president and general manager. Stock assessments were then levied, and the funds used to drive a new tunnel.

The gold resources of this county, both placer and lode, on the South Fork of the Boise River and in the Big Smoky section received more attention than during the previous year. Much prospecting and development work was done during the summer months. The Idaho Placer Mines Co., a new organization, constructed a 3-mile ditch and did a little trenching.

Caribou County

The Anaconda Copper Mining Co., which is operating one of the largest phosphate mines in the United States, enlarged its mining equipment, constructed three new homes for its employees, maintained a large production throughout the greater part of the year, and extended its principal (No. 3) tunnel about 7,000 feet. The phosphate rock which this company is producing is shipped to Anaconda, Montana, where it is manufactured into high-grade fertilizer and sold under the trade name of "Anaconda treble superphosphate."

Cassia County

The Silver Hills Mining Co. was the only active company in the county during the year. New camp buildings were erected, a gas-driven compressor and complete mining equipment were installed, and a large amount of development was done. This company's property is located in the Black Pine district, which is in the southeast corner of the county near the Utah line.

Clearwater County

The principal mining activities were those of the Clearwater Lime Co. and the Sewell Lime Co., whose properties are located near Orofino, and whose product, a high-grade white limerock, is sold to the agricultural, powder, and paper manufacturing industries. The former company completed construction and installation of an aerial tramway, ore bins, and grinding plants. It produced and marketed a substantial tonnage of rock. The Sewell Lime Co. commenced the construction of a railroad siding and installed quarrying equipment.

The gold resources of the Pierce City district received more attention than at any time during the past 10 years. Two new enterprises based on the recovery of placer gold and three new enterprises based on the development of quartz mines entered the district and did a small amount of work. The lead-silver deposits, in the Neva Hill section, near Elk River, received a little attention, the principal operations being those of the Ruby Creek Mining Co., which did a little development work and commenced construction and installation of a small flotation concentrator. The Independence Placer Mining Co., Ltd., in the Moose City district performed a small amount of construction work during a period of four months. A publication of importance, which was issued in 1930, and which displays the geology and mineral resources of this county, is Pamphlet 34 of the Idaho Bureau of Mines and Geology, "Geology and Mineral Resources of the Region About Orofino, Idaho," by A. L. Anderson.

Custer County

The principal operation in this county was that of the Mackay Metals at the Empire Copper mine. Production, mine development, and the shipping of crude ore and concentrate, on behalf of both the company and the lessees, were maintained without interruption until August. The company then suspended its operations, but the lessees continued without interruption, although they stored all ore. The Seafoam Mines Corporation, in the Seafoam district, did a substantial amount of development during the summer months and operated its mill intermittently. A small amount of bullion and concentrate was produced and marketed. The Aztec Mining & Milling Co., in the Stanley district, constructed a new boarding house, completed the installation of a small Gibson mill, and did a small amount of mine development work during the summer months. The Mackay Leasing Co., a new organization, which obtained a lease in the Cossack tunnel of the Empire mine, extended a crosscut in the tunnel 300 feet during the year. Lessees at the Ramshorn

mine, in the Bayhorse district, produced and marketed a small tonnage of high-grade crude ore. The Pigtail Placer, Inc., whose property is located in the Stanley district, installed a small amount of hydraulic equipment and did a little prospecting during the summer months.

One of the principal geological publications issued during the year by the U. S. Geological Survey, in cooperation with the Idaho Bureau of Mines and Geology, was Bulletin 814, "Geology and Ore Deposits of the Wood River Region, Idaho," by J. B. Umpleby, L. G. Westgate, C. P. Ross, and D. F. Hewett. This bulletin completely describes the Wood River district in Blaine County and the Alto district in Custer County. It is profusely illustrated with pictures and geologic maps. The findings and conclusions expressed in this publication are favorable for the return of these districts as substantial producers of lead-silver ore.

Elmore County

The Rocky Bar district witnessed no improvement over that of the previous year in the starting of new enterprises, and no work of any importance was performed.

One of the most important enterprises which started in 1929 was the commencement of operations at the Boise-Rochester mine near Atlanta by the St. Joseph Lead Co. This company acquired the Boise-Rochester in 1917, but, other than necessary repairs to the buildings and principal tunnels, nothing was done with it. In the latter part of 1929 the Monarch group, which is adjacent to the Boise-Rochester, was acquired, and the development of both properties was commenced. This work, which consisted of extending No. 6 tunnel of the Boise-Rochester group to the intersection of the vertical shaft of the Monarch group, was conducted without interruption until July, 1930, at which time all operations were temporarily suspended. The Consolidated Mines Syndicate, at the Revenue group, in the Volcano district, near Hill City, installed a small gas-driven compressor and commenced driving a long tunnel. This work was continued until October, when all operations were suspended. Preliminary plans for the development of the placer deposits on Feather River were completed during the latter part of the year. A small amount of development work was done on the Deckard property at Pine during the summer months.

Gem County

The only active operation during 1930 was that of the American Mines Development Co. at the old Liberty mine, near Sweet. The tunnel was extended approximately 1,000 feet under contract.

Idaho County

One of the most important events was the continuation of the construction of the Elk City highway from Huston toward Elk City for a distance of 6 miles. The inception of the new work gave assurance that this highway would be completed to Elk City at an early date, and it greatly stimulated interest in the Elk City, Dixie, Orogrande, and Buffalo Hump districts. These districts, particularly Elk City, witnessed the incoming of the largest number of prospectors, mining engineers and geologists representing responsible companies and the starting of more new enterprises than at any time during the past 15 years. These activities stimulated the rebuilding of Elk City, a large part of which was destroyed by a disastrous fire in March. A new hotel and community hall were constructed and plans were completed for the erection of new business buildings.

The principal activities in the Elk City district were those of the Cal-Idaho Mining Co. and the Day Development Co. The former company, which acquired the Gold Hill placer, rehabilitated the eight-mile ditch, installed complete hydraulic equipment, and constructed new camp buildings. This operation was one of the largest new hydraulic placer mine enterprises in the State. The Day Development Co., of Shoshone County, which acquired the Center Star group in October, constructed four miles of trail, installed

a gas-driven compressor and complete mining equipment, and started sinking a 100-foot inclined shaft. This property has an excellent showing of ore and its development is of particular importance to this part of the State. The Moose Creek Placers Co. continued work on its ditch and flume line, repaired its hydraulic equipment, and constructed new camp buildings to replace those which were destroyed by fire early in the year. A discovery of high-grade gold ore, which appears to be of importance, was made by John Larson, a prospector, on Elk Mountain. A large number of prospects and old properties were investigated by prominent mining companies. Many of these investigations were satisfactory, and late in the year arrangements were being completed for the acquisition and development of the properties. Press stories were to the effect that the Elco Gold Mining Co. was actively engaged in the reopening of the tunnels of the French Creek Gold Mining & Milling Co.

The Orogrande district witnessed more activity in 1930 than in 1929, particularly at the Homestake group of the Homestake Gold Mining Co., which was operated throughout the year by lessees. A large mining organization was active during the closing months of the year in reopening the old mine workings and sampling one of the "dike" deposits.

The Golden or Ten Mile district was one of the most active sections throughout 1930. F. O. Miiller and son, at the Lone Pine group, maintained development work without interruption, operated their mill for a short period during the early part of the year, and installed a 30-horsepower semi-Diesel engine, belted to an electric generator, as supplemental power for the mill. The development work greatly increased the known ore resources. This mine was one of the largest gold-producers in the county. The Buffalo-Idaho Mining Co. maintained development work throughout a large part of the year and operated its mill for a short period. The Sentinel Mines Corporation and E. J. Dailey, new entries into this district, were active in the development of their properties. Two concerns, whose form of organization is unknown, gave themselves considerable publicity in the press.

The Unity Gold Mines Co., in the Warren district, maintained active operations and produced a substantial amount of bullion during the early part of the year. The Warren Meadows placer deposits were acquired under lease and option by eastern operators and were actively prospected throughout the summer months. This district also witnessed a large amount of investigation by those seeking new gold mining enterprises.

From the standpoints of men employed, production, new construction, development work, and investigations by prospectors and companies seeking new gold mines, the Marshall Lake district was the most active section of the county throughout the year. The Sherman Howe Mining Co. constructed additional new camp buildings, greatly enlarged its mine plant, expended a substantial sum on road building, and maintained development work without interruption. This company's production was one of the largest in the county. One of the most important disclosures of new ore made in the State during the year was that of the Golden Anchor Mining Co. at the Holte mine. In February this company's 1600-foot lower tunnel intersected the ore at a distance of approximately 300 feet below the bottom of the upper workings; drifts and a raise which were run on the ore proved the importance of this disclosure. The Long Tom Mining Co., at the Cuban and West Goodenough groups, commenced active development work at both groups during the latter part of the year. The new highway, which the Forest Service is constructing between Burgdorf and this district, was extended over five miles. This road is of great assistance to the companies now operating and is an encouragement to the development of the district.

Press reports were to the effect that the War Eagle group in the Dixie district was operated throughout the year under lease and option by the Central Idaho Mining & Milling Co., and that this company constructed a considerable distance of trail and installed a small power plant and sawmill. The placer deposits in this district received some attention. There was a small increase in the amount of the annual labor and development over that of the previous year.

The Bunker Hill & Sullivan Mining & Concentrating Co. and allied interests, which entered the Green Mountain section in 1929, maintained active development work until November. The property held by this company is a copper-silver deposit. Its development has been a material factor in stimulating interest in this district and its environs, particularly Elk City.

Other than annual labor, the principal activity in the Harpster district was that of F. W. Watson at the Dewey group. A substantial amount of development work was performed, and a small tonnage was produced and shipped for experimental purposes.

The alleged presence of rare metals in the black graphitic lime shales in the Salmon River or Simpson district, in the vicinity of Lucile continued to be used as a lure for the sale of stock and "units." No work of any consequence was done by those promoting these rare metal enterprises.

Kootenai County

This county witnessed more development work, prospecting, and new construction than during the previous year. Much of this was confined to the Beauty Bay section, where Coeur d'Alene Beauty Bay Mining & Milling Co., a custom milling enterprise based on milling the ore from all of the mines in this section, purchased the milling plant of the Caribou Mining Co., Ltd., enlarged the building, and installed new power and milling equipment, consisting of gas-driven engines and a fine-grinding flotation concentrator of 50 tons capacity. All work was completed, and the mill was adjusted to commence operations in December. The Royal Mining Co., Silver Tip Mining Association, Caribou Mining Co., Ltd., Coeur d'Alene Mountain Mining Co., and the Blue Bird Mining Co., whose properties are located in this section of the county, were active throughout the greater part of the year.

The Burnt Cabin Mining Co. and the Great Western Copper Co., in the Hayden Lake district, were active during the summer months.

Two new organizations in the Harrison Lake section did a small amount of work during the summer months, and press reports were to the effect that one of them encountered an excellent showing of high-grade lead-silver ore.

Lemhi County

In point of production and number of men employed Gilmore for many years has been one of the largest lead-producing sections in the State outside of the Coeur d'Alene district. The Pittsburgh-Idaho mine, of the United Idaho Mining Co., a subsidiary of the U. S. Smelting, Refining & Mining Co., the Latest Out, and the Allie are the largest mines in this district. In 1929 one of the large Diesel engines in the power plant of the United Idaho Mining Co. exploded and was completely wrecked, and operations were suspended until additional power could be obtained. As the principal owners were unable to arrive at an agreement on the installation of a new power plant, the mine has been idle since then. A large number of lessees at the Allie and Latest Out mines produced and marketed a substantial tonnage of high-grade lead-silver ore. Funds to cover the cost of the development work done by some of these lessees were advanced by one of the large smelting companies. These operations increased the activities and the number of men employed in this camp over those of 1929.

The Nicholia district was more active than during any year since production was suspended. Lessees at the Old Viola mine did a large amount of development and produced and marketed a substantial tonnage of lead-silver ore. The Lead Mountain Mining Co., which entered this district in 1929, maintained one of the largest development campaigns in the county at the Nicholia group. This company completed a vertical shaft to a depth of 400 feet and opened 1,200 feet of crosscuts and drifts at the bottom of the shaft.

In the Spring Mountain district the property of the Idaho Minerals Co. was optioned to the South Gilmore Mining Co. The latter and the Spring Mountain Mining Co., Inc. were both active during the summer months.

The only work in the Leadore district was the necessary annual labor and the completion of the topographic survey by the U. S. Geological Survey preparatory to a thorough geological study of the district in cooperation with the Idaho Bureau of Mines and Geology.

In the Pratt Creek district the Goldstone Mines Corporation, one of the largest and most active companies in the county, completed the construction of its hydroelectric power plant and a 100-ton fine-grinding amalgamation and flotation mill, which was started in 1929. The mill was operated for a short period, and a large amount of mine development work was done.

Two discoveries, one of high-grade copper-gold ore on Agency Creek in the McDevitt district, the other of high-grade gold ore in the Parker Mountain district, were reported.

The copper mines in the vicinity of Salmon were less active than in 1929. A small amount of work was done by four lessees at the property of the Harmony Mines Co. and the Winder-Stillman Con was active during the early part of the year. The Hecla Mining Co. and an organization of prospectors were active throughout the summer months in developing a discovery of high-grade copper-gold ore on Allison Creek, 10 miles south of Salmon on the divide between the Lemhi and Salmon Rivers.

Mrs. H. T. Steen, at the Continental group in the Yellow Jacket district, and the United Mace Smelters, Inc., which was holding the old Yellow Jacket mine under lease and option, each performed a small amount of work.

The Shoup district received more attention than at any time during the past 10 years. Two new organizations commenced work; and press stories were to the effect that one of them installed a small hydroelectric power plant and excavating machinery preparatory to operating a placer deposit. There was a substantial increase in prospecting.

The principal activities in the Leesburg district were based on hydraulic mining. Three companies constructed ditches and dams and installed a small amount of hydroelectric mining equipment during the summer months.

There was a slight increase in prospecting and development work in the Gibbonsville district, and the Rescue Gold Mines Co. was active throughout the summer months in reopening the principal entry at the A. D. & M. mine.

Gold mining has received more than its usual amount of attention in most of the districts of the county, and there has been a substantial increase in the number of prospectors and investigators seeking gold enterprises.

An important means of advertising the mineral resources of the county has been the mineral exhibit of the Salmon Commercial Club. The exhibit is housed in a large room, and it contains excellent specimens of ore from almost every district in the county.

Owyhee County

One of the largest and most important new enterprises which was started in the State during 1929 was that of the Exploration Company of California, at the Golconda group in the South Mountain district. Late in 1929 new buildings were constructed, complete mining equipment was installed, and development work was started. Except for a period of 30 days, this company was active throughout the year. A large amount of crosscutting, drifting and sinking was done, and reports were to the effect that this work greatly increased the known resources of the property. This company's operation is the largest in the county. On account of the shortage of water, the American Gold Dredging Corporation was able to operate only during the early spring months. Three new development enterprises were started in the Reynolds Creek section of the Carson district, one of which installed a small gas-driven mill. There was a substantial increase of investigations in the Silver City district, and press stories were to the effect that a new organization had been perfected to consolidate the principal old mines on War Eagle Mountain. Two enterprises based on the presence of platinum in the volcanic glass sands lying at a depth of about 250 feet in the artesian basin of Little Valley near Bruneau were active throughout the year and one gave its project a large amount of publicity through circulars designed to further the sale of stock.

Shoshone County

The year 1930 was one of curtailment in production, plant construction, new enterprises, and mine development work. Most of the large companies reduced their production, and some of them suspended entirely. The totals of production, number of men employed, and expenditures for construction and mine plant installation were the smallest that the county has witnessed for many years. The Sherman Lead Co. was the only new dividend paying company; however, the dividend paid in 1930 was from the 1929 profits, and production was suspended in March. Practically all of the large mines, whether they suspended production or not, maintained an active development campaign throughout the year. This work, with scarcely an exception, greatly increased the known ore reserves. A large number of companies improved their mine and mill plants. With increased ore reserves and surface plants in excellent condition, the mining industry of this county is in a position to return rapidly to normalcy as soon as metal prices reach a higher level.

The attention which all of the large operators are giving to safety conditions and supervision was reflected in the very small number of fatal accidents. Working conditions throughout the Coeur d'Alene district are exceptionally favorable. All of the mines are well ventilated, and the operators devote much time, thought, and money to making the mines safe and to keeping them in such a condition that the men can do a full day's work without expending the energy which is required in poorly ventilated mines. It can safely be said that the mines of this district are the best ventilated ones in the United States. The subject of ventilation in the Coeur d'Alene mines was studied in 1930 by G. E. McElroy of the U. S. Bureau of Mines in cooperation with the Idaho Bureau of Mines and Geology. The publication of Mr. McElroy's report on "Mine Ventilation in the Coeur d'Alene Mining District," is expected early in 1931. The solarium, installed by the Bunker Hill & Sullivan M. & C. Co., in 1929, was a distinct contribution to welfare work. It continued to be used throughout the year by a large number of the company's employees and their families, and the results have been beneficial.

The principal producing mines in which the ore reserves were increased by new development work, the most important new construction, new mine plant installations, new enterprises, and outstanding development work can best be reviewed by companies.

The extensive development work in the Bunker Hill mine has greatly increased its resources. The completion of a winze from the 1,900 to the 2,000-foot level and the opening of the ore bodies at that depth, where the ore and geological conditions were found to be normal, together with the opening on Nos. 9 and 10 levels of the new ore first disclosed in 1929 on No. 6 level, have added many years to the life of the mine. The company increased its production but decreased its dividends during the year.

The many plant betterments which were added greatly increased the efficiency of the enterprise. The principal ones were the remodeling of all mills to conform with the most recent developments in flotation, many of which have been evolved under this company's direction, and the doubling of the capacity of the lead smelter. The expenditure for these and other plant improvements constituted the largest expenditure for new plant betterments made in the State during the year. The Crescent or Hooper tunnel, which was started late in 1928, was completed in 1930, and a 500-foot vertical raise was driven to the upper levels. Production from this property was maintained throughout the year.

The enlargements and modernization of the smelter, commenced in 1929, were completed early in 1930. The production for the year, as a result of treating the entire output of the Bunker Hill mines, was the largest of any year since the smelter started operating.

The Bunker Hill & Sullivan M. & C. Co., because of the magnitude of the Bunker Hill mine, has become more of a manufacturing than a mining operation, and with its smelter, mills, experimental plants, and organization, is one of the largest organizations of its kind in the world.

The Hecla Mining Co., which is recognized as one of the principal lead-silver mining companies in the United States, increased its ore reserves in the Hecla mine. Development work, which consisted principally of putting the lower levels in condition for production, was conducted throughout the year. Normal production was maintained until September, when the continued low price of metals caused a reduction to a five-day-week basis. The mine and mill plants were further improved. The usual dividend rate was maintained. The company was actively engaged in developing two other properties in the Coeur d'Alene district and one in Lemhi County, and it maintained throughout the year an active scouting and investigating campaign in a search for additional properties. The management is progressive, and the life of the Hecla mine is assured for many years.

The Morning mine of the Federal Mining & Smelting Co., which is one of the oldest mines in the Coeur d'Alene district in point of continuous production, as well as one of the largest lead-silver-zinc mines in the United States, was maintained at capacity production throughout a large part of the year. The number of years that this record will continue is unknown, as development work on the 3,250, 3,450, and 3,650-foot levels has proved the ore bodies to be larger and more extensive than those on any of the upper levels, and the ore on the 3,450-foot level has been found to be richer in metal content than that on any of the levels above it.

During the year the shaft was extended to a depth of 153 feet below the 3,650-foot level, and the vein was crosscut on the 3,650-foot level. The 3,250-foot level was opened for the full length of the ore, and the 3,450-foot level was opened for a length of 590 feet. The mine and mill plants were greatly enlarged, and the mill was further improved to conform with recent developments in flotation practice. In addition to the ore mined under company operation, a large tonnage was extracted from the upper levels by lessees.

The Page mine of the Federal Mining & Smelting Co., in Government Gulch near Kellogg, was operated throughout the year at capacity production. The mill was enlarged and improved, principally by the addition of new crushing equipment. Additional mine and camp buildings were erected, a large amount of new mining equipment was installed, and approximately 1,000 feet of development work in the Black Hawk ground on the 1,200-foot level of the Page shaft was done. The success of this operation can be accredited entirely to flotation, because with the old milling methods it was impossible to mine and mill the ore at a profit.

The Sullivan Mining Co., which suspended production at the Star mine in 1928, pending completion of the zinc plant, and which resumed in February, 1929, maintained production at the rate of approximately 450 tons per day until April, 1930, when the low price of metals caused a suspension. The 4,000-foot level of the Star mine is connected with the 2,000-foot level of the Hecla mine by the Star crosscut, which is 8,900 feet long. This crosscut made a blind connection with the Star vein at a point 2,800 feet below the Star tunnel. After production was suspended in April, work was continued in driving the vertical operating raise and the vertical shaft which are to connect the Star crosscut and the upper tunnels of the Star mine. Construction of the cadmium recovery plant, which was started in 1929, was completed, and the plant was put into operation in May. In April the zinc plant was put on a greatly curtailed basis. The zinc and cadmium produced by the electrolytic plants of this company are of an especially high grade and are finding a ready market, the zinc selling at an increase in price over that of any other zinc metal. The electrolytic plants of this company now constitute one of the largest and most important enterprises in the Pacific Northwest, and one which insures the permanence of the mining industry in Shoshone County.

One of the largest expenditures made by any company in the Coeur d'Alene district during the year for mine development, new mine plant installation, and new mill was made by the Jack Waite Mining Co. An extension of the railroad was graded for a distance of three miles, the principal haulage tunnel was entirely rehabilitated and relaid with heavier rails, a new I-R compressor was added to the mine plant, a new mill building was con-

structed, and the installation of entirely new milling equipment was started. It was expected to have the mill fully completed and ready for operation early in 1931. The new mine development work greatly increased the known ore reserves, and a large tonnage of crude ore and concentrate was marketed.

The extensive improvement campaign started in 1929 by the Sunshine Mining Co., which consisted of rebuilding the principal haulage tunnel, No. 5, of constructing a new hoist station and skip pockets, new inclined shaft, and new buildings, of installing a new hoist and compressor, and of enlarging the mill to 500-ton capacity, was completed early in 1930, and capacity production was maintained throughout the year. The inclined shaft was sunk from the 1,300 to the 1,700-foot level, and a large amount of drifting on the 1,300-foot level and the levels above it was done. This work greatly increased the ore reserves of the mine. The ore on the 1,300-foot level was found to be of higher grade and greater extent than on any of the upper levels. This company is one of the largest producers and dividend payers in the Coeur d'Alene district, although the low price of silver caused a reduction in the dividend rate.

One of the principal mines in the Coeur d'Alene district to be placed on a profitably operating basis in 1929 and the only addition to the list of dividend paying mines in the State during 1930 was the Sherman Lead Co. This company's mine is connected with No. 5 tunnel of the Hercules Mining Co., through which it is operated, and the ore is sold to the Hercules custom mill at Wallace. Production was maintained until March, when the low price of metals caused a suspension. However, development work was continued, and over 2,500 feet of raises and drifts were run. This work exposed a large amount of new ore, which greatly increased the known resources of the mine. Control of this company is held by the Tamarack & Custer Consolidated Mining Co.

One of the few companies which maintained production throughout the year was the Dayrock Mining Co.; however, it reduced to a one-shift basis in March and later to six days a week. Over 3,000 feet of crosscuts, drifts, and raises were run on the four principal levels of the Dayrock mine. This work greatly increased the known ore reserves, and the mine is fast developing into one of the most important producers in the Coeur d'Alene district. During the year three additional properties, the Option, Black Cloud, and California groups, were acquired. This company now has a large, compact holding as compared with three claims held under lease and option when it was formed in 1924.

The Golconda Lead Mines enlarged and improved its mine plant, installed a large electrically driven hoist and compressor, extended its new shaft from the 1,400 to the 1,800-foot level, and performed a large amount of development work on the 1,600 and 1,800-foot levels. The ore opened on these levels greatly increased the known resources of the mine. Capacity production was maintained until March 15, when the low price of metals forced a suspension; however, milling operations on a one-shift basis were resumed on August 1. The company obtained the property owned by the Square Deal Mining & Milling Co. under lease and option and started a crosscut on the 1,400-foot level to develop it. An important discovery of high-grade lead-silver ore was made late in the year on the surface of the Mayflower group about 2,000 feet east of the known ore bodies. Logging operations exposed the ore, and work was started in driving a tunnel to explore it. This company is fast becoming recognized as one of the principal operations in Shoshone County.

At the Galena mine of the Callahan Zinc-Lead Co., the principal work consisted of crosscutting to and drifting on the 800 and 1,000-foot levels on the new south vein, which was discovered by diamond drilling in 1928 and opened on the 600-foot level in 1929. This work resulted in exposing such a substantial amount of new ore that the company is fast becoming reestablished as one of the principal operators in the Coeur d'Alene district. As the Galena mine is located in the so-called "dry belt", in the south side of the district, the success it is attaining, particularly as ore and geologic conditions are improving at depth, has been an important factor in stimulating development throughout this section.

At the Sidney mine, operated by the Sidney Leasing Co., the principal shaft was extended 200 feet. A large amount of development work was performed, and production was maintained until July. The new development work, particularly on the lower levels, was successful in greatly increasing the known ore reserves of this mine. The fact that this mine is located on Pine Creek and that the ore is improving in grade and extent as depth is gained has been significant in proving that this section of the Coeur d'Alene district is not without merit; and the success of this enterprise has greatly stimulated mine development in this part of the district.

The Tamarack & Custer Consolidated Mining Co., which operates one of the substantial producing mines of the Coeur d'Alene district, maintained a steady output and an extensive development campaign until late in March, when production was entirely suspended. A crew of 12 men was retained on development work, which consisted of sinking a 200-foot winze on the vein in No. 7 tunnel. It was reported that this work indicated the existence of a new ore body. The development and exploratory work performed during the year amounted to over 2,400 feet. The company's ore is transported in railroad cars to the Hercules mill, which buys the entire output.

The Gold Hunter Mines, Inc., at Mullan, one of the oldest mines in Shoshone County in point of continuous production, maintained capacity output and an extensive development campaign during the first three months of the year. All operations were then suspended because of the low price of metals.

The Constitution Mining & Milling Co. maintained mine development and production until July, when the low price of metals compelled suspension. The principal development work consisted of sinking the vertical shaft from the 600-foot level to the 800-foot level and drifting on the latter level. The new ore exposed by this work greatly increased the known reserves of the mine. The company's expenditure for mine development and mine plant improvement was among the largest expenditures in the Pine Creek section.

Construction of the new mill, which was started late in 1929, by the Pine Creek Lead-Zinc Mining Co. was completed; No. 3 tunnel was rehabilitated; and the mine and mill were placed in condition for production. This company's expenditure was one of the largest made in the Pine Creek section during the year.

The Douglas Mining Co., Ltd., whose property is located on Pine Creek near the Constitution, during the first four months of the year maintained an active development campaign, consisting principally of drifting on the vein at the 300-foot level of the inclined shaft. The new ore developed by this work was one of the important disclosures of the year in the Pine Creek district.

The Atlas Mining Co. conducted active mine development work during the early part of the year, after which this work was suspended. Ore bins and a 2,000-foot aerial tramway, connecting the mine and the mill of the Gold Hunter Mines, Inc., were constructed. Upon the completion of the tramway, mine work was resumed. The mine development consisted of 1,490 feet of crosscuts and drifts, 920 feet of diamond drilling, and the extraction of sufficient ore to make a one-car shipment of concentrate.

The Granada Lead Mines, Inc., a new organization, whose property adjoins that of the Golconda Lead Mines, installed a power line, an electrically driven compressor, and complete mining equipment; erected mine buildings; and commenced driving a long crosscut tunnel. Work on the tunnel was continued without interruption, and it was extended over 500 feet. Two veins containing a good showing of lead-silver ore were encountered. These disclosures greatly increased the attractiveness of the enterprise.

The Metropolitan Mines Corporation, Ltd., whose property is located on Big Creek, extended the power line to its mine and installed an electrically driven compressor during the early part of the year, after which the principal tunnel was extended without interruption.

The Bunker Chance Mining Co., whose property is in Milo Gulch near Wardner, installed an electrically driven compressor and complete mining equipment, and continued its principal tunnel throughout the year.

The New Jersey Consolidated Mines Co., at the King of Pine Creek mine, during the early part of the year extended its vertical shaft to the 300-foot level and did a large amount of drifting on the vein on this level. This work greatly enhanced the possibilities of this enterprise. The work was hampered by an exceedingly large flow of water, which made it necessary to install powerful electrically driven pumps. This company's expenditures were among the largest in the Pine Creek section during 1930.

The Coeur d'Alene Mines Corporation, which is operating the Mineral Point and St. Elmo groups near Osburn, conducted an active development campaign, which consisted of extending the principal tunnel approximately 2,000 feet.

The Stratton Silver Summit, Inc. was one of the principal development enterprises in the Coeur d'Alene district which maintained work throughout the year. The crosscut was extended 1,676 feet to a total distance of 4,716 feet, and 540 feet of a drift was driven west from the crosscut at a point 4,300 feet in from the portal. The drift encountered ore minerals containing good values in silver. This encouragement greatly enhanced the possibilities for a successful outcome.

The Mutual Mines Development Co. was active throughout the year and commenced building a flotation concentrator. Definite information as to its activities and mill construction is lacking.

The General Mines Corporation received a larger amount of publicity from the press than any other mining company in the State. Press reports were to the effect that the principal tunnel was extended, and that this work revealed a mineralization dissimilar to any other in the district.

The Ajax Mining Co. drove over 2,000 feet of tunnels and drifts on the Bixby tunnel level during the year. This company is one of the oldest development enterprises in the Coeur d'Alene district and one which has conducted work without interruption for many years. The development work was encouraging. The company's persistence is deserving of success.

The Independence Lead Mines Co. conducted work throughout the year. A 100-foot vertical shaft was sunk on the vein, and a large amount of drifting at the bottom of the shaft was done. This work encountered a good showing of lead-silver ore.

Little Sunshine Mining Co. added a compressor and an air-driven hoist and started sinking a vertical shaft in April. The shaft is located in the principal tunnel at a distance of 4,200 feet from the portal. It was completed to a distance of 300 feet, and a large amount of exploratory work was done on two levels.

The Coeur d'Alene Mining & Smelting Co., whose property is located on Nine Mile Creek and whose stock is controlled by residents of Wallace, extended its principal tunnel without interruption.

The mill owned by John P. George, operator of the Roberts lease at Wardner, in the old Last Chance mine of the Bunker Hill & Sullivan M. & C. Co., was destroyed by fire in June. A new mill was constructed and placed in operation during the closing months of the year.

The United Metals Co., at the Black Bear group, was active for six months and extended the principal tunnel 900 feet.

The Pearson Mining Co., in the St. Joe district near Falcon, was active throughout the year in extending its long crosscut.

Companies whose work amounted to more than the legal requirement and which were active during a large part of the year were as follows:

Blue Eagle Mining Co.; Blue Ribbon Mining Co.; Commercial Traveler Mining Co.; Keystone Mining Co.; North Star Mining & Development Co.; Sonora Mining & Milling Co.; and Vendetta Chief Mining Co.

Teton County

The most active enterprise in this county during 1930 was the Grand Teton Oil Co., which, in 1929, acquired the holdings and equipment of the Teton Land & Leasing Co. and a large additional acreage, installed additional well-drilling equipment, and started sinking two wells known as

Blevins No. 1 and Bevan No. 1. During 1930 Blevins No. 1 was extended 1,500 feet, to a total depth of 3,300 feet; and Bevan No. 1 was extended 100 feet, to a total depth of 1,465 feet.

Valley County

The expenditure made by the Yellow Pine Co. for power plant construction and installation, for new mining equipment, erection of new buildings, road construction, and mine development work was the largest in southern Idaho during 1930. This company has inaugurated one of the largest mine development campaigns ever undertaken in the history of the State, and the expenditures it has made indicate that a new mining district of magnitude is being established. During the year the Monday tunnel camp was selected as the principal base of operations and was established as a post office with the name of Stibnite, having a mail service three times a week.

The Monday and Cinnabar tunnels, on each side of Meadow Creek, are at the same elevation and the portals are connected with a long trestle, thus making all equipment and camp facilities accessible to both tunnels. The Cinnabar tunnel is projected to develop the gold and mercury deposits of the Cinnabar group. Its total length when completed will be about 10,000 feet, and it will intersect the ore zones approximately 1,600 feet below the upper levels. The Monday tunnel, which is practically a drift on the Meadow Creek vein, has projected length of 8,000 feet and a depth of 410 feet below the Meadow Creek tunnel. In the Meadow Creek tunnel there is approximately 4,500 feet of crosscuts, drifts, and raises that open the ore bodies 400 feet below the surface. New buildings erected in Stibnite were: assay office, post office, machine shop and compressor house, change house, large barn, warehouse, woodsheds, oil house, metal house, large cellar, large bunkhouse. New equipment installed: Two large electrically driven compressors, electrically driven ventilator blower, steel sharpener, oil furnaces, lathes and machine tools, storage battery locomotive haulage, and complete mining equipment. At the Meadow Creek camp a new slaughter house, corrals, an additional residence and a warehouse were erected. The compressor was converted to electrically driven. An electrically driven hoist, complete equipment for shaft sinking and for fire protection were added. A new 525-kw. hydroelectric power plant was installed on Meadow Creek. The generator is driven by a Pelton water wheel operating under a 520-foot head. The water is delivered through an 11,000-foot, 28-inch, redwood-stave pipe and a 1,620-foot, 24-inch steel penstock. Construction work was started on the 1st of June, and the plant was completed and in operation on the 1st of November. This work involved also the clearing of a right-of-way for the pipe line and transmission lines through heavy forest for a width of 200 feet. Mine development work was maintained throughout the year in the Meadow Creek tunnel and in extending Monday and Cinnabar tunnels. A station and skip pockets were cut in Meadow Creek tunnel, hoist and sinking equipment were installed therein, and all arrangements were completed for sinking a 410-foot vertical shaft on the ore. When completed, Monday tunnel will connect with this shaft. This company is the one mining enterprise in the State to use an airplane for the delivery of mail during the winter. Prior to 1930, mail was delivered by dog team from Cascade. The airplane mail service started in November and continued during the remainder of the year, requiring about an hour from Cascade, as compared with three days by dog team. Plane service included also the transportation of men and light supplies.

Throughout the year the Bunker Hill & Sullivan M. & C. Co., at the Hall Interstate and Lost Pilgrim mines, continued to be one of the most outstanding enterprises in south-central Idaho. Mining and milling were conducted throughout the year, and a substantial tonnage of lead-silver and zinc concentrates was produced and shipped to the company's plant at Kellogg. New camp buildings and concentrate bins were erected, additional mining equipment was installed, and a large amount of mine development work was performed.

The Amalgamated Red Metals Mines Co. and the Profile-Tamarack Mines Co., operating in the Profile section, and the Keystone Gold Mines, Inc., at the Werdenhoff group in the Edwardsburg district, all conducted active exploratory work throughout the summer months.

In the Thunder Mountain district, McRae and Davis maintained work at the Sunnyside mine throughout the summer months and operated their mill intermittently. This district received a large amount of investigation from those seeking new gold-mining enterprises. A project of importance to the Yellow Pine, Profile, Big Creek, and Edwardsburg sections is the construction of the highway from the junction of the present Yellow Pine Meadow Creek highway to the mouth of Profile Creek. Construction of this road was started during the year.

Washington County

An event of importance to this county and to southern Idaho was the entry of the Idaho Mineral Mining Co., a subsidiary of the Goldfield Deep Mines Co. of Nevada, into the Mineral district late in 1929. This company acquired practically all of the principal properties adjacent to the old town of Mineral and consisting of three groups on each side of Dennett Creek; a small gas-driven compressor and complete mining equipment were installed; active development work was commenced and was continued throughout 1930.

The Crystal Dome Oil & Gas Co., whose property lies between the towns of Payette and Weiser, erected an 84-foot derrick, installed a standard steam-driven drilling rig, and commenced operations in sinking a 12½-inch well in November, 1929, and completed the well to a depth of 1,470 feet in 1930. On Sept. 28, 1930, at a depth of 1,865 feet, a showing of natural gas was encountered. In November this company entered into an operating agreement with the Mountain States Oil & Gas Co., which has conducted all subsequent operations.

The Cuddy Mountain district received a small amount of attention during the summer months, and G. T. Hamill produced and shipped a carload of high-grade lead-silver ore.

BUNKER HILL & SULLIVAN M. & C. CO.

Hall-Interstate, Lost Pilgrim Mines, Bernard, Deadwood Basin, Valley County

The Hall-Interstate, Lost Pilgrim mines were first visited by the present inspector in October, 1922. At that time the best approach from Boise was by way of Lowman and Bear Valley. On this trip the inspector left Boise by automobile at half past five in the morning and arrived at the mine at half past eleven that night, being compelled to walk the last eight miles from the end of the wagon road. His impressions of this visit were published in The Idaho Daily Statesman on November 2, 1922, in part as follows:

> Situated in the southeast corner of Valley County and comprising the drainage area of the Deadwood River, which is a tributary to the South Fork of the Payette River, is the Deadwood mining district, a district once famous for its placer gold, and one in which there are many opportunities for the prospector and development companies. Until 1921 this district could be reached by trails only, but with the completion of the forest road from Cascade to Knox and the road from Bear Valley to the Merry Blue mine this section of the State is becoming more accessible and should witness considerable activity in the near future.
>
> The upper end of the district is more accessible from Knox, which is 28 miles from Cascade over an excellent automobile road, thence from Knox to Stolle Meadows by trail. The lower end of the district can be reached by automobile from Lowman to Bear Valley, thence over the Merry Blue road to the mine of the same name, which is on Wilson Creek at about the center of the district. Good trails exist throughout the basin and from different outside points into it, but after leaving the Merry Blue mine or Stolle Meadows the only means of communication is by these trails.

History.

Gold was first discovered in the lower end of the Deadwood Basin in the early sixties, and active placer mining continued for about 30 years until all of the benches and creek bottoms leading into the main valley had been exhausted. These early operations exposed the veins of the principal mines of the district, and as this territory was inaccessible during the placer mining days only the more prominent veins were located. No production statistics are available but, from the extensive placer workings evidenced by the old tailings, the district must have produced a considerable amount of placer gold.

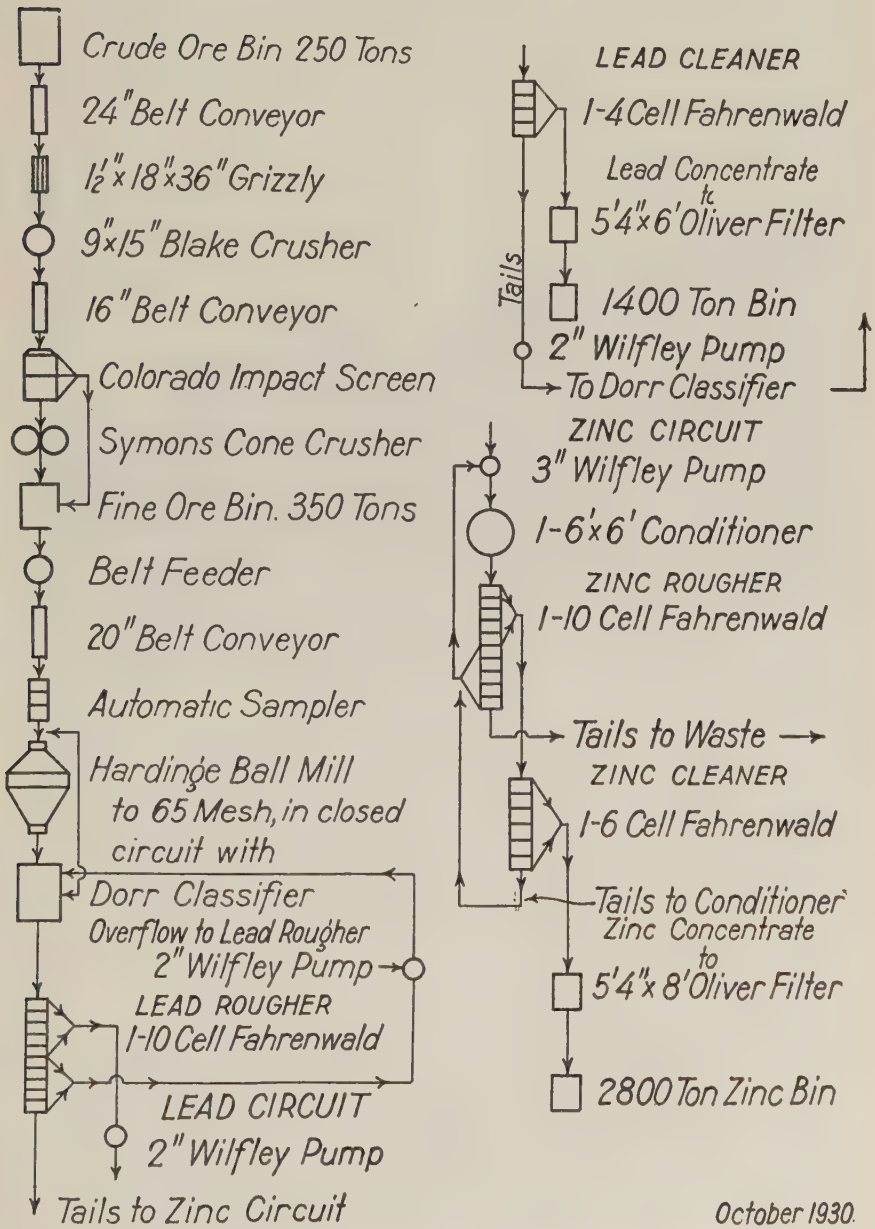
Mountains.

The mountains of this district are part of the great mountain region of central Idaho. The combined crest line forms an undulating plain which is occasionally dissected by sharp peaks that attain an elevation of about 8,000 feet. This crest line has an average elevation of about 7,000 feet and when viewed from a distance the plateau appearance is prominent with the slopes varying little in any given direction, but with a general northerly and southerly trend.

From their east margin the mountains slope gradually to the flat bottom lands of the Deadwood River, while from the west the slope is very sharp. On approaching the lower levels small benches or flats of uniform elevation are numerous, and the slopes from these on either side approach the bottom at the same angle, thus giving the valley a uniform U-shaped trench appearance that clearly marks the path of an ancient glacier.

The principal mountain peaks in the district are Deadwood (elevation 7,500 feet), White Hawk (8,500 feet), Rock Point (8,200 feet), Blue Point (9,000 feet), Pilgrim (8,200 feet), Bernard (8,500 feet) and Monumental (8,300 feet).

FLOW SHEET
DEADWOOD MILL
Bunker Hill & Sullivan M. & C. Co.



October 1930.

Vegetation and Power.

The mountain and bottom lands are so densely covered with white and yellow pine, fir, and lodgepole pine that the whole presents a dense forest picture with here and there throughout the valley of the Deadwood River open spaces of meadow, some small but others consisting of from 200 to 500 acres, all covered with a luxuriant growth of grass. Winding its way through the meadows and dense forest growth is the sluggish river that for a mountain stream has a very small fall, so much so that no feasible power sites are available until after it enters the box canyon at its lower end. However, many of the small streams that enter the river have a fall of from 1,000 to 1,500 feet in about two miles, and these can be utilized for mining operations.



TRANSPORTATION DURING SUMMER MONTHS
BUNKER HILL & SULLIVAN M. & C. CO.

Geology.

A great amount of quarternary deposits fill the deep trough of the Deadwood River, and there is much evidence that it once lay at a higher level. The greater amount of this material was doubtless derived from the glacial streams which came through the valley, and much of it has been brought down by the streams that enter the main canyon.

The Deadwood mining district is a part of the great granite area of central Idaho, and this rock exists exclusively throughout the entire district. It is a normal granite, sometimes roughly porphyritic by the development of large pink and white orthoclase crystals, which occasionally exceed one-half inch in diameter. The grain is coarse, and reddish orthoclase crystals are prominent. The color is light gray, and the outcrops have a brilliant white tone. Included in the granite, islands of metamorphosed schist are occasionally found.

The schists vary in color from white to dark green and often inclose bands of white metamorphosed quartzite. The entire district is intruded by many dikes, which in places become very numerous. These dikes vary from white rhyolite to black diabase, and almost every variation in color and character between the two phases is present. The dark-colored diabase and diorite-porphyry dikes are more numerous and are always present in and near all the veins so far found. Adjacent to the dikes pegmatitic granite often occurs, but in no place does the pegmatite appear in the forms of dikes, but rather as a segregation in the granite.

Veins.

The veins of the district appear to owe their origin to these intrusive dikes, and after they were formed considerable faulting has taken place. In many places faulting has occurred within the vein fissures and in others along the dikes. The faulting along the dikes seems to have been the more consistent, and in many places the black dike rocks have been transformed into a heavy black clay gouge.

Practically all of the veins are fissures striking northeast and southwest and dipping to the south at a small angle. They vary in width from a few inches to over 40 feet. In the north end of the district all of the ore is silver or lead-silver. These veins vary from about three feet to over 40 feet in width, while in the southern part of the district gold is the only mineral so far discovered, and here the veins are narrow, varying from a few inches to not over two feet in width, although exceedingly rich. On account of the dense forest growth and heavy overburden but few veins have been discovered, these as the result of placer operations.

All available evidence indicates that conditions surrounding the discovered veins exist throughout the entire district, and there is no reason why other veins equally as good or better are not present and could not be found through intelligently directed prospecting. From the large amount of placer mining that has been done in the lower end of the district, one is safe in assuming that such veins do exist. With the district now becoming accessible, a large territory of unexplored country that is worthy of investigation is opening up to the prospector.



TRANSPORTATION DURING WINTER MONTHS
BUNKER HILL & SULLIVAN M. & C. CO.

Mines.

Lost Pilgrim mine. This property is owned by the Lost Pilgrim Mining Company and is situated near the head of Deadwood River on Pilgrim Mountain. The holdings consist of six unpatented claims. Two veins that cut the granite, one carrying high-grade silver and the other carrying lead-silver, have been proved. Practically all of the work has been done on the silver vein. This work consists of a 40-foot shaft with a 60-foot drift at the bottom and two tunnels, totaling about 500 feet, which are drifts on the vein. The vein averages about four feet in width, the principal content of which is blue-white quartz impregnated

with silver sulphide and some of the oxidized silver minerals. This mine was one of the first discovered in the district, and considerable rich surface ore was mined. This ore was transported to the smelter at Ketchum by pack train, but no records are available as to the amount produced. The work done has proved a substantial body of good grade mill ore that is amenable to modern metallurgical treatment.

Hall-Interstate Mining Company. This property is located on Pilgrim Mountain, and adjoins the property of the Lost Pilgrim Mining Company. The vein is covered with a heavy overburden, and at no place was it exposed on the surface. Float ore found along the creek bottom was the only indication of mineral, so the present owners constructed a high-line ditch and "hydraulicked" the mountain. This work uncovered the vein for about 400 feet in length and proved it to be about 40 feet in width. In the vein is one seam with an average width of about five feet of a high-grade lead-silver ore. In addition to the large cut washed on the surface, approximately 1,000 feet of tunnels and drifts have been run, which further prove the depth and continuation of the ore body, which is one of the largest exposures of high-grade ore lying dormant in Idaho, awaiting a time when transportation facilities are available.

Deadwood Mining Company. This company owns six claims adjoining the property of the Hall-Interstate Mining Company, and at present is engaged in driving a crosscut tunnel, which is now in about 400 feet. This tunnel is being driven to pick up the continuation of the Hall ore shoot.



MILL AND OFFICE
BUNKER HILL & SULLIVAN M. & C. CO.

Roads.

Since the foregoing was written Deadwood Basin has been traversed by excellent Forest Service highways leading to Bear Valley, thence north or south and to Landmark, thence north to Yellow Pine and west to Cascade. Construction of these highways was started in 1922. By 1925 they were sufficiently completed to make Deadwood Basin accessible from Cascade. Before this, Hailey, a distance of 125 miles, was the nearest railroad point, and all supplies were hauled from there by motor truck. Since then, Cascade, a distance of 54 miles, has been the operating base.

Mine History.

The Hall-Interstate, Lost Pilgrim mines were first called to the attention of the Bunker Hill & Sullivan M. & C. Co. in 1923. The company was favorably impressed, and after many months of negotiations the options were completed in May, 1924. Immediately the transportation of supplies and the construction of necessary buildings were started under the direction of Mr. James W. Gwinn, local manager.

A large, two-story boarding house, a power house, shops, barn, and outbuildings were constructed, a hydroelectric power plant and a compressor were installed, mining equipment was put in place, and operations were started on October 24, 1924.

The first work consisted of extending the Independence tunnel of the Hall-Interstate group as a crosscut to the vein and then drifting on, and parallel to, it into the Lost Pilgrim group. This tunnel intersected the ore 690 feet below the outcrop. By the summer of 1929 the work totaled approximately 7,000 feet. An inclined raise, 715 feet at 52 degrees, was driven from the Independence tunnel to the upper, or Anderson tunnel, and an inclined raise, 150 feet long at 65 degrees, was driven from the Anderson tunnel to the surface.

There are four levels in the main raise and many drifts and crosscuts were driven on No. 1 (Anderson tunnel) and No. 2 levels. By 1930 the main tunnel, crosscuts, drifts, and raises totaled over 10,000 feet.

Mine development work continued without interruption from October, 1924, and by the summer of 1927 sufficient ore had been opened to warrant the construction of a mill. A sawmill was installed, additional camp buildings were erected, and work was started on the mill. This work continued without interruption, and the mill was completed in October, 1928. Milling operations were started in April, 1929, but insufficient power caused a suspension, and the mill remained idle while an additional hydroelectric power plant was being built. The new power plant was completed in November, 1929, and since then milling has been continuous.

Mr. Gwinn was in charge of all operations until the spring of 1930, when he became incapacitated and was temporarily succeeded by Mr. C. Y. Garber.

Ore.

The ore is a coarse mixture of galena, sphalerite, and tetrahedrite, which occur as segregations, with sphalerite predominating. The lead and zinc minerals are coarse-grained, distinctly recognizable, and easily distinguished from each other. The gangue minerals are siderite, quartz, and decomposed wall rock. The ore is exceedingly friable, and mining operations reduce it to a fine mass in which no particle seldom exceeds one inch in diameter. Down to 20-mesh in size it is easily crushed, but grinding to lower sizes is difficult. When it is ground to 65-mesh, the ore minerals are liberated from the gangue.

Mining Methods.

The vein has a general east and west strike and stands vertical. Two large faults are parallel to the vein, and it is occasionally offset by transverse faults. The faulting has crushed the wall rock and ore to such an extent that the ground is extremely heavy and very difficult to hold open. On account of this condition the square-set and back-fill method is necessary, and all stopes are kept filled to within one floor of the working face. Bunker Hill type crib manways and slides are used in the main raises and in all stope raises. The transverse faulting, which offsets the vein, makes it difficult to keep the stope raises in alignment. Waste raises are driven into the walls at steep angles for back filling. All timbers are framed on the surface.

Equipment.

The principal buildings in addition to the mill are: A commodious boarding house; office and manager's residence; assay office; sawmill; foreman's residence; barn; compressor and change house; blacksmith shop; warehouse; two power houses; and numerous cabins.

Stratton Creek power plant: 160-kw. generator driven by Pelton water wheel operating under a head of 520 feet, water delivered through 14 and 10-inch pipe line; Woodward governor, volt regulators, and overload protection; 3-phase, 2,200 volts reduced to 220 volts for power purposes. Constructed in 1924.

Deadwood power plant: 375-kw. generator driven by a double-wheel Pelton water wheel operating under a head of 180 feet, water delivered through a 30-inch, electrically welded steel pipe line 4,050 feet long; Pelton governor, volt regulators, and semi-automatic equipment; 3-phase, 2,300 volts reduced to 220 volts for power purposes. Constructed in 1929.

Mining equipment: One-ton Manch storage battery locomotive capable of pulling 10 cars; 385-cubic-foot, compound Ingersoll-Rand compressor, driven by a 60-horsepower motor; Waugh Model 8 drill sharpener; Gardener-Denver rock drills with water attachments; Anaconda type air-driven hoist in main raise, tugger hoists in stope raises; 3-inch air line and 16-pound rails in Independence tunnel; complete assaying equipment; sawmill, 56-inch rip-raw, 30-inch cut-off saw, combination mine-timber-framer, 14-inch wedge saw; each saw is driven by an individual motor.

Transportation.

From about the 10th of November to the 20th of June of each year the roads are closed to wheeled vehicles, and the only means of communication, other than Forest Service telephone, is by dog sled. The teams are employed under contract, and two are necessary to meet the schedule of three mail deliveries to the mine per week. The trip between the mine and Cascade requires two days. The contract calls for a 100-pound load and the transportation of one company official or injured employee when necessary, but the contractor is obliged to carry only the mail. Two cents per pound is paid for freight and five cents per pound for personal baggage.

During the summer months three 5-ton dump-body trucks are used for hauling the concentrates and supplies. The trucks operate on a 24-hour schedule and make two round trips per day. All hauling is done under contract at a price of $10.00 per ton in each direction. As supplies of all kinds in sufficient quantities to maintain operations throughout the winter months must be hauled during the open season, the trucks moving in both directions are usually fully loaded.

MILL

The test work and the designing of the mill were done by Mr. C. Y. Garber, to whom the inspector is indebted for assistance in the preparation of the following description of the mill.

At the present time the mill has a capacity of 100 tons per 24 hours; however, the building is sufficiently large to house milling equipment for a capacity of 300 tons, and it is necessary to add but little more machinery to bring the mill up to the latter capacity.

Grinding.

The ore is transported from the mine by a one-ton, storage-battery locomotive pulling 10 cars and is delivered directly into the 250-ton crude-ore bin from which it is drawn through a chute on to a 24-inch belt conveyor. The conveyor dumps on to a tapered bar grizzly, 36 inches long by 18 inches wide with 1½-inch slots. After passing over the grizzly, the ore is crushed to a maximum size of 1½ inches in a 9 by 15 Blake crusher. The undersize from the grizzly and discharge from the crusher go to a 16-inch belt conveyor, which delivers it (dry) to a Colorado impact-screen with a ⅜-inch screen opening. The undersize from the screen goes to the fine-ore bin and the oversize to a 3-foot Symons cone crusher that discharges directly into the fine-ore bin, which has a capacity of 300 tons.

The ore is fed from the fine-ore bin by a belt-feeder on to a 20-inch belt conveyor equipped with an automatic sampler, and then goes to a 6-foot by 22-inch Hardinge ball mill where it is ground to 65-mesh. The ball mill operates in closed circuit with a 4½-foot, duplex-type Dorr classifier without the use of pump or elevator.

Rougher Circuit.

The overflow from the classifier goes direct to a 10-cell Fahrenwald flotation machine, termed the lead rougher cells. The first five cells of this machine make a rough lead concentrate, which goes to the lead circuit; the last five cells make a low-grade concentrate, which is returned to the Dorr classifier by a 2-inch Wilfley pump, and the tails go to the zinc circuit.

Lead Circuit.

The product from the first five cells of the rougher circuit goes to a 4-cell Fahrenwald flotation machine, which makes a high-grade lead concentrate and a tailing. The tailing is returned to the Dorr classifier by a 2-inch Wilfley pump, and the lead concentrate passes through a 5-foot 4-inch by 6-foot Oliver filter, which discharges into a 1,400-ton storage bin.

Zinc Circuit.

The tailings from the rougher circuit are delivered into a 6 by 6-foot conditioner tank by a 3-inch Wilfley pump. The product from the conditioner is fed directly into a 10-cell Fahrenwald flotation machine, termed the zinc rougher cells. The first five cells of this machine make a rough zinc concentrate, which goes to the zinc cleaner; the last five cells make a low-grade zinc concentrate, which is returned to the conditioner tank; and the tailings go to waste where they are settled in a pond and clear water only overflows.

The product from the first five cells of the zinc rougher goes to a 6-cell Fahrenwald flotation machine, which makes a high-grade zinc concentrate and a tailing. The tailing is returned to the conditioner, and the concentrate passes through a 5-foot 4-inch by 8-foot Oliver filter, which discharges into a 2,800-ton storage bin.

Reagents and Where Used.

Grinding circuit.

1.4 pounds of zinc sulphate and 0.17 pounds of aerofloat per ton of ore are fed into the Hardinge ball mill.

Rougher circuit.

.01 pound of cresylic acid per ton of ore is added at the sixth cell.

Lead circuit.

None.

Zinc circuit.

To each ton of ore 1 pound of copper sulphate, 2 pounds of aerofloat, and .025 pounds of zanthate are added in the conditioner—cresylic acid and zanthate are added to the product from the last five cells of the zinc rougher before being returned to the conditioner.

Drives.

Grinding circuit.

Line shaft, belt-connected to 30-horsepower motor drives:

Blake crusher.
Belt conveyors.
Feeders.
Automatic sampler.
Impact screen.

Symons cone crusher, by 50-horsepower motor, Tex rope connected.
Hardinge ball mill, by 50-horsepower motor, Tex rope connected.
Classifier, by 3-horsepower motor, belt-connected.

Flotation Circuit.

Each individual cell in all flotation machines is driven by a 3-horsepower motor, Tex rope connected.

The two filters are driven from a line shaft belted to a 15-horsepower motor.

Pumps.

Six 2-inch Wilfley pumps direct-connected to a 5-horsepower motor.
One 3-inch Wilfley pump direct-connected to a 10-horsepower motor.

Blower.

Ten-horsepower motor, belt-connected.

Average Assays of Ore and Mill Products.

The average assays of the mill feed and products are as follows:

	Au. $	Ag. Oz.	Pb. %	Zu. %	Cu. %
Mill feed	1.00	10.00	3.50	10.00	0.50
Lead cons	15.00	160.00	55.00	9.00	5.00
Zinc cons	0.60	5.00	1.20	58.00	0.40
Tails	0.01	0.33	0.07	0.71	0.07
Average total recoveries	76.50%	95.00%	97.00%	85.00%	60.00%

REMARKS

This enterprise, in point of past expenditures, production, and men employed, is one of the largest in south-central Idaho. It is of particular interest because the ore bodies occur in old gneissic and granitic rocks, and because it is a good example of mine development following the construction of modern highways. The management of the company has displayed a large amount of courage and civic pride, for which it deserves the hearty approval of everybody interested in the future growth of the State.

CADMIUM

Cadmium, during 1930, was added to the list of metals produced in Idaho. In the early part of the year the Sullivan Mining Co. began production at its cadmium recovery plant, which was added to its electrolytic zinc plant in 1929; since then operations have been continuous and a substantial tonnage of cadmium has been produced and marketed. The high purity of this cadmium makes it a worthy companion to high-grade zinc — "Bunker Hill 99.99+% zinc"—which is produced in this company's zinc plant, and both metals are being well received by the trade, which is recognizing their superior quality.

Cadmium minerals are almost unknown and none occur in sufficient quantity to become ore. The metal occurs associated with zinc ores and is recovered as a by-product in zinc smelters and electrolytic zinc plants. Some zinc ores contain more cadmium than others, but in all cases the amount is exceedingly small, the average ratio in zinc ores from various parts of the world being about 1 part cadmium to 400 parts zinc.

Metallurgically cadmium resembles zinc; physically it closely resembles tin. The pure metal when bent even emits the "cry" or crackling sound peculiar to tin. The color is white with a slightly blueish tinge.

Paul M. Tyler in Mineral Resources of the United States, 1927—Part I, page 323, published March 12, 1929 (the latest Government publication on this metal), says in part:

> Cadmium is a soft heavy metal, ductile enough to be beaten out into thin foil or drawn into wire. The specific gravity is 8.6. Although it is a trifle harder than tin, it will mark paper and hence is much softer than zinc. In hardness and tenacity it is intermediate between tin and gold. The boiling point is lower than that of zinc. The vapor is deep yellow, and the metal burns readily when heated in the air, evolving fumes of brown oxide.
>
> Among the properties that make cadmium valuable commercially are its resistance to oxidation and its unusually low melting point. Cadmium melts at a relatively low temperature and has a further property of greatly increasing the fusibility of other metals with which it may be alloyed without making them brittle. Added to copper or silver, it acts as a hardening and toughening agent. In dry air the metal will stay bright almost indefinitely, and although it takes on a superficial film of oxide in moist air it is suitable, nevertheless, for rustproofing iron and steel.
>
> Cadmium salts are all poisonous, a fact that has retarded the use of cadmium in solders and has restricted somewhat the field for cadmium plating, as the metal can not be employed in any way for food containers without endangering the health of consumers.

Cadmium Metals.

Cadmium is a constituent of nearly all of the well-known low-melting alloys employed in fusible plugs for automatic sprinklers, steam boilers, and fire alarms, and for safety fuses in electric circuits. In addition to cadmium, these mixtures usually contain lead, tin, and bismuth. By varying the relative proportions of the different constituents, alloys with a wide range of melting points can be produced. Lipowitz's metal, a white metal with a luster like that of polished silver, which melts at 60° C., is used for making casts of small animals and insects and forms an especially good solder for Britannia metal. A similar alloy is used for making casts of parts of the human body. Wood's metal, which is even better known, melts at a slightly higher temperature (71° C.). There are quite a number of these multiple alloys that melt at temperatures below the boiling point of water; several of them are moderately strong and can be bent or worked in a lathe. An antimony-lead alloy containing bismuth and cadmium has been invented for bonding glass.

Cliche metal for stereotype plates may be made with about 22.5 per cent of cadmium, 50 per cent of lead, and 2.75 per cent of tin, a mixture superior to the corresponding cliche metal containing bismuth, as it gives a greater number of impressions.

An important use of the metal is in copper telephone and trolley wires. In proportions of 0.5 to 1.2 per cent cadmium raises the annealing temperature and adds materially to the strength and wearing qualities of copper without greatly reducing the conductivity, as practically all other hardening agents do. Some quantities of cadmium are used to improve the properties of both plated and sterling silverware. In the jewelry trade cadmium is employed for producing green gold.

A new use, which because of its connection with the automobile industry has become of great importance, is in rustproofing steel, particularly nuts, bolts, sundry small parts for automobiles, and various light hardware, including locks, refrigerator trimmings, and certain wire products. The cadmium coat forms an alloy with the steel, and it is remarkably adherent even when applied to aluminum and light alloys. Because of its thinness, its extraordinary adhesiveness, and its softness, cadmium does not peel or crack off like nickel or zinc when damaged by the jaws of a pipe wrench or pliers. Cadmium-plated articles can be given various finishes, ranging from bright to soft satin and French gray. Cadmium plating alone does not produce a satisfactory silverlike finish, because its brilliance is soon lost, principally because it is too soft to withstand abrasion, but it may be used as a base coat for subsequent plating with nickel, copper, or brass. (Ed. note—Since the foregoing was written the principal use for cadmium has been as a base coat in chromium plating for bright parts.)

Cadmium has been employed in the form of wire for coating or "metal spraying" plaster casts, statuary, and other objects. Alloys containing cadmium are used in nonrusting hairsprings for watches and clocks. For the manufacture of electric-light filaments one of the earlier successful processes employed cadmium. An amalgam consisting of 42 per cent of cadmium, 53 per cent of mercury, and 5 per cent of bismuth can be impregnated with tungsten metal powder and then extruded through dies to produce a raw filament which is later heated to a high temperature to drive off the volatile metals. Five per cent of cadmium is sometimes added to aluminum powder to improve the color and luster and to make it more resistant to atmospheric influences.

Cadmium has been recommended for use in electric storage batteries. A battery having cadmium plates can be discharged completely and allowed to remain discharged indefinitely, whereas such abuse causes serious damage to ordinary lead batteries. As they cost fully twice as much as lead batteries, cadmium batteries have not been widely used, although there are several makes of miners' safety lamps employing an alkaline electrolyte, one nickel electrode, and, instead of the usual iron electrode of the Edison battery, a mixture of iron and cadmium in a

thin perforated metal case. Monochromatic red light for scientific investigation in physical laboratories is produced by means of cadmium. In the quartz-cadmium vapor lamp developed by the United States Bureau of Standards the cadmium is alloyed with a very small fraction of 1 per cent of gallium, giving a long-lived lamp that does not become clouded by adhesion of cadmium vapor to the walls.

During the World War cadmium was declared contraband by most of the belligerents. This may have been due in part to its use as a substitute for tin, but, in addition to the ordinary industrial uses, cadmium was employed in smoke bombs and a cadmium band was placed on hard-jacketed cartridge bullets to take the rifling without undue wear on the barrel.

Cadmium Compounds.

Most of the salts are soluble in water and dilute acids, and they are used principally as a source of the metal in cadmium plating and as pigments. Since cadmium is poisonous, almost its only use in medicine is as salicylate, which may be employed as an external antiseptic. The acetate finds a little use in dentistry. Several of the salts, particularly the alcohol-soluble halogen compounds, are employed in photography, and certain of them enter into the manufacture of fireworks and ceramics. Cadmium tungstate ($CdWO^4$) in the form of yellow crystals is used in the manufacture of fluorescent paint, and a borotungstate known as Klein's reagent is used in the preparation of a heavy solution having a maximum specific gravity of 3.28 and used for float-and-sink tests in ore dressing and mineralogy.



CADMIUM PLANT: SULLIVAN MINING CO.

Cadmium sulphide (CdS), a brilliantly colored pigment variously known as cadmium yellow or jaune brilliant, has been used extensively for painting street cars and passenger coaches on certain railroad lines because it is one of the most permanent pigments known, being unaffected by the sulphurous gases from coal smoke that blacken chrome-yellow pigment. As a pigment it finds use also in coloring soap and in calico printing. In pyrotechnics it is employed to produce a blue flame. It is also used fairly extensively to give color and luster to glass and porcelain. Added to rubber, it produces a yellow color without impairing the elasticity or strength. There is a small consumption in photography.

Cadmium lithopone, also known as "cadmopone," is prepared like zinc lithopone by adding a solution of barium sulphide to the carefully purified sulphate. Since it contains only 30 per cent or less of cadmium, this pigment is much cheaper than cadmium sulphide, which contains approximately 75 per cent of the element, and for many purposes it is quite as satisfactory.

ELECTROLYTIC CADMIUM PLANT

OF THE SULLIVAN MINING COMPANY

Cadmium occurs as an impurity in practically all zinc ores. The quantity present is very small and rarely exceeds a few tenths of 1 per cent. This metal is an objectionable contamination in electrolytic zinc, and its removal from the zinc solution in the zinc plant is an expensive but essential part of the process. The removal of cadmium is accomplished by agitating the zinc-bearing solutions with finely divided zinc dust.* This action precipitates the cadmium, together with other impurities, chiefly copper, nickel, and cobalt, as a finely divided metallic material known as "purification residue." This residue, in which the cadmium has been concentrated about one hundred fold, constitutes the feed to the cadmium plant. The residue also contains about 40 per cent zinc, which is recovered and returned to the zinc plant after the cadmium and other impurities have been removed. Thus the cadmium unit performs an additional function, namely, that of salvaging zinc which would have been a loss in the zinc plant, thereby increasing the efficiency of that plant.

The purification residue is stored in a stock pile from which it is carried to the cadmium plant by a conveyor and fed into a ball mill. The sludge from the mill goes into a lead-lined leach tank, where it is agitated with 27 per cent sulphuric acid, spent electrolyte from the zinc plant. The cadmium is dissolved and the copper remains as a residue in the form of cement copper. The residue, which contains a high copper content, is then filtered from the solution and shipped to a copper smelter.

The solution carrying the cadmium is then passed over zinc plates by which the cadmium is precipitated as a metal sponge. The cadmium sponge floats to the surface of the solution and is scraped into a launder, which carries it to a Burt filter in which it is filtered and washed. This sponge is contaminated with zinc, nickel, cobalt, lead, and iron and must be redissolved and electrolyzed to produce high-grade cadmium metal. The solution after passing through the boxes is barren of cadmium but is rich in zinc; the purification of this solution is discussed later. The zinc plates used to precipitate the cadmium are rapidly consumed and a relatively large number are required; handling is expedited by an overhead crane which travels above the precipitation boxes and over the railroad siding.

The cadmium sponge dissolves slowly in dilute sulphuric acid; if it is partly oxidized, the solubility is greatly increased. The sponge, therefore, after leaving the Burt filter, is dried on a steam-plate drier to permit oxidation. It is then leached with the electrolyte from the electrolytic cadmium cells. All of the cadmium is not oxidized, and the remaining undissolved metallic portion serves to remove small quantities of copper which may not have been precipitated in the leach, and also tends to keep other impurities from building up to their full extent in the solution. After being dissolved, the cadmium, in the form of neutral solution, is sent to the storage tank and is ready for electrolysis. The electric cells are of the stationary cathode type and are in most respects similar to the standard cells used in the zinc plant. The chief points of difference are in the cell reagents and in the use of a lower voltage and much lower current density. After the electrolysis of

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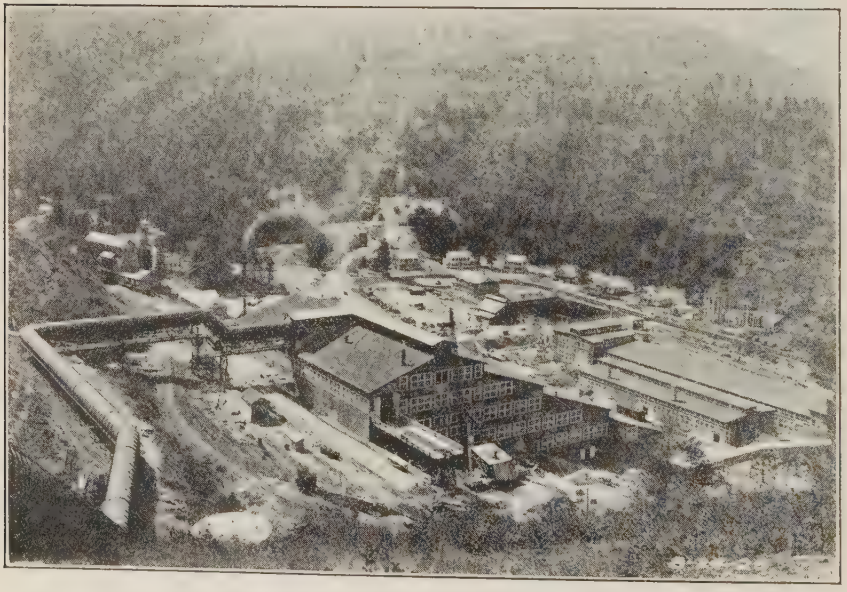
*A complete description of the Sullivan Electrolytic Zinc Plant was published in the Twenty-ninth Annual Report of the Mining Industry of Idaho for the year 1927, to which the reader is referred for further details.

the cadmium, the spent electrolyte is returned to the re-solution tank, where the acid generated during electrolysis is used to dissolve the cadmium sponge, which is again returned to the cells as neutral solution. The electrolysis is not very sensitive to impurities in the electrolyte, so they gradually build up, and it becomes necessary eventually to discard part of the solution; but before this is done the solution is passed through a stripping cell, which removes practically all of the cadmium.

The purification of the solution from the cadmium precipitation boxes constitutes one of the innovations in the cadmium plant. This solution is rich in zinc and contains cobalt, a very objectionable impurity in electrolyzing zinc, the greater part of which must be removed before the solution is returned to the zinc circuit in the main zinc plant. This is done by means of an additional purification process by which the cobalt and nickel are precipitated from the solution.

Because cadmium oxidizes at low temperatures, in order to prevent excessive drossing of the metal, the cadmium cathodes are melted under a thin layer of fused caustic soda or heavy gravity oil. After the cadmium is melted it is cast into pencils, slabs, balls and anodes of various shapes to meet the requirements of the trade.

The tanks throughout the plant are lead-lined and equipped with steam coils to permit temperature control of the solutions at any stage of the process. A motor-generator set supplies the cadmium plant with its own source of direct current independent of the zinc plant generators. The entire cadmium plant is so arranged that any unit can be temporarily shut down without affecting the operation of the rest of the process. In general, the plant resembles the zinc unit, but on a smaller scale, and embodies those features of design which experience with the zinc plant has proved to be desirable.



ZINC PLANT: SULLIVAN MINING CO.

NEW HOIST OF SUNSHINE MINING CO.

By H. Glen Coulson, Chief Designing Engineer
Coeur d'Alene Hardware & Foundry Co., Wallace, Idaho

The progressive steps by which the Sunshine mine was developed resulted in the mine workings not being properly arranged for economical operation and, as greater depth was attained, a different arrangement became necessary.

The mine had been opened by a 500-foot, single-compartment, vertical shaft, 1,500 feet in from the portal of the tunnel, and by a 60-degree inclined shaft, from the 500-foot level of the vertical shaft, to the 1,300-foot level. This arrangement necessitated double handling of all materials to and from the levels below the 500-foot level, and as the milling capacity had been increased it had become impossible to supply the additional tonnage to the mill through the one-compartment vertical shaft with the hoisting equipment in use. In 1929 work was started on raising the inclined shaft from the No. 5 level to the tunnel, rebuilding the tunnel, and cutting a hoisting station and pockets in order that all hoisting could be done in one operation. This arrangement required a new hoist which would meet the present requirements as well as those of the future when greater depth had been attained. The order to design and build the hoist was given to the Coeur d'Alene Hardware & Foundry Co. The mine improvements and construction and installation of the new hoist were completed and the hoist was put into operation in June, 1930. Although the hoist was designed to operate to an ultimate depth of 3,000 feet, it will be necessary to install a larger motor in order to do so.

Specifications

The hoist is electrically driven and is known as Coeur d'Alene type, heavy-duty, with double-clutched drums. The specifications are briefly as follows:

Size:
Ultimate capacity.....400 horsepower

Drums:
Cylindrical double drum. Both drums double-clutched. 62 inches in diameter, 60-inch face. Shell-spooled to hold 3,300 feet of 1⅛-inch round rope.

Drive:
Single-speed reduction from motor through cut-steel Herringbone gears.

Brakes:
Gravity-operated, released by oil pressure.

Duty:
Net ore load, including skips, minimum..... 8,000 lbs.
Rope pull, maximum.....17,000 lbs.

Speed:
Hoisting speed..... 700 ft. per min.

Pinion Shaft Bearings:
Hoffman roller type.

Clutches

The driving connection of the drums to the main shaft is effected through Coeur d'Alene multiple-disc-type clutches, which have amply demonstrated their superiority through use on many hoists during the past several years. These clutches are compact and powerful; they have a low moment of inertia compared with their strength, and they require adjustment at long intervals only. The clutches are operated directly by hand levers.

Brakes

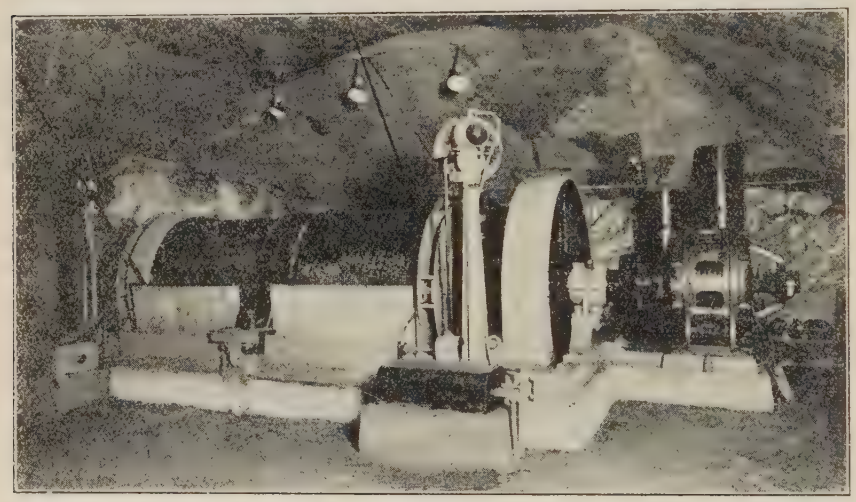
The brakes are parallel-motion post type made of structural steel and are lined with woven asbestos. They are gravity-applied by means of weighted cylinders and are released by oil under pressure. Brake control is effected through Coeur d'Alene sensitive and accurate floating lever and cam mechanism, by which the brake cylinders follow with minute exactness the movements of the operator's control levers.

Oil Pressure System

This equipment includes a self-contained oil system having supply and pressure tanks. The pressure is provided by duplicate motor-driven gear pump units, which in turn are controlled by a pressure regulator.

Electrical Equipment

The power to operate the hoist is supplied by a Westinghouse slip-ring induction motor of 250-horsepower, 40-degree, continuous rating (375-horsepower hoist rating), operating on a 2,200-volt, 3-phase 60-cycle current. Motor control is of the Westinghouse full magnetic type, in which acceleration of hoist motion is automatic. The rate of acceleration can be retarded at will but can not be increased by the operator. A traveling-nut-type limit switch is connected to each drum to provide automatic retardation when the mine shaft shall have reached a much greater depth than at present. Provision also has been made for substitution of a 400-horsepower continuous-rated motor for operation of the mine at the ultimate shaft depth.



HOIST: SUNSHINE MINING CO.

Safety Provisions

Each drum is connected by suitable gearing to a Lilly safety controller, which, in case of overspeed or overwind, opens the control circuit and cuts off from the hoist all supply of current. This safety action, or any other cause which brings about failure of the current, immediately operates through release of a solenoid valve to set the brakes and bring the hoist to a stop. This emergency provision may also be called into action by depressing a push button, which is located within easy reach of the operator. An interlocking arrangement by which no current can be supplied to the hoist unless the motor control lever be placed in the neutral position and both brake control levers be set in the applied position is another safety feature. Upper final limits to which the skip can be hoisted are provided by track limit electrical switches located above the skip dumps and lower final limits are included in the traveling-nut switches.

A backing-out switch is mounted upon a panel at the operator's elbow. By means of this switch, when the hoist is operated so far as to engage a limit switch, the hoist may then be operated in the reverse direction, but it can not move any farther in the direction of the overrun.

Still another safety feature is provided by a "collar-stop" arrangement for use when hoisting men. A limit switch is placed in each shaft compart-

ment a short distance above the collar, and this is controlled by a push button on the hoist operator's panel. When thrown into circuit these switches act as final limits, automatically stopping the hoist if cages should pass the collar only a few feet. Green lamps at the collar and in the hoist room indicate when the "man-safety" limits are set for action. Nothing serious could occur even if the collar-stop arrangement should temporarily become defective, because the man cages are provided with extra wheel treads, which make it impossible for the skips to turn into the dumps.

Size

The Sunshine hoist is approximately one-half the size and capacity of the Coeur d'Alene 800-horsepower, double-drum, electric hoist placed in commission at the main shaft of the Bunker Hill mine in 1924.*

*This hoist is fully described, with illustrations, in the Twenty-sixth Annual Report of the Mining Industry for the Year 1924.

SHERMAN HOWE MINING COMPANY

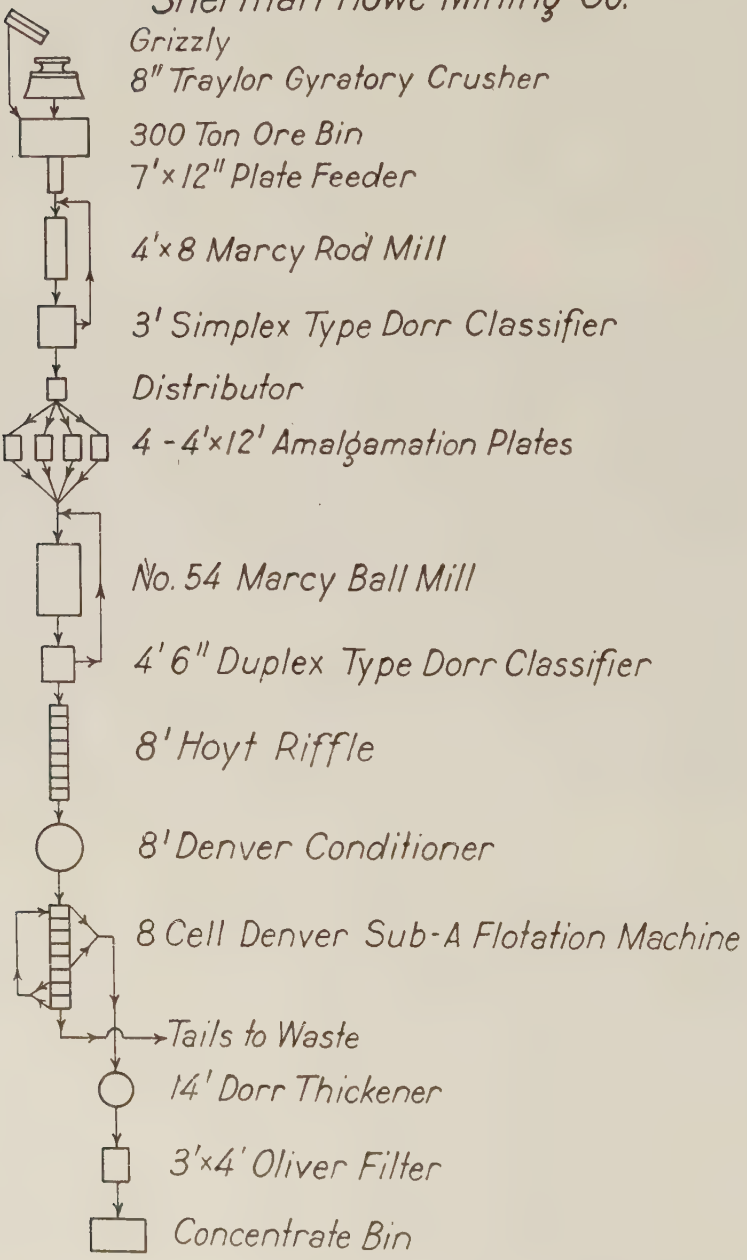
One of the principal new mills in the State to commence operations in 1930 for the recovery of gold was that of the Sherman Howe Mining Co. This company's mine is located in the Marshall Lake district, Idaho County, 17 miles northwest of Burgdorf, which is 35 miles north of McCall. Its property adjoins that of the Golden Anchor Mining Co. and covers the western extension of the Holte vein system. The mine is situated at the head of Bear Creek on the Salmon River slope, at an elevation of approximately 8,000 feet.

The company was incorporated and commenced operations in 1929. During that year a 250-horsepower Diesel engine direct-connected to an electric generator, a compressor, and mining equipment were installed; a 3-mile electric-transmission line between the power plant and the mine, camp buildings, and a mill building were erected; and a substantial sum was expended in road construction and mine development. During 1930 four additional camp buildings were erected, and a large sum was expended in road construction and mine development.

Mill construction was completed, and the plant was put into operation in January, 1930. Each machine is driven by an individual motor, and each unit is self-contained. The mill has a capacity of 150 tons per 24 hours, and it employs the most recent methods of milling ore containing free gold and sulphide minerals.

The ore is trammed from the mine by hand and is delivered directly to the mill, where it is dumped on to a grizzly with 1-inch openings. The undersize goes to a 300-ton fine-ore bin, and the oversize passes through an 8-inch Traylor gyratory crusher, thence into the fine-ore bin. There is no crude-ore bin, and the trammer starts and stops the crusher as each car of ore is delivered to the mill.

The ore is drawn from the bin by a 7-foot by 12-inch plate feeder and is fed into a 4-foot by 8-foot Marcy rod mill, operating in closed circuit with a 3-foot simplex-type Dorr classifier, where it is ground to pass 30 mesh. The overflow from the classifier goes to a distributor and thence over four 4-foot by 12-foot amalgamation plates. On leaving the plates, it passes to a No. 54 Marcy ball mill, operating in closed circuit with a 4-foot 6-inch duplex-type Dorr classifier, where it is ground to 50 per cent minus 200 mesh. The overflow from the duplex classifier goes to an 8-foot Hoyt riffle, where the remaining free gold liberated by the fine grinding is amalgamated, and thence into an 8-foot Denver conditioner. From the conditioner it goes to an 8-cell, Denver Sub-A Fahrenwald flotation machine. The first five cells of this machine make a finished product, which goes to a 14-foot Dorr thickener, thence through a 3-foot by 4-foot Oliver filter, which discharges into the concentrate bin. The product from the last five cells is returned to the head cell, and the tailings go to waste. The amalgam from the plates and Hoyt riffles is retorted and melted at the mill; the concentrate is sacked and shipped to a smelter.


MILL FLOW SHEET
Sherman Howe Mining Co.
Grizzly
8" Traylor Gyratory Crusher
300 Ton Ore Bin
7'x12" Plate Feeder
4'x8 Marcy Rod Mill
3' Simplex Type Dorr Classifier
Distributor
4 - 4'x12' Amalgamation Plates
No. 54 Marcy Ball Mill
4'6" Duplex Type Dorr Classifier
8' Hoyt Riffle
8' Denver Conditioner
8 Cell Denver Sub-A Flotation Machine
Tails to Waste
14' Dorr Thickener
3'x4' Oliver Filter
Concentrate Bin



PANORAMA VIEW: SHERMAN HOWE MINING CO.

TALACHE MINES, INC., OPERATIONS AT GOLD HILL MINE, QUARTZBURG, IDAHO

By A. H. Burroughs, Jr., President and Manager

The Gold Hill Mine is one of the oldest mines in the State of Idaho, having been in operation with short interruptions since 1864. Early operations were confined to the Gold Hill vein and, according to Lindgren,* production prior to 1896 amounted to $2,225,000. This production all came from above the 400-foot level, and available information indicates that the Gold Hill vein was not worked at a profit below the 250-foot level. Subsequent production, amounting to some $4,000,000, has come from so-called "porphyry ore bodies". These are irregular ore shoots, which are largely confined to a rhyolite porphyry (quartz porphyry) dike in the vicinity of the Gold Hill vein and to a parallel rhyolite porphyry dike about 300 feet to the south and traversing the Pioneer claim. The Gold Hill "porphyry ore bodies" produced commercial ore down to the 500-foot level, and at the time the mine was allowed to fill with water in 1925 the Pioneer "porphyry ore bodies" appeared to be bottomed on or above the 600-foot level.

The "porphyry ore shoots" occur along zones of shearing, which have an approximately vertical dip and strike from N. 40 degrees E. to N. 60 degrees E., and are located in the Gold Hill rhyolite porphyry dike in the vicinity of its intersection with the Gold Hill vein and also in the Pioneer rhyolite porphyry dike in the vicinity of its intersection with a younger rhyolite dike. The oldest formation is granite, which has been intruded by diorite and later by the rhyolite dikes which are of at least two ages. The rhyolite dikes strike slightly north of east and dip about 75 degrees to the north.

Where ore occurs along the zones of shearing, the first mineralization appears to have been quartz followed by pyrite, sphalerite, lead-bismuth sulphides, and gold. The gold is very closely associated with the lead-bismuth sulphides but is entirely free. The ore is of primary character, and there does not appear to be any appreciable zone of oxidation or enrichment in the "porphyry ore shoots."

Mine Unwatered:

In March, 1927 the Talache Mines Inc. acquired the Gold Hill & Iowa property under a lease and option, and the mine was subsequently unwatered. When sinking had reached the 700-foot level, ore averaging about $9.00 per ton was developed, and the property was equipped for production. The old equipment, being largely worn out, was scrapped. Among replaced equipment may be mentioned a 250-horsepower electric hoist and 150-ton amalgamating mill.

Subsequent mining operations showed that the grade of ore declined from $9.00 on the 700 level to $6.00 as the 600 level was approached. Information gained from this and subsequent work has confirmed the opinion that the lower grade ore on and near the 600 level is due to a lean zone. Such zones are not uncommon in gold mines; many mines on the mother-lode in California show similar conditions, with equally good ore below as above. Development of the 850 level has proved ore of about the same grade as on the 700 level, or slightly better.

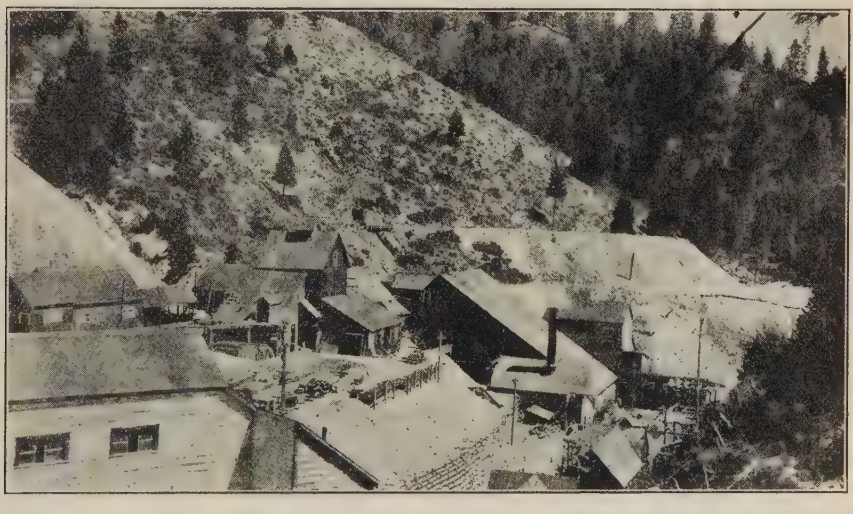
Operations above the 600 level, other than on the Gold Hill vein, were confined to the so-called "porphyry ore bodies" which were irregular ore shoots without any connection from one to another, except that all occurred in a broad zone of shearing. Many of these ore shoots do not appear to extend to the surface or down to the 600-foot and lower levels. Most of these ore shoots were confined to the rhyolite porphyry, although some ore bodies were productive for limited distances extending into the granite and diorite formations.

The 850-foot level has not been fully developed, but work to date indicates a somewhat different ore occurrence. Ore on the 850 level was first developed

*U. S. Geological Survey 18th Ann. Rept., pt. 3, p. 691.

in the rhyolite porphyry, but the rhyolite dike at this point is quite small, and the ore is confined to a narrow zone of pronounced shearing. This zone has been followed through the rhyolite porphyry and into the granite on both sides for distances of 100 feet or more, with equally as good ore in the granite formation as in the rhyolite. The extensive occurrence of ore in the granite formation on the 850 level led to further work on the 700 level, with development work proving the occurrence of ore along a narrow zone of shearing, extending from a previously mined ore shoot, some 200 feet, mostly through granite and diorite.

It is too soon to draw definite conclusions, but it does not appear unlikely that when the 700 and 850 foot levels are fully developed the ore will be found continuous, except for short breaks due to minor faulting, for more than 400 feet and passing through granite on the south, into the Pioneer rhyolite porphyry dike, through granite and diorite on the north and possibly into the Gold Hill rhyolite porphyry dike. This ore occurrence is dissimilar to the "porphyry ore bodies" and has more the characteristics of a narrow



GOLD HILL MINE: TALACHE MINES, INC.

shear zone, or vein without definite walls. Further development work may possibly connect this ore occurrence with the Gold Hill vein. The work done on these levels is of interest primarily as proving the extensive occurrence of ore in the granite and diorite formations. This heretofore unknown occurrence of ore makes a large unexplored territory available for prospecting and gives excellent opportunities for opening additional reserves, particularly in the unexplored area on the 600 and 500 levels above the area developed on the 700 and 850 levels.

MILL

The accompanying picture shows the old Gold Hill mill building and part of the remaining surface plant. Because of the lack of a suitable site for a new mill building, the old building was utilized. All equipment and foundations were removed, and a new flow sheet was fitted to the old building. The ultimate cost was as much as for a new building on a new site.

The flow sheet of the old mill consisted of amalgamation in a Hardinge pebble mill, followed by plate amalgamation and table concentration of plate tails. The table concentrates were shipped for a number of years, but they were relatively low grade, and in 1918 a cyanide plant was constructed for treating these concentrates. The cyanide plant was never successful because of fouling of the solutions.

Numerous metallurgical tests were made before construction of the new mill, and the results indicated equally as good, or better, gold recovery could be obtained by amalgamation alone. The flow sheet shown in Figure 2 was decided upon. It offers the advantage of producing a finished product, gold bullion.

Crushing:

Ore from the mine is hoisted in 1-ton cars on cages and dumped into an ore bin alongside of the shaft. Ore is fed from the bin by a Stevens-Adamson 30-inch armored-belt apron feeder on to a grizzly with 1¼-inch openings. The oversize passes through a 10 by 20 inch Traylor-Blake type jaw crusher, set to minus 2 inches. The crushed oversize then joins the undersize from the grizzly and after being elevated by a 12-inch bucket elevator passes through a set of 42 by 16 inch Traylor heavy-duty rolls, set to minus 1 inch. The discharge from the rolls is on to a 14-inch belt conveyor, which transports the ore to the mill bins. There are two of these bins, each holding 150 tons.

Sampling:

The crushed ore is fed from either of the two mill bins by Stevens-Adamson armored-belt feeders on to a centrally located conveyor belt, which discharges into the feed box of a Hardinge mill. Weight and head samples are taken by a hand-operated splitter which cuts the entire feed stream. This does not give as accurate a sample as desired but, because of the circulating load in the Hardinge mill, a wet sample cannot be obtained. Individual shift-head samples are erratic, which is to be expected with a free gold ore, but the monthly average closely checks with production and tails.

Primary Grinding and Amalgamation:

Grinding is done in an 8 by 22 inch Hardinge mill operated by a 125-horsepower slip ring, 900 r. p. m., motor driving through a link-belt silent chain drive to spur pinion and gear. The mill operates at 17 r. p. m.

The discharge from the Hardinge mill is elevated by a 14-inch bucket elevator to a 4-foot hummer vibrating screen with 24-mesh openings. The oversize is returned to the ball mill, and the undersize passes to a paddle-type distributor and thence to six amalgamating plates with a total area of 420 square feet.

The plate tails, after passing through traps, are pumped by a 2-inch Wilfley sand pump to an 8-foot Callow cone for dewatering before going to a 6-foot by 18-foot 4-inch Dorr duplex classifier, operating in closed circuit with the Hardinge mill.

The classifier overflow approximates 20 per cent solids, with approximately 80 per cent minus 80 mesh.

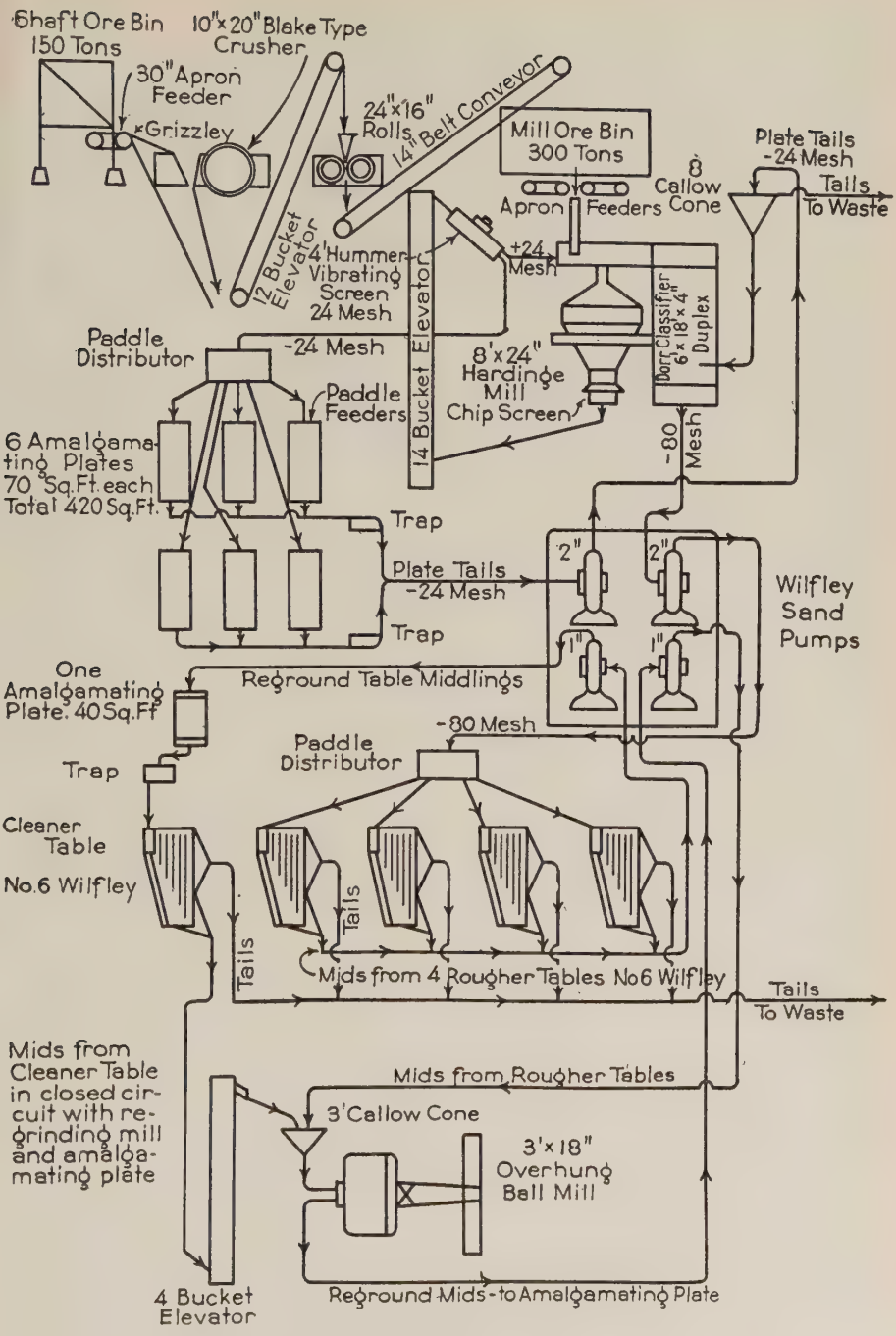
The object of the closed circuit just described is to give the coarse gold, minus 24 mesh, an opportunity to amalgamate, but at the same time not to permit any gold-bearing particles to pass out of the circuit until ground sufficiently fine to free their gold content. For this purpose grinding at least to minus 65 mesh is necessary.

At the head of each amalgamating plate is a feed box with paddles set at different quadrants on a revolving shaft, extending across the width of plates. These paddles evenly distribute the feed, and also impart a wave motion to the feed, similar to the splash from a stamp battery.

Secondary Grinding and Amalgamation:

The classifier overflow might be discarded as a final tail, as it usually assays from 80 cents to $1.00 per ton, which compares favorably with the tails from the old mill. However, at times the gold appears to be bright but will not readily amalgamate, and at such times the classifier overflow assays higher.

The overflow from the classifier passes to a 2-inch Wilfley sand pump, discharging into a paddle-type distributor feeding four No. 6 Wilfley rougher tables. These tables make two products, a final tail and a middling. The middling product from the four rougher tables is combined and pumped by a 1-inch Wilfley sand pump to a 3-foot Callow cone for dewatering before



MILL FLOW SHEET

Talache Mines Inc.
Quartsburg, Ida
1-1-31.

being reground in a 3-foot by 18-inch Stearns-Roger overhung ball mill. The overflow from this ball mill is pumped by another 1-foot Wilfley sand pump to an amalgamating plate with an area of 40 square feet. The plate tails pass through a trap and then to a No. 6 Wilfley cleaner table. This table makes a final tail and a middling product which is treated in closed circuit with the regrind mill and amalgamating plate.

Although the overflow from the Dorr classifier contains some material which requires further grinding to free its gold content, the main object accomplished by regrinding is the polishing of gold which otherwise will not amalgamate and the retaining of this gold in the circuit until it either amalgamates or flours and is lost in the tails. That very little gold flours is witnessed by low tails.

Mill Results:

The tails uniformly assay 40 cents per ton, irrespective of the grade of ore being milled. With $9.00 heads, the recovery, therefore, is somewhat better than 95 per cent. This is an unusually high recovery by amalgamation.

Although the gold content of the ore is entirely free, it does not readily amalgamate. Only about 50 per cent of the recovery comes from the amalgamating plates and the remainder from traps, boot of elevator, and feed boxes.

Cleanups:

Because of the sulphide content of the ore, the plates quickly become blackened and are usually dressed three times each shift. At each dressing the loose crumbs are removed along with the sulphides adhering to the plates. The amalgam obtained in this way is cleaned up daily.

The traps, boot of elevator, and feed boxes are usually cleaned up once a month. Amalgam from traps is cleaned separately, and the remainder of the material screened over a home-made impact screen which produces three products: namely, minus 28 mesh, minus 10 mesh, and plus 10 mesh. The minus 28 and minus 10 mesh products are each tabled on one of the No. 6 Wilfley tables. Special splitters are used to produce four products: clean gold, a high-grade concentrate, a middling and a tail. The tail goes to waste and the middling enters the regular mill circuit, joining the middlings from other tables. The high-grade concentrate is retabled, and what remains is ground in an amalgamating pan with quicksilver. The clean gold is added to the retort gold in producing bullion.

The amalgam retorts about 50 per cent gold, and the bullion contains on an average of 87 per cent gold and 10 per cent silver. The average bullion value is better than $18.00 per ounce. Bullion is shipped by registered mail and sold to the U. S. Assay Office, Boise, Idaho.

Criticism of Flow Sheet:

At the time the flow sheet was designed, the ore was expected to be relatively soft, similar to the ore produced in past operations. This was the case at the start of operations, when part of the ore production came from the 250 level. However, 700 and 850 level ore is much harder, and on this ore the mill does not have the capacity for which it was designed, namely, 150 tons per day.

The occurrence of ore in the mine is such that the gold values are confined to about 40 per cent of the material which it is necessary to mine and mill. In other words, about 60 per cent of the mill feed is waste, which it is not possible or practicable to eliminate in mining or by sorting. In the flow sheet as described, it is necessary to grind 80 per cent of this waste to minus 80 mesh before there is any opportunity for elimination, and the waste rock is usually the hardest.

Also, ore from the 700 and 850 levels contains more sulphides than ore from upper levels, and with hard ore, or a heavy feed, these sulphides build up in the circuit and bank on the plates.

Changes in the flow sheet are being contemplated to correct these difficulties by tabling the plate tails before they are returned to the Dorr classifier, operating in closed circuit with the Hardinge mill and amalgamating plates.

ACCIDENTS

The minor accidents listed in the accompanying table, pages 56 and 57, "Classification of Accidents," are taken from the records of the Industrial Accident Board and have been arranged to comply as nearly as possible with the classification made by the U. S. Bureau of Mines. Accidents that did not cause a loss of time of more than seven days are not included, because no compensation is paid. Many of the large companies do not report them, so a complete record is impossible to obtain. Although the U. S. Bureau of Mines and many State officials are listing these minor injuries of less than seven days in their reports, they have all been omitted from the accompanying table.

A comparison of the total accidents in 1930 with those in 1929 shows a decrease of two in the number of fatal accidents and a decrease of 27 in the number of minor accidents, which involved a loss of time of over 14 days. A comparison of the total number of men employed with the total number of accidents shows the very low accident rate of 0.36 accidents per 1,000 man-shifts. This low rate can be attributed to a great extent to the safety organizations, to the first-aid training given the men by all the larger mining companies, and to the sustained effort and interest maintained in safety work by those in charge, further augmented by close supervision. The results of this work are particularly apparent in the small number of accidents in the large mines of Shoshone County, which employ over 80 per cent of the total number of men working in the mines of the State. A comparison of the number of accidents with the number of men employed shows that the accident rate is in direct proportion to the efforts given to maintaining safety provisions. That this effort is successful in establishing a low accident rate is shown by a continued decrease in accidents over that of previous years. The accident rate per 1,000 days per man during 1930 of three of the largest companies was as follows:

Bunker Hill & Sullivan Mining & Concentrating Co.	0.24
Hecla Mining Co.	0.39
Federal Mining & Smelting Co.	0.71

Out of a total of 634 accidents during the year, 18 were fatal. Of these fatalities, 14 could have been prevented had the victims been more careful; company responsibility can not be placed for any of them; and the others were unavoidable. Out of the 583 minor accidents listed, 198 did not compel a loss of time to exceed 14 days, and 385 incapacitated the injured person for more than 14 days. The 33 additional accidents resulted in permanent injuries.

The loss of both legs or arms, one leg and one arm, total loss of eyesight, paralysis or other condition permanently incapacitating a workman from doing any work in a gainful occupation, is classified as "Permanent Total Disability." The loss of one foot, leg, hand, eye, one or more fingers, one or more toes, any dislocation where ligaments are severed, or other injury known in surgery to be a permanent partial disability, is classified as "Permanent Partial Disability."

Notes on Fatal Accidents

Jan. 30, Bunker Hill & Sullivan Mining & Concentrating Co.; Shoshone County. Joe Krohn, age 38, single, miner. Muck was hung up in a branch chute. Krohn went down the main chute on a rope. The shift boss was at the top and was talking to him; he heard him call and heard the ore run. Probably there was an arch of ore in the main chute, and Krohn let go of the rope and was standing on the ore when it let go. Death was probably due to suffocation.

Jan. 31, North Idaho Metal & Mining Co.; Boundary County. John Skands, age 55, single, miner. Skands, with Herman Herberg and another mucker, was working on night shift. When Skands was lighting the fuse, he said it was time to go, but Herberg suggested lighting the three lifters. While they were doing this, the other mucker walked to the crosscut. He looked back and saw both men at the face of the drift, just as the first hole went off. Both were instantly killed.

CLASSIFICATION OF ACCIDENTS

MINE	Killed	Seriously Injured Time Lost More Than 14 Days: Permanent total disability	Seriously Injured Time Lost More Than 14 Days: Permanent partial disability	Slightly Injured: Time lost over 14 days	Slightly Injured: Time lost 1 to 14 days
UNDERGROUND					
1. Fall of rock or ore from roof or wall	3		3	83	43
2. Rock or ore while loading at working face or chute			2	27	11
3. Timber			1	19	8
4. Explosives	3		1	2	3
5. Haulage, Cars or Motors			4	42	10
6. Persons falling down chute, winze, raise or stope	5		1	9	4
7. Drilling (by machine or hand drills)			1	15	5
8. Hand tools				17	15
9. Machinery (other than motors or drills)			3	5	5
10. Flying or falling objects			3	24	19
11. Fall of persons				18	7
12. Lifting				13	6
13. Nails and splinters			1	19	13
14. Electricity	2			1	
15. Other causes				2	1
Total	13		20	296	150

MILL	Killed	Seriously Injured Time Lost More Than 14 Days: Permanent total disability	Seriously Injured Time Lost More Than 14 Days: Permanent partial disability	Slightly Injured: Time lost over 14 days	Slightly Injured: Time lost 1 to 14 days
MILLING ACCIDENTS					
1. Haulage (cars and locomotives)				1	1
2. Railway cars or motors			1	7	2
3. Crushers, rolls or stamps				2	
4. Tables, jigs, etc.				2	
5. Other machinery			1	2	1
6. Falls of persons				1	
7. Falls in ore bins				1	1
8. Falling objects (rocks, timbers)					4
9. Scalding (steam, water or acid)					2
10. Lifting					
11. Hand tools, axes, bars, etc.					
12. Nails, splinters, etc.					
13. Electricity				1	
14. Other causes					
Total		2	16	11	

SHAFT ACCIDENTS					
15. Falling down shaft				1	
16. Objects falling down shaft				6	3
17. Breaking of cables	2				
18. Overwinding					
19. Cage, skip, or bucket	1			2	1
20. Other causes				2	
Total	3			11	4
SURFACE ACCIDENTS					
Yards, Shops, and Construction					
21. Mine cars or mine locomotives, gravity or aerial trams			1	4	2
22. Flying and falling objects			2	7	8
23. Lifting				5	1
24. Falls of persons			1	11	6
25. Nails and splinters				1	
26. Hand tools, axes, bars, etc.			1	5	4
27. Falls or run of ore in or from bin					
28. Machinery			5	7	3
29. Other causes				2	2
Total			10	42	26
Grand Total	16		30	349	180

SMELTER ACCIDENTS					
15. Haulage (cars, motors, etc.)			1	1	
16. Machinery				1	
17. Cranes				1	
18. Lead fumes	1				
19. Falls of persons				1	
20. Flying or falling objects (rocks, timbers, etc.)				4	3
21. Hand tools, axes, bars, etc				1	2
22. Burns from matte, slag or molten metal (pouring or spilling)				2	
23. Other causes					
Total	1		1	11	5
AUXILIARY WORKS ACCIDENTS					
Placers, Tramways and Dredges					
24. Falls of persons				2	1
25. Flying and falling objects	1			1	
26. Nails and splinters					
27. Hand tools, axes, bars etc				2	
28. Lifting					
29. Machinery				3	1
30. Handling hot materials					
31. Other causes				1	
Total	1			9	2
Grand Total	2		3	36	18

Jan. 31, North Idaho Metal & Mining Co.; Boundary County. Herman Herberg, age 37, married, mucker. Herberg, with John Skands, miner, and another mucker, was working on night shift. When Skands was lighting the fuse, he said it was time to go, but Herberg suggested lighting the three lifters. While they were doing this, the other mucker walked to the crosscut. He looked back and saw both men at the face of the drift, just as the first hole went off. Both were instantly killed.

Feb. 19, Tamarack & Custer Consolidated Mining Co.; Shoshone County. Peter Johnson, age 36, single, timberman. Deceased and John Lundberg were completing lagging over the seventeenth floor of the west chute in Murphy raise, 800 stope, after boxing the chute from the sixteenth to the seventeenth floors. They removed underpinning from lagging covering the chute on the tunnel level. On going off shift they forgot about it and stepped on the lagging. Both lagging and men fell down the chute.

Feb. 19, Tamarack & Custer Consolidated Mining Co.; Shoshone County. John Lundberg, age 52, married, timberman. Deceased and Peter Johnson were completing lagging over the seventeenth floor of the west chute in the Murphy raise, 800 stope, after boxing the chute from the sixteenth to the seventeenth floors. They removed underpinning from lagging covering the chute on the tunnel level. On going off shift they forgot about it and stepped on the lagging. Both lagging and men fell down the chute.

Feb. 23, Sunshine Mining Co.; Shoshone County. Alvah Burns, age 22, single, miner. Deceased with his partner, Charles Bush, was sent to the 400-foot level to build a bulkhead under the skip. They did not construct the bulkhead under the skip, but put one 2-inch lagging under the crosshead. This held the weight of the skip until there was about 20 feet of slack cable, when it gave way, letting the skip fall and causing the cable to break. The men and the skip dropped 135 feet to the 500-foot level.

Feb. 23, Sunshine Mining Co.; Shoshone County. Charles Bush, age 33, married, miner. Deceased with his partner, Alvah Burns, was sent to the 400-foot level to build a bulkhead under the skip. They did not construct the bulkhead under the skip, but put one 2-inch lagging under the crosshead. This held the weight of the skip until there was about 20 feet of slack cable, when it gave away, letting the skip fall and causing the cable to break. The men and the skip dropped 135 feet to the 500-foot level.

Feb. 24, Constitution Mining and Milling Co.; Shoshone County. John C. Shubert, age 29, married, mucker. Deceased and another mucker filled their carbide lamps prior to leaving for lunch. Deceased, without lighting his lamp, walked toward a miner, who was running a machine on the north side of the chute. When his companion reached this same miner and inquired concerning Shubert, it was discovered that the deceased had in some way fallen down the chute through the 16-inch opening.

April 5, Gold Hunter Mines; Shoshone County. Gust A. Larson, age 66, single, shoveler. A slab fell off the side of the stope, breaking the floor. Larson, jumping out of the way of the slab, stepped in a grizzly hole. This caused him to fall, and the slab fell on him.

April 18, Mackay Metals; Custer County. Herbert Hilts, age 38, single, shaft top man. Hilts and his partner had taken a loaded car of waste off the cage and pushed it on to the switch track. They signaled for the cage to go to the 700 level as usual for an empty car, which was to be dropped to the 1000-foot level for another load. While the cage was above the 800 level, Hilts looked into the shaft for some unknown reason, and the cage coming down hit him on the back of the head. He lived until 9:15 a. m. the following day.

May 5, Mackay Metals; Custer County. Frank Wornek, age 28, married, timberman. Wornek, with his partner, was cleaning off the top of square sets, preparatory to building a slide. He pushed off a large boulder, which hit the cap or girt, breaking it, and which allowed other timber to fall. He fell with the timbers.

May 27, Bunker Hill & Sullivan Mining & Concentrating Co.; Shoshone County. Frank Baran, age 36, married, motorman. Baran had finished loading the car, and his partner was handling the ore train. It is thought that the

deceased in some manner placed a steel bar, used for loosening the ore, on the trolley wire, thus causing electrocution. Deceased was subject to epileptic attacks. Accident is not fully established.

June 6, Franklin Placer Co.; Boise County. Leo Unternahrer, age 65, single, placer miner. He was cutting race to extend sluice boxes, and a piece of clay fell out of side of cut and hit him, causing internal injuries from which he died in a few hours.

June 13, Sunshine Mining Co.; Shoshone County. Max Barcus, age 38, married, miner. Deceased with his partner was working in No. 3 chute, 500 level. The chute was full of muck. While his partner was below pulling the chute, deceased fell down the chute and was instantly killed.

Sept. 12, Bunker Hill & Sullivan Mining & Concentrating Co.; Shoshone County. Steven W. Markell, age 40, married, laborer. In performing his regular work he breathed into his lungs considerable lead and arsenic, accidentally and unintentionally; and, after being disabled for about three months as a result, died from the effects of the poison.

Sept. 19, Bunker Hill & Sullivan Mining & Concentrating Co.; Shoshone County. Phillip Clark, age 38, married, miner. A slab fell from the back of the drift knocking him down and causing suffocation and probable internal injuries, from which he died on the way out of the mine.

Nov. 1, Federal Mining & Smelting Co.; Shoshone County. August Kaipi, age 38, married, miner. The men were engaged in setting an inclined cap in about the center of the scaffold. The superintendent of the mine was on the station and was about to get into the cage to go down the shaft. The deceased and his partner wished to change the framing of the cap and wanted to ask the superintendent's permission. Kaipi was seen to step off of the scaffold on the westerly end down upon the conduits and water pipe. He either did not think of the trolley wire or thought he could slip down between the wire and the south side of the trolley by climbing down the conduits. He was facing the south side of the tunnel when his back contacted with the trolley wire while one foot was resting on the water pipe line, so a circuit became grounded through his body from the trolley wire to the pipe line. Resuscitation was started immediately and continued for three hours without result.

Dec. 12, Sherman Howe Mining Co.; Idaho County. Jack Busija, age 40, married, miner. Deceased started drilling into an 8-inch hole without first inspecting and cleaning out hole. Evidently a small portion of the charge was left in the hole, which had not exploded when the former round was fired. The drill exploded this powder and shot fine rock and dust into the Busija's face, knocking him unconscious for a few minutes. He died on Dec. 19.

MEN EMPLOYED AND WAGES

The year closed with very few of the producing mines in the State in operation. Those operating maintained a payroll equal to that of previous years, although none were on a seven-day producing basis. As a whole, 1930, from a labor standpoint, was one of the worst years ever experienced. There was a surplus of labor throughout the year, and the turnover was exceedingly small, so that the companies were assured a constant working force without the necessity of breaking in new men.

It is practically impossible to obtain complete and accurate statistics of the number of men employed in the mines; a great many are employed by prospectors and small companies which do not maintain continuous work and do not report to the inspector of mines; and the different reports filed by the companies vary as to the number of days. The average payroll reported was 3,800, and 1,000 has been added as an estimate to cover lessees, prospectors, and small companies which did not report; thus giving a total of 4,800 for the year, which is known to be a conservative estimate.

The table below gives the different wage scales that were in force in the State during 1930. Column No. 1 gives the average wage throughout the State for the year, and column No. 2 gives the wage scale in effect in the Coeur d'Alene district from January 1, 1930, to March 15, 1930.

Under an agreement adopted on November 16, 1925, the wages in the Coeur d'Alene district were to be adjusted each month in accordance with a bonus rate based on the selling price of lead in New York. This scale was based on a wage of $3.75 per day for miners when lead is selling under 5½c per pound; the bonus to be added was as follows:

When the price of lead is 5c	and under 6c	$0.25 per day
When the price of lead is 6c	and under 6½c	.50 per day
When the price of lead is 6½c	and under 7c	.75 per day
When the price of lead is 7c	and under 7½c	1.00 per day
When the price of lead is 7½c	and under 8c	1.25 per day
When the price of lead is 8c	and under 8½c	1.50 per day
When the price of lead is 8½c	and under 9c	1.75 per day
When the price of lead is 9c	and under 9½c	2.00 per day
When the price of lead is 9½c	and under 10c	2.25 per day
When the price of lead is 10c	and under 10½c	2.50 per day
When the price of lead is 10½c	and under 11c	2.75 per day

After March 1, 1927, the price of lead declined so rapidly that if the bonus scale had been adhered to the wages would have been cut to a point entirely out of proportion to wages in other parts of the State and too low under existing high-living costs, so the signatories to the bonus scale waived their agreement and maintained until March 15, 1930, the wages set forth in column No. 2 below, which were on a basis of lead selling up to 9c per pound or $1.75 per day.

Early in 1930 the price of lead fell so rapidly that a reduction in wages became necessary. The bonus scale was again waived, and instead of wages being adjusted thereto they were reduced on a basis of lead selling up to 8c a pound or $1.25—a reduction of 50c a day. The wage scale maintained during the remainder of the year throughout the State is set forth in column No. 1. A few companies operating in remote parts of the State maintained a wage scale 25c higher than the scale set forth in column No. 1.

	No. 1	No. 2
Miners	$5.00	$5.50
Shovelers	4.50	5.00
Timbermen	5.50	6.00
Timber helpers	4.75	5.00
Machinists	6.00	6.25
Machinists' helpers	5.00	5.50
Carmen	4.50	5.00
Motormen	5.00	5.50
Trainmen	4.50	5.00
Main hoistmen	5.75	6.25
Small hoistmen	5.25	5.75
Nippermen	4.50	5.25
Pump and compressormen	5.00	5.75
Surface laborers	4.50	5.00
Ore sorters	4.25	4.75
Cagers	5.25	5.75
Pipe and trackmen	5.25	5.75
Shift bosses	6.00	6.75
Blacksmiths	6.00	6.50
Blacksmith helpers	5.00	5.50
Electricians	5.50	5.75
Millmen	5.00	5.50
Mill repairmen	6.00	6.25
Mill swampers	4.50	5.00
Carpenters	6.00	6.50

The cost of board and room at company boarding houses, hotels, and at private homes averages from $1.25 to $1.50 per day. Many companies have built and are maintaining houses which are rented to their married employees, and some of the largest companies assist their employees in the construction of homes.

MINERAL RESOURCES

Idaho contains an area of 83,888 square miles; its maximum width at the southern end is approximately 312 miles, and its length from the southwest corner to the northwest corner is about 486 miles. The State is divided into 44 counties, 36 of which can be classed as having minerals of commercial importance. In 22 of these counties there are producing mines.

In the past practically all mining has been confined to the five principal metals: Lead, silver, gold, zinc, and copper, which are widely distributed throughout the State (see map, page 9.) In addition to these a great variety of uncommon metals and minerals, many of which have been successfully exploited during the past few years, occur in sufficient extent to be of commercial importance.

This great diversity of mineral wealth, consisting of practically all the metals used in modern arts and many of the uncommon minerals for which a demand is continually being developed, establishes Idaho as one of the principal mining States in the Union. It also makes mining the second most important industry in the State.

The importance of Idaho's mineral wealth is well shown by statistical facts based on the production and exploitation of the five principal metals, lead, silver, gold, zinc, and copper:

Total metal production since 1860, over $1,100,000,000.

Average annual production for past 25 years, over $25,500,000.

Average annual mine payroll, over $9,000,000.

Average annual mine dividends from lead-silver mines, over $5,000,000.

Average annual expenditure on new mine development and prospecting, over $4,000,000.

METALS

Lead

Lead is the most important metal found in Idaho, and excepting in the years 1926 and 1927, this State has always ranked second in the United States in the production of lead, Missouri ranking first, and Utah third. During the two years aforementioned Utah held second place, although the production of the two States was almost on a parity. Idaho produces over one-fourth of the total amount of lead mined in the United States. Lead is widely distributed throughout the State, and occurs as galena (lead sulphide) and as the oxide and carbonate; silver is always associated with it, and occasionally zinc, gold, and copper.

The largest lead mine in the United States is in Idaho—the Bunker Hill & Sullivan M. & C. Co. at Kellogg. This is one of the few companies in the world that mine, mill, smelt, refine, manufacture, and market lead and lead products. Other important lead-producing mines in Idaho and their respective ranks in the United States are: Federal Mining and Smelting Co., third; Hecla Mining Co., fifth.

The principal lead mines in the State are those in Shoshone County, which produce 85 per cent of the State total. Blaine, Boundary, Bonner, Custer, Lemhi, Boise, Butte, Valley, and Camas counties are the other important lead-producing counties.

Silver

Idaho ranks third in the United States in the production of silver, the first three States in order of rank being Utah, Montana, Idaho. Idaho produces one-eighth of all the silver mined in the United States.

Silver is found associated with all of the lead, copper, zinc, and antimony ores of the State, and occasionally in associations in which it is the principal metal. It is one of the most widely distributed metals, and its occurrence is such that the mining of silver can hardly be separated from that of the other metals. Accordingly, the production of silver fluctuates with and parallels that of lead.

Shoshone County produces more silver than any other county in the State; the other important silver-producing counties are: Lemhi, Custer, Bonner, Boundary, Blaine, Butte, Owyhee, Boise, Camas, Valley, Washington, Idaho, Elmore, Adams, and Cassia.

Zinc

Zinc is found associated with lead in many of the lead mines of Idaho, although there are numerous deposits in Shoshone and Blaine counties in which it is the principal metal. In Shoshone County it occurs as sphalerite (zinc sulphide), and in Blaine County as sphalerite and smithsonite (zinc carbonate).

Selective flotation revolutionized the art of ore-dressing, and it is now possible to treat mixed lead-zinc ores which could not be separated by gravity concentration methods. As a consequence, the zinc content which was formerly lost is recovered and many mines which at one time could not be profitably operated are now being reopened in Blaine, Camas, and Shoshone counties. As a result of these modern ore-dressing methods, Idaho is one of the largest zinc-producing States in the Union.

The principal zinc-producing counties, in the order of prominence, are Shoshone, Blaine, Camas, Custer, Lemhi, Bonner, Boise, Boundary, and Butte.

Gold

Gold is found in practically all of the counties in the State, and is one of the most widely distributed metals. Prior to the World War Idaho was an important producer of this metal, but during the war period many of the mines of which the principal product was gold were closed down and have not been reopened, so at the present time the State ranks only tenth in the United States in gold production.

Gold occurs associated with almost all the lead, zinc, copper, and silver ores, and very commonly in a free-milling condition. A large amount of gold is obtained from placer deposits; at one time Idaho was among the principal placer-mining States in the Union. The greater part of the placer ground which could be hydraulicked has been exhausted, but many acres suitable for dredging still remain, and the gold lode-deposits offer greater opportunities than those of almost any other State.

The most important counties in which gold occurs are Boise, Idaho, Lemhi, Owyhee, Elmore, Shoshone, Custer, Blaine, Camas, Clearwater, Gem, and Valley.

Copper

Idaho is an important producer of copper and holds a high position among the ranking States of the Union. The many copper mines which are now under development and the numerous discovered but undeveloped veins indicate that the production of this metal will be greatly increased; the State will then be elevated to a rank higher than that of tenth, which it now holds.

Gold and silver are found associated with practically all the copper ores; and in some counties, notably in Custer and Bonner, the silver content is more valuable than the copper.

Custer, Lemhi, and Shoshone are the most important copper-producing counties; Adams and Washington counties may eventually become large producers. Bonner, Idaho, Blaine, Butte, Clearwater, Latah, and Lewis counties also contain copper mines of importance.

Antimony

Deposits of antimony, principally the sulphide (stibnite), are found in Shoshone, Valley, Boise, Blaine, Idaho, Owyhee, and Custer counties. Those in the Coeur d'Alene district of Shoshone County have been extensively developed; a number of mills for the concentration of the ore have been constructed; and in the past a large tonnage has been produced and marketed. The deposits in Blaine, Valley, and Owyhee counties contain a high-grade ore, most of which can be shipped without preliminary treatment. During the war, when antimony commanded a high price, a large tonnage was produced and shipped from the mines in Valley County.

Antimony occurs as an accessory mineral in many lead-zinc ore bodies, also in stibnite-bearing veins in which it is the dominating metallic mineral. All of the antimony ores carry more or less silver, and many of them, particularly those of Blaine County, are more valuable for this mineral than for the antimony.

In all the above-mentioned counties there are many deposits containing a large available tonnage of commercial ore, which can be readily marketed when freight and market conditions will permit it to be produced at a profit.

Arsenic

Deposits of arsenic, principally the sulphide (arsenopyrite), occur in Blaine, Gem, and Boise counties. These deposits, although not fully developed, show a large available tonnage containing sufficient arsenic to be valuable for this metal, which can be readily marketed when the demand for it will permit profitable production. Arsenic occurs also as arsenopyrite in Ada, Elmore, and Kootenai counties, but the deposits in these counties have not been sufficiently developed to ascertain the possible tonnage.

Bismuth

Bismuth, occurring as a sulphide, has been found in Blaine County unassociated with other metals, as well as in association with many of the lead ores. It also occurs in the gold ores of the Gold Hill, Belshazzar, and Buckskin mines, Boise County, in association with lead, probably galenobismuthite or similar lead-bismuth minerals.

Cobalt

Cobalt is found in Lemhi County. During the World War, when this metal commanded a high price, the deposits were actively developed; a small mill was constructed, and concentrate with a high cobalt content was produced. These deposits are described by Frank L. Hess under "Cobalt" in U. S. Geological Survey: Mineral Resources of the United States, part I, 1917.

This metal is reported to have been found also in Kootenai and Latah counties.

Manganese

Manganese occurs in Bannock, Lemhi, Owyhee, Shoshone, Butte, and Washington counties. Some of the deposits are high in manganese content and others in manganese-iron. A substantial tonnage has been produced and marketed from the mines in Bannock County, and the deposits in Lemhi County constitute a large potential resource.

Describing the Bannock County deposits in "Manganese and Manganiferous Ores in 1926," U. S. Bureau of Mines: Mineral Resources of the United States, J. W. Furness said: "D. F. Hewett, of the United States Geological Survey, reports that the Idaho Manganese Co. has been exploiting since April, 1924, a manganese deposit on the McGregor ranch, 1 mile east of Cleveland, Bannock County, Idaho. The shipments in 1926 were 830 tons and during 1927 will probably be larger. The ore consists of nodules of the several oxides embedded in brown wad and forms a distinct bed in Pleistocene (Ice Age) sediments. In the explored area the bed will probably yield 3,000 tons per acre; the extent of the bed is assuredly several acres and may be more. Most of the shipments range from 42 to 48 per cent manganese. The ore is shipped by auto truck to Grace, 14 miles north, thence by rail to the Columbia Steel Co., Ironton, Utah."

Molybdenum

Molybdenum, occurring as the sulphide disseminated in intrusive rocks and as a molybdate of lead in fissure veins in limestone, is found in Elmore, Boundary, Custer, Idaho, and Lemhi counties.

Nickel

Nickel is found in Lemhi County. During the late war considerable development work was done on the veins in which it occurs. These deposits are described by Frank L. Hess under "Cobalt" in U. S. Geological Survey: Mineral Resources of the United States, Part I, 1917.

Quicksilver

Cinnabar, the sulphide of mercury, has been found in the placer deposits of Custer and Valley counties and in lode-deposits in Valley, Blaine, and Cassia counties. The quicksilver lode-deposits of Valley County are being extensively developed, and a little mercury has been produced from an experimental plant. The other deposits have never been opened.

Tin

Tin has been found in the placer mines in the Gravel Range mining district of Lemhi County. Its occurrence is described by Clyde P. Ross in Idaho Bureau of Mines and Geology Pamphlet No. 25, "Ore Deposits in Tertiary Lava in the Salmon River Mountains, Idaho." Mr. Ross includes in this a list of all published references relating to his subject.

Tungsten

Tungsten, in the form of scheelite and wolframite, occurs in commercial value in Shoshone, Idaho, Camas, Lemhi, Boundary, Bonner, Blaine, Valley, and Butte counties. The deposits in Shoshone County have been extensively exploited, and during the war period of high prices a large tonnage was produced and marketed; at the same time a small amount was obtained from Boundary and Camas counties. Sufficient work has been done on all these deposits to indicate that tungsten is one of the State's substantial mineral resources.

NON-METALLIC MINERALS

Asbestos

Commercial asbestos occurs in two forms: The chrysotile variety, which is adapted to spinning; and the amphibole variety, which is not adapted to spinning but is used extensively in shingles, insulation materials, paper stock, cements, and paints.

Amphibole asbestos occurs extensively in Idaho County, near Kamiah. There is a large demonstrated tonnage, but the demand is small, on account of markets and freight rates. Deposits containing chrysotile have been reported in Fremont, Teton, and Idaho counties.

Barytes

Barytes (barium sulphate) is used in the rubber, paper, linoleum, ink, and paint manufacturing industries. Its principal use is in the manufacture of lithopone, a white pigment consisting of about 70 per cent barium sulphate and 30 per cent zinc sulphide.

Some of the largest deposits of high-grade barytes found west of the Mississippi River occur in the Deer Creek and Muldoon sections of Blaine County. The deposits on Deer Creek vary in width from 50 to 100 feet, and one outcrop is over 1000 feet long; this was described by Arthur Lakes in the Mining Reporter for August 16, 1906, under the title, "A New and Large Deposit of Barite in Idaho," as follows:

"In visiting some mining prospects in the Wood River region of Idaho I came across an unusually large massive deposit of the mineral called barite.

"It forms a steep cliff on the crest of a hill and descends as a vein down the gulch. The thickness is apparently from 50 to over 100 feet. Its course passes very near some silver-lead prospects and not far from it on one side is a huge outcrop of iron oxide.

"The material is of a dull white color and resembles at a distance a vein of calcspar or a vein of white feldspar and quartz. It has not been opened up but there must be thousands of tons in sight."

Bentonite

Bentonite, a plastic clay, is valuable for its high absorbent qualities; it has the capacity for absorbing three times its weight or about seven times its volume of water. It is used in beauty clays; for refining oil; as a filler in paper and soaps; as an adulterant in drugs and candies; and as a packing for horses' hoofs.

Bentonite occurs in commercial extent in Clark and Custer counties, and it has been reported to be found in Cassia, Owyhee, and Oneida counties. The deposits in Clark and Custer counties are described by V. R. D. Kirkham in Pamphlet No. 19 Idaho Bureau of Mines and Geology, "A Geologic Reconnaissance of Clark and Jefferson and Parts of Butte, Custer, Fremont, Lemhi, and Madison counties, Idaho": "A commercial grade of bentonite, a peculiar type of clay with extraordinary absorptive qualities, was found at two localities in the area. One is near the railway in the vicinity of Mackay, the other is more remote and lies west of Dubois."



Deer Creek Barytes Deposit, Viewed from a Distance of 2000 Feet



Close-up View of Deer Creek Barytes Deposit

Beryllium and Beryl

Beryllium, or glucinum, is often listed as a rare element, though it probably is more abundant in the earth's crust than many of the minor metals that are ordinarily considered rather common. * * * Beryllium is very light and exceptionally hard and strong, and many believe that it is destined to share with magnesium and aluminum in the fast-growing demands for light metals to be used in the construction of air craft. It is very light, having about the same specific gravity as magnesium, and is almost as hard as quartz.

The mineral beryl, which seldom contains more than about 5 per cent of the element, is the only recognized ore of beryllium. It is a common accessory in pegmatite veins and is also found in clay slate and mica schist, but

hitherto only the gem varieties, including emerald and aquamarine, have been actively sought. In several localities, however, ordinary beryl is produced as a by-product in mining mica and feldspar. * * * A. V. Petar, U. S. Bureau of Mines I. C. 6190.

The occurrence of beryl in the mica deposits of Latah County has been reported.

Building Stone

Sandstone exceptionally adapted to building purposes is found in Ada, Bear Lake, and Cassia counties. One of the principal enterprises in Ada County is that of the Boise Stone Company in quarrying and converting sandstone to building purposes. This enterprise is fully described, with illustrations, in the Twenty-sixth Annual Report of the Mining Industry of Idaho for the Year 1924. The most notable building in Idaho, the State Capitol, is constructed of this stone.

The sandstones in Bear Lake County are described in U. S. Geological Survey Professional Paper No. 152, "Geography, Geology, and Mineral Resources of Part of Southeastern Idaho," by George Rogers Mansfield; pages 336-338.

Clay

"The different kinds of clay have so many uses that it is probably impossible to list them all, but the following rough classification will serve to point out the great variety of products that contain clay: Structural products: Common brick, tile, etc. Refractories: Fire clay brick and special refractories. Pottery: Tableware, kitchenware, sanitary ware, etc." From U. S. Bureau of Mines Information Circular No. 6155, Clay, by Paul M. Tyler. This publication contains complete information on the occurrence, use, methods of testing, classification and preparation of various kinds of clays.

Clay suitable for structural purposes is found in almost every county in the State, the better grades occurring in Benewah, Cassia, Kootenai, Latah, Lewis, Idaho, Power, and Washington counties.

Clay suitable for refractories and pottery is found in Latah County. The refractory clay is high-grade. One deposit is being exploited, and the manufactured articles are in great demand throughout the Pacific Northwest states.

Coal

Bituminous coal of commercial importance occurs in Teton, Bonneville, Fremont, and Clark counties. No attempt has been made to exploit any of the deposits commercially except those of the Teton Coal Company in Horseshoe Basin, Teton County. In discussing the Horseshoe Basin coal in Pamphlet No. 10, Idaho Bureau of Mines and Geology, "The Horseshoe Basin Area of the Teton Coal Field in Southeastern Idaho," George Watkins Evans said:

"The chemical analysis of this coal indicates that the coal in this field is of as good quality as any mined in Utah or Wyoming. The principal question is whether or not this field can produce a sufficient percentage of lump coal to compete with the larger sizes from Utah and Wyoming.

"From the limited information at hand, it is impossible to make a reliable estimate of the minable tonnage in this field. In the first place, we do not know exactly the total area of the coal bearing strata, nor do we know the number of workable coal beds contained within this field. Any tonnage estimate made at this time must be based upon arbitrary figures and the quantity might be either much more or much less than the figures given.

"If we assume that the Horseshoe bed and the Brown Bear bed are two separate and distinct beds and that the Horseshoe bed will contain 9 feet of coal and that this bed can be mined for a distance of one-half mile on the dip, and that the bed will continue of fairly uniform character for a distance of 2 miles along the strike, there would be within the Horseshoe bed approximately 5,000,000 tons of coal, provided it will average 6 feet of minable coal and if we allow 1300 tons per foot acre. The Brown Bear bed has an average thickness of about 4 feet and on the same basis would contain a little over 3,000,000 tons of coal. The Boise bed, allowing an average thickness of 3½

feet of minable coal, contains nearly 3,000,000 tons—in all approximately 11,000,000 tons of coal.

"It is not improbable that with future investigations it will be found that the total tonnage of coal in this field is very much greater than the amount of tons suggested. On the other hand, it might be found that the coal contained within these beds is very friable and will not produce any considerable quantity of the larger sizes, and furthermore, it is probable that the market tributary to this field will be so exacting that only the larger sizes can be successfully marketed."

The Teton Coal Company has recently completed a 3600-foot crosscut with a 600-foot connecting raise to the surface, and a tipple for grading the coal. The tunnel intersected three coal beds, two of which were not included in the above estimate; as yet the tunnel has not been completed to the Horseshoe and Boise beds, so it appears that the total tonnage, when this field is fully developed, may be in excess of the estimate.

Lignite is found in Cassia, Boise, Owyhee, Washington, Idaho, Lemhi, and Clearwater counties.

Diatomaceous Earth

Diatomaceous earth is more commonly known as infusorial earth, and is sometimes referred to by its German name of kieselguhr. It is composed of the siliceous remains of minute aquatic plants known as diatoms, which are of such proportions that they must be identified chiefly by the aid of the microscope.

The principal uses of diatomaceous earth are: Sawed brick for refractory and insulation purposes; filter material at sugar factories; light-weight filler in concrete; in polishing powders; absorbent in dynamite, and in thermal insulator compounds.

Extensive beds of this mineral, in which it can be measured by the acre, are found in Owyhee, Elmore, Camas, Payette, Washington, and Idaho counties. A small tonnage has been obtained from Elmore County for use in Idaho sugar factories.

Feldspar

Common feldspars are crystalline compounds of silica, alumina, and one or more of the bases: potash, soda, and lime. There are two principal classes of feldspar—the one including the potash and potash-soda varieties; the other including the soda, soda-lime, and lime varieties. Pure potash feldspars are orthoclase and microcline. The principal use of feldspar is in the manufacture of pottery, chinaware, porcelain, enamel-ware, and enamel brick and tile.

Deposits of high-grade feldspar, occurring as orthoclase, are found in Latah and Adams counties.

Garnet

Garnet is a common accessory mineral in a large variety of rocks, occurring abundantly in contact metamorphic zones and in metamorphosed crystalline limestones. Deposits of garnet possessing the necessary qualifications for ornamental or industrial use and so situated with regard to transportation and markets that they can be exploited commercially are relatively small and occur in only a few areas throughout the United States.

The principal uses of garnet are: As settings in jewelry; jewel bearings in watches; and as an abrasive. Abrasive garnet is utilized either in the form of a manufactured paper similar to sand-paper, or as loose grain or powder for grinding and polishing.

Extensive deposits of garnet adapted to abrasive purposes occur in Adams, Lemhi, Custer, and Cassia counties.

Graphite

Graphite is a soft, black, greasy form of carbon, sometimes referred to in trade as "plumbago" and "black lead." It occurs in nature in two forms, crystalline and amorphous, each having its own peculiar uses.

The physical properties of graphite—infusibility, chemical inertness, high conductivity, extreme softness, and low specific gravity—fit it for a large

number of uses: The manufacture of crucibles and other refractory products; lubricants; "lead" pencils; paints; stove polish; foundry facings; and various types of electrical appliances.

Graphite of commercial importance is found in Blaine County, but, owing to the fact that at the ordinary price of graphite it is possible to mine only the most favorably situated deposits, the known deposits in Idaho have never received much attention.

Gypsum

Gypsum is a natural hydrated sulphate of lime. It is a soft, white, chalk-like material, found widely distributed in single crystals and in thick beds. The natural product is generally very pure.

The principal uses of gypsum are as structural material—wall plaster, gypsum boards, blocks and tile—and as an ingredient in Portland cement and plaster of Paris.

Extensive deposits of high-grade gypsum are found in Lemhi, Bear Lake, and Washington counties. These deposits have never been developed, as the low price of the crude product limits production to those States located near the centers of population.

Limestone

Limestone is mined in Bannock, Butte, Boise, Clearwater, Teton, and Bonner counties; Blaine and Bear Lake counties also contain deposits of importance. The limestone mined in Bonner County is shipped to Spokane, Washington, where it is manufactured into Portland cement; the limestone mined in Butte and Teton counties is shipped to the sugar factories of Idaho and Utah, where it is used in the refining of sugar; the limestone mined in Bannock County is manufactured into cement, the plant being located adjacent to the quarry; the limestone mined in Boise and Clearwater counties is sold to the agricultural and poultry industries.

There are unlimited deposits which are suitable to the foregoing industries.

Marble

Marble is dense crystalline calcium carbonate, formed from limestone by the pressure of overlying sediments and the action of underground water. The value depends on the color, which may be white, gray, red, black, or veined, and the grain and structure. Its principal use is for building and monumental purposes.

Marble suitable to commercial purposes occurs in Nez Perce, Butte, and Cassia counties. The deposits in Nez Perce and Butte counties have been slightly exploited.

Mica

The principal physical properties which give value to mica are: Its cleavage, transparency, resistance to decomposition, and non-conduction of electricity and heat. The important uses of mica are: Short mica, in the electrical industries and as glazing for stoves, screens, goggles, and lantern projection; ground mica, in fancy paints, wallpaper, tiles, concrete, rubber goods, roofing materials, lubricants, and insulating compounds.

"Mica deposits of probable value have been found in about half the States of the United States. The principal producing States have been North Carolina, New Hampshire, South Dakota, Idaho, New Mexico, Colorado, Virginia, South Carolina, Alabama, and Georgia."—Schaller, W. T., Mica: U. S. Geological Survey Mineral Resources, pt. 2, p. 280; 1915. The production which gave Idaho this prominent rank was from the mica mines in Latah County.

Deposits of commercial importance occur in Adams and Idaho counties also, although they have never been prospected or developed in proportion to the possibilities which they offer.

Mineral Waters

Mineral springs of various types occur at a great many places throughout the State, the principal types being calcareous, chalybeate, sulphurated, and saline. The temperatures of the different types vary from "cold" to

"hot," with some of the latter exceeding the boiling point. Hot springs are the more numerous, and at many of them sanitariums and bathing resorts have been erected.

The chalybeate springs of Caribou County are particularly efficacious from a therapeutic standpoint, although they have never been exploited.

Monazite

The mineral monazite consists chiefly of the phosphate of cerium and variable amounts of thoria, the value depending primarily upon the thoria content. It is a resinous golden-yellow mineral occurring as a placer sand in practically all of the gold placer mines in the State; the quantity varies, and in some of the deposits it is not sufficient to be of commercial importance. The placer deposits of Ada, Idaho, Lemhi, and Owyhee counties contain an appreciable amount of this mineral, and those of Boise and Clearwater counties contain sufficient to be of commercial importance.

The principal use of thorium is in the manufacture of incandescent mantles for gas lighting. Practically all of the monazite used in the United States is imported from Brazil and India.

Nitrates

The occurrence of nitrate in Camas, Elmore, and Owyhee counties has been reported.

Oil and Gas

The same formations which are oil-producing in Wyoming are present in structures highly favorable to the accumulation of oil and gas in Caribou, Bonneville, Teton, Bear Lake, and Bingham counties. A small amount of drilling has been done in Caribou and Teton counties, but the wells were never completed to a sufficient depth to determine the possibilities for the occurrence of oil.

Gas has been developed in Payette and Washington counties.

Phosphate Rock

The greatest potential mineral resource in Idaho is the immense phosphate rock deposits in Bear Lake, Caribou, Bannock, Bingham, and Bonneville counties. Conservative estimates by members of the U. S. Geological Survey accredit Idaho with over 85 per cent of the total phosphate resources of the United States in 268,299 acres out of a total of 396,612 acres which have been withdrawn from public entry. These deposits are fully described with maps, illustrations and analyses by G. R. Mansfield in U. S. Geological Survey Professional Paper No. 152, "Geography, Geology, and Mineral Resources of Part of Southeastern Idaho," from which the following is quoted:

"In Utah, Idaho, Wyoming, and Montana the great bulk of the phosphate rock is on public land, though some has passed into private ownership. The public lands are withdrawn from entry pending their examination and classification. No estimates of the acreage of phosphate land in private ownership are available, but the acreage of the outstanding withdrawals of public land in the States named is shown in Table 38.

TABLE 38—**Outstanding phosphate withdrawals, July 31, 1927**

	Acres
Utah	301,945
Idaho	**396,612**
Wyoming	996,539
Montana	279,944
Total	1,966,390

"In addition to the land embraced in the outstanding phosphate withdrawals, 268,299 acres in Idaho, 25,293 acres in Wyoming, 3,833 acres in Montana, and 160 acres in Utah—297,585 acres in all—have been examined in detail and formally classified as phosphate land. * * *

"Under the act of July 17, 1914, agricultural entries may be made upon withdrawn phosphate lands, but the mineral rights are reserved to the United States."

TABLE 74a—**Estimate of phosphate rock in the United States available December 31, 1925, in long tons**

FIELD	Estimated quantity available	FIELD	Estimated quantity available
Eastern field:		Western field:	
Arkansas	20,000,000	**Idaho**	**4,997,855,000**
Florida	291,000,000	Montana	391,323,000
Kentucky	878,000	Utah	326,745,000
South Carolina	8,788,000	Wyoming	115,754,000
Tennessee	83,500,000		5,831,677,000
	404,166,000	Less approximate quantity mined since 1906	350,000
			5,831,327,000
			404,166,000
			6,235,493,000

Pyrite

Pyrite of commercial importance is found in Washington County. The development work which has been done on these deposits indicates an immense available tonnage.

Rutile

The occurrence of rutile in Clearwater County has been reported. Rutile, the natural titanium oxide, is used in paints; arc-light electrodes; dyes; and in the manufacture of leather.

Salt

The pioneers evaporated the brine from the salt springs of Caribou County, and this salt was transported to all of the northwestern States before the building of the railroad. The salt obtained from these springs is above the average of the commercial salts of the United States in purity and compares favorably with some of the best salt produced. The salt springs and deposits are described by W. C. Phalen, who estimates 5,000,000 tons in sight, in U. S. Geological Survey Bulletin 669, "Salt Resources of the United States":

"Although the salt bodies or old alkali flats are thus meager in extent, especially in comparison with the other prominent salt-producing areas of the United States, the conservative estimate of 5,000,000 tons for the Crow Creek rock-salt body and the possibility of a larger salt body near the Tygee and Stump Creek forks indicate that the amount of salt apparently in sight in some of the present areas would be sufficient (if proper railroad connections existed) to yield returns on large workings for a long time. It also appears quite probable that all the areas, including the smaller brine springs, contain sufficient salt to return the sums that may be advisedly invested in their development."

Sulphur

Sulphur occurring in extensive deposits and as sulphur springs is found in Caribou County. During the World War a little attempt was made toward the commercial development of these deposits.

Talc

Talc suitable to the electrical and powdered-talc industries occurs in Idaho County in sufficient extent to be of commercial importance.

ADA COUNTY

Ada is one of the southwestern counties, adjoining and lying north and east of Owyhee and Canyon counties, and south of Boise County. It contains 1,154 square miles and was accredited with a population of 37,925 in the 1930 census. Boise, the largest city in the State, is the State capital and county seat. The county is noted for its excellent irrigated farms, and its livestock, farming, and fruit-raising industries.

The State highway, Oregon Trail, extending from the southeast corner of the county to Boise, thence west to Nampa, and the excellent county highways and roads, give this county some of the best roads in the State as well as easy access to the mineralized areas.

Ada is not recognized as a mining county, yet its small mountainous area was once the scene of many active mining operations; and Boise was established as the principal distributing point for miners' supplies when the rich placer diggings of Boise County and adjacent areas were worked in the early days.

The early day mining was based on free gold operations and, as the sulphide zone was encountered at a shallow depth, the mines were soon closed and have remained dormant for many years. The principal ores are lead and zinc, carrying high values in silver and gold, occurring in fissure veins and as replacement deposits in granite. The ore occurrences are well defined and offer good opportunities to prospectors and small operators in search for these metals.

The chief mineral resources are building stone, gold, lead, silver, zinc, and arsenic. Building stone and its accompanying enterprise were fully described in the Twenty-sixth Annual Report, for the year 1924.

1930 Activities

During 1930 the mines and prospects in this county witnessed but little increase in attention and development over that of the previous year, although there was a decided activity coupled with publicity in the promotion of oil development enterprises.

The Boise Stone Co. was active throughout the year and reported that a large quantity of stone was quarried and cut.

BERGDAHL OIL CO.

Office: 260-261 Sonna Bldg., Boise. **Officers:** A. F. Bergdahl, Pres.-Mgr.; C. M. Godfrey, Sec., both of Boise. **Inc.:** July 16, 1927. **Capital:** 1,000,000 shares; par value $1; 250,000 shares issued. **Property:** Leases on 2760 acres of patented land in Ada and Gem counties. **Development:** Unknown. **Plant:** Unknown. **Mineral sought:** Oil and gas. **Men employed:** Unknown. **Remarks:** Active publicity campaign for purpose of selling stock, maintained through the year. Part of this publicity was to the effect that a derrick had been erected and a small hole drilled to a depth of about 500 feet. The company's report did not state whether it owned the equipment or was leasing it.

BOISE MINING, MILLING & SMELTING CO.

Office: Boise. **Officers:** N. J. Minton, Pres., Boise. **Inc.:** Jan. 9, 1928. **Capital:** 100,000 shares; par value $1. **Remarks:** Failed to file reports required by law.

GOLD KING-DELHI MINES CORPORATION

Office: 326 Noble Bldg., Boise. **Officers:** Frank Burroughs, Pres.; Albert Beck, Sec., both of Boise. **Inc.:** July 13, 1929. **Capital:** 300,000 shares; par value $1; 8,000 shares issued. **Property:** Gold King-Delhi groups; 4 patented, 4 unpatented claims, part of which are held under lease and option; Shaw Mountain dist.; Boise. **Development:** By 1 tunnel 202 ft. long and 2 side drifts. **Ore:** Gold. **Men employed:** Average, 2. **Remarks:** A small amount of work during the early part of the year, after which financial and legal difficulties were encountered.

PIONEER IDAHO OIL CO.

Office: 322 Eastman Bldg., Boise. **Officers:** J. E. Nottingham, Pres.-Mgr.; P. M. Davis, Sec., both of Boise. **Inc.:** Apr. 4, 1927. **Capital:** 600,000 shares; par value $1; 9887 shares issued.

RED ROSE GOLD MINES CO.

Office: 605 Eastman Bldg., Boise. **Officers:** J. J. Oberbillig, Pres.-Mgr., Boise. **Inc.:** Jan. 27, 1921. **Capital:** 500,000 shares; par value 5c; all shares issued. **Property:** Red Rose group; 12 patented claims, Black Hornet dist.; Boise. **Development:** By 3 tunnels, the principal one of which is 685 ft. in length; total development, 1400 ft. **Ore:** Gold-silver. **Remarks:** Idle throughout the year.

RELIANCE GOLD MINES CO.

Office: 605 Eastman Bldg., Boise. **Officers:** J. J. Oberbillig, Pres.-Mgr., Boise; Louis A. Dumond, Sec., Chicago, Ill. **Inc.:** Feb. 4, 1924. **Capital:** 1,000,000 shares; par value 10c; 350,000 shares issued. **Property:** Star group; 8 unpatented claims, Black Hornet dist.; Boise. **Development:** Principally by one tunnel which is 1350 ft. long. **Ore:** Gold-silver-arsenic. **Remarks:** Annual labor only.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Big Foot Bar	Unorganized	Archie T. Winter	Mt. Home
Blue Grouse Ext.	Black Hornet	Goodwin & Thacker	Boise
Blue Grouse et al.	Black Hornet	A. G. Adelmann	622 Idaho St., Boise
Five Mile Gr.	Shaw Mountain	J. M. Roberts	110 E. Ban. St., Boise
Gold Eagle Gr.	Black Hornet	C. C. Anderson	Boise
Hidden Treasure	Black Hornet	W. P. Richards	Boise
Maynard Bros.	Highland	H. T. Maynard	Boise
Monitor Placer	Highland	W. E. Johnston	Boise
Sorrel Horse et al.	Black Hornet	N. R. C. Adelmann	221 Jeff. St., Boise
White Mineral	Black Hornet	H. J. Leppert	506 S. 3d St., Boise

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

A geological reconnaissance across Idaho, by G. H. Eldridge: U. S. Geol. Survey, Sixteenth Ann. Rept., pt. 2, pp. 217-276, **1894-1895.***

Description of the Boise quadrangle, by Waldemar Lindgren: U. S. Geol. Survey Geol. Atlas, Folio No. 45, **1898.***

Mining districts of the Idaho Basin and the Boise Ridge, Idaho, by Waldemar Lindgren: U. S. Geol. Survey Eighteenth Ann. Rept., pt. 3, pp. 625-736, **1898.***

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey Twentieth Ann. Rept., pt. 3, pp. 75-256, **1900.***

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Preliminary report on artesian basins in southwestern Idaho and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Water-Supply Paper 78, **1903.**‡

Notes on the geology of southwestern Idaho and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Bull. 217, **1903.***

Description of the Nampa quadrangle, by Waldemar Lindgren and N. F. Drake: U. S. Geol. Survey Geol. Atlas, Folio No. 103, **1904.***

Description of the Silver City quadrangle, by Waldemar Lindgren and N. F. Drake: U. S. Geol. Survey Geol. Atlas, Folio No. 104, **1904.***

Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 60, art. 3, pp. 1-33, **1921.**‡

A preliminary reconnaissance of the gas and oil possibilities of southwestern and south-central Idaho, by J. P. Buwalda: Idaho Bureau of Mines and Geology Pamphlet 5, **1923.***

Idaho building stone, by Stewart Campbell: Idaho Twenty-sixth Ann. Rept. Min. Industry, **1924.***

ADAMS COUNTY

Adams is one of the southwestern counties, adjoining and lying south of Idaho County, north of Washington County, and west of Valley County. The Snake River, which flows north, forms the entire western boundary. The county contains 1,366 square miles and was accredited with a population of 2,867 in the 1930 census, or 2.1 inhabitants to the square mile. The larger part of the population is located in Weiser River and Little Salmon River valleys. The headwaters of the Weiser River, which flows south, and those of the Little Salmon River, which flows north, are located in this county. It is primarily an agricultural county and is noted for its high-quality apples and livestock industry.

The North and South Panoramic Highway extends from the southern to the northern boundaries and is situated in about the geographical center. Branch roads leading to all of the outlying settlements are maintained by the county and U. S. Forest Service. These are kept in good repair and are open to travel during the larger part of the year. In 1925 the Legislatures of Oregon and Idaho each appropriated $25,000 for the construction of a joint State wagon bridge across the Snake River at Ballard's Landing, about three miles north of Homestead, Oregon. It has proved to be an important connecting link between the Oregon highway at Baker and the Idaho highway at Council, which is the county seat and largest settlement of Adams County.

The county is served by two railroads: the Pacific and Idaho Northern, which extends from Weiser to New Meadows, and the Oregon Short Line branch from Huntington to Robinette, Oregon.

Over 90 per cent of the county is mountainous. The mountains are rough and rugged and the bold relief that many of them show on the skyline presents scenic views that are unsurpassed in grandeur, the principal one of which is the Seven Devils, seven serrated peaks which reach high into the skyline, and from which the Seven Devils mining district is named.

During the eighties and early nineties this district was an active mining center. Many mines were in operation, a railroad was projected into it and partly constructed, a smelter was in operation, and three towns of fair sized populations were established. The boom died down in the panic of 1893 and since then no large operations or shipments of any consequence have taken place. The latent mineral resources are practically undeveloped and unprospected. The bold relief permits cheap development work by tunnels and drifts and, as the mineral resources are diverse and varied, the county offers many excellent opportunities to prospectors and development companies. The ores of the Seven Devils district are principally copper carrying silver and gold, with an occasional deposit of lead-zinc ore. The ores of the Indian Creek section are those of silver-copper and lead-zinc-silver. In addition to the five principal metals—copper, silver, gold, lead, zinc—deposits of mica, feldspar, and garnet, of commercial importance, occur in this county. The mica deposits of Council Mountain have received a little attention, although they have never been prospected or developed in proportion to the possibilities which they offer. When the mineral resources of Adams County are properly exploited and developed this county may be recognized as one of the principal mining counties in the State.

1930 Activities

This county experienced but little mining activity during the year, and no new enterprises were started. The Idaho Copper Co., whose properties were placed under receivership in November, 1927, continued in receivership until October, 1929, and no development work of any kind has been performed since then. A few prospectors in the Council Mountain, Heath and Indian Creek districts increased their work over that of the previous year, and one marketed a small shipment of ore. The Kleinschmidt Bros. were active in developing the Blue Jacket in the Seven Devils district. The mica deposits in the Council Mountain district received more attention than in previous years, and the work done greatly enhanced the possibility of these deposits being of commercial importance.

AMERICAN MINING CO., LTD.
Office: 630 Monroe Ave., Helena, Mont. **Officers:** Amelia H. Kleinschmidt, Pres., Helena, Mont. **Inc.:** Sept. 11, 1911. **Capital:** 50,000 shares; par value $1; none issued. **Property:** Peacock and White Monument groups; 10 patented claims, Seven Devils dist.; Cuprum. **Ore:** Copper, silver. **Remarks:** Idle.

BLACK HORSE GROUP
Owners: Jacob Stites, Council, and W. H. Willard, R. 4, Nampa. **Property:** Black Horse group; 15 unpatented claims, unorganized district; Council. **Development:** By 4 short tunnels. **Ore:** Gold and silver. **Remarks:** Active development work throughout the year.

EDNA MAY GROUP
Owner: J. M. DeLay, Weiser. **Property:** Edna May group; 6 unpatented claims, Heath dist.; Council. **Ore:** Lead-silver. **Remarks:** A small amount of work during the year.

IDAHO COPPER CO.
Office: 745 Rowan Bldg., Los Angeles, Calif. **Officers:** O. H. Griggs, Pres.; Cooley Butler, Mgr., both of 745 Rowan Bldg., Los Angeles, Calif.; Carey H. Nixon, Sec., Boise. **Inc.:** Jan. 10, 1920, as Idaho Copper Co., Ltd.. Name changed May 24, 1926. **Capital:** On Feb. 9, 1925, the capital was increased from 50,000 shares, par value $10, to 10,000,000 shares, par value $1; 9,664,755 shares issued. **Property:** Red Ledge group; 31 patented, 22 unpatented claims, Seven Devils dist.; R. R. and P. O. Homestead, Ore., 18 miles. **Development:** 3 tunnels on Deep Creek: No. 1, 950 ft. long; No. 2, 2400 ft. long; No. 3, 100 ft. long; tunnel No. 4 at Eagle Bar, 700 ft. long. In addition to the tunnels, approximately 10,000 ft. of diamond drilling has been done on the property. **Plant:** 600-cu. ft. I. R. compressor, driven by 120 h. p. Diesel engine; complete mining equipment and camp at No. 4 tunnel. **Ore:** Copper. **Men employed:** One watchman. **Remarks:** Idle throughout the year. Property mortgaged to Cooley Butler.

IDAHO COPPER CORPORATION
Office: 745 Rowan Bldg., Los Angeles, Calif. **Officers:** O. H. Griggs, Pres.; Cooley Butler, Mgr., both of 745 Rowan Bldg., Los Angeles, Calif.; Carey H. Nixon, Sec., Boise. **Inc.:** Incorporated in Delaware, Oct., 1924; filed in Idaho, April 4, 1925. **Capital:** 2,500,000 shares; par value $1; all shares issued. **Property:** South Peacock group; 3 patented, 5 unpatented claims; Seven Devils dist.; Cuprum. **Development:** I vertical shaft, 325 ft. deep; completed in 1901 by prior owners. Total development, approximately 1300 ft. **Plant:** Partly installed steam-driven hoist and compressor. **Ore:** Copper. **Men employed:** None. **Remarks:** Idle throughout the year. Property mortgaged to Cooley Butler.

IDAHO MINES CO., LTD.
Office: Weiser. **Officers:** S. H. Travis, Pres., Chehalis, Wn.; B. S. Varian, Sec., Boise. **Inc.:** Jan. 5, 1904. **Capital:** 5,000,000 shares; par value $1; 1,503,700 shares issued. **Property:** California group: 3 patented claims, Seven Devils dist.; Cuprum; R. R. Homestead, Ore., 30 miles. **Ore:** Copper. **Remarks:** Idle for many years.

NATIONAL COPPER MINES CO.
Office: 307 Fitzpatrick Bldg., Portland, Ore. **Officers:** R. Fennell, Sec., Portland, Ore. **Inc.:** April 26, 1906. **Capital:** 3,000,000 shares; par value $1; shares issued, unknown. **Remarks:** Failed to file the reports required by law. A letter from the secretary stated that the property was leased to the Cuprum Mines Co., C. E. Carter, Spalding Bldg., Portland, Ore., and that this company performed the necessary annual labor. The latter company also failed to file the reports required by law.

RUBY MINING CO.
Office: 83 Cowley Road, Riverside, Ill. **Officers:** John Ball, Riverside, Ill. **Inc.:** July 21, 1928. **Capital:** 120 shares; par value $100; shares issued, unknown. **Remarks:** Failed to file the reports required by law.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Alaska et al.	Seven Devils	Mrs. S. J. Stephens	Cuprum
Amadore et al.	Seven Devils	Mrs. Anna Dimick	San Antonio, Texas
American Flag et al.	Mountain View	Mary Z. Finney	Cleveland, Ohio
Andy O'Toole Gr.	Seven Devils	L. A. Aplington	Homestead, Ore.
Arkansaw	Seven Devils	E. C. Westervelt	11 Broadway, New York City
Azurite Gr.	Seven Devils	John Bottcher	Tacoma, Wash.
Bald Eagle	Seven Devils	Mrs. Mabel Sprouls	Cuprum
Big Indian et al.	Seven Devils	Loren Gogochea	Ontario, Ore.
Black Garnet	Seven Devils	Ellen Kleinschmidt	Berkeley, Calif.
Black Hawk Gr.	Seven Devils	E. C. Spicer	Homestead, Ore.
Blue Bird Gr.	Seven Devils	Mose Fuchs	Baker, Ore.
Blue Bucket	Seven Devils	Irene Imhaus	Madison Park Apts. Portland, Ore.
Bryan et al.	Seven Devils	Mose Fuchs	Baker, Ore.
Camp Ground et al.	Seven Devils	Martin Bradley	Cuprum
Chameleon Gr.	Mountain View	Thos. G. Potter	Pollock
Chieftain et al.	Seven Devils	Jas. A. Stewart	Indian Valley
Cliff et al.	Seven Devils	Mrs. P. L. Gaarden	Bear
Copper Belt Gr.	Seven Devils	G. W. McCarty	Homestead, Ore.
Copper Bottom	Seven Devils	Frank Shelton	Cuprum
Copper Queen et al.	Unorganized	Lynn Snow	Newburg, Ore.
Decorah	Seven Devils	R. E. Wilson	Cambridge
Decorah	Seven Devils	Mary Steele	1516 S. Negley Ave., Pittsburg, Pa.
Deep Creek Gr.	Seven Devils	Frank Lauzon	Cuprum
Faye L.	Seven Devils	Anna Adams	Cuprum
Glenn G.	Unorganized	J. F. Glenn et al.	Fruitvale
Gold Coin Gr.	Seven Devils	Adams County	Council
Golden Star Gr.	Mountain View	Jas. H. Hawley	Boise
Grandview Gr.	Seven Devils	Frank Shelton	Cuprum
Grant Gr.	Seven Devils	J. A. Walsh	Helena, Mont.
Greenhorn Gr.	Seven Devils	Collins Lynes	Cuprum
Green Horn Gr.	Unorganized	R. A. Weddle et al.	Council
Hollister Gr.	Seven Devils	L. A. Darland	Cuprum
Idaho Standard	Seven Devils	Owen Hill	Homestead, Ore.
Iowa & Josie	Seven Devils	E. D. Ford	Weiser
Kinney	Seven Devils	Chas. Warner	Bear
Last Chance Pl.	Seven Devils	Walter James	Cuprum
Last Chance	Seven Devils	I. R. Smith	Boise
Little Bill et al.	Seven Devils	Joseph M. Healey	Homestead, Ore.
Lockwood et al.	Seven Devils	J. C. Barton	Weiser
Lola Group	Seven Devils	A. J. Cole	Oakland, Ky.
Mammoth Gr.	Seven Devils	Chas. Anderson	Cuprum
Margaret Gr.	Seven Devils	Frank E. Smith	Weiser
Mayflower Gr.	Seven Devils	Mrs. F. Hildebrand	Council
Mineral Hill Gr.	Seven Devils	Frank Shelton	Cuprum
Monarch Mica Gr.	Unorganized	Gillman Rinehart	Council
Moonlight	Seven Devils	J. A. Reynolds	Weiser
Newton Hill Gr.	Seven Devils	Chas. R. Sowder	Homestead, Ore.
North Alaska	Seven Devils	A. O. Huntley	Myrtle Creek, Ore.
North Hornet Gr.	Unorganized	W. E. Freehafer	Council
North Peacock	Seven Devils	Mrs. O. H. Martin	Council
Paducah	Seven Devils	J. M. Dennis	Ashland, Ore.
Pres. Wilson et al.	Seven Devils	L. A. Darland	Cuprum
Rabbit's Foot et al.	Unorganized	Chas. A. Theobold	Idaho Springs, Colo
Red Mountain	Seven Devils	Collis Lynes	Cuprum
River Queen Gr.	Seven Devils	Bernard Haas	Weiser
Ruby Bell	Mountain View	Mary Z. Finney	Cleveland, Ohio
Schley et al.	Seven Devils	Geo. A. Jones	Boise

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Silver 1 & 2	Seven Devils	F. Alers	Cuprum
Star Gr.	Mountain View	Thos. G. Potter	Pollock
Virginius	Seven Devils	Andrew Wilmot	Kendrick
Virginius	Seven Devils	Adams County	Council
Walker	Seven Devils	Orrill Lewis	Council
Whale	Seven Devils	Adams County	Council
Wild Horse Gr.	Seven Devils	Mrs. C. R. Braasch	Homestead, Ore.

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

The copper deposits of the Seven Devils, Idaho, by Waldemar Lindgren: Min. and Sci. Press, vol. 78, p. 125, **1899.***

Seven Devils district, by Charles Kirchhoff: U. S. Geol. Survey Twentieth Ann. Rept., pt. 6, pp. 183-184, **1899.***

Copper deposits of the Seven Devils, Idaho, by Waldemar Lindgren: The gold and silver veins of Silver City, De Lamar and other mining districts in Idaho: U. S. Geol. Survey Twentieth Ann. Rept., pt. 3, pp. 88, 249-253, **1900.***

Copper deposits of Snake River, by Waldemar Lindgren: The gold belt of the Blue Mountains of Oregon: U. S. Geol. Survey Twenty-second Ann. Rept., vol. 2, pp. 562, 580, 595, 632, 747-762, **1901.***

The copper mines of the United States in 1905, by W. H. Weed: U. S. Geol. Survey Bull. 285, pp. 108-109, **1906.***

The Seven Devils and the Snake River district, by G. D. Reid: Eng. and Min. Jour., vol. 84, p. 401, Aug. 31, **1907.**§

The occurrence of ore on the limestone side of garnet zones, by J. B. Umpleby: University of California publications, Bull. Department of Geology, vol. 10, No. 3, pp. 25-37, Oct. 14, **1916.****

The I. X. L. copper prospect, by R. N. Bell: Eng. and Min. Jour., vol. 108, p. 400, Sept. 6, **1919.**§

Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, pp. 32-37, **1919.****

The copper deposits of the Seven Devils and adjacent districts, by D. C. Livingston and F. B. Laney: Idaho Bureau of Mines and Geology Bull. 1, **1920.***

Diamond drilling in the Seven Devils Mountains, by F. A. Kennedy: Eng. and Min. Jour.-Press, vol. 113, pp. 521-523, Apr. 1, **1922.**§

A geologic reconnaissance of the Mineral and Cuddy Mountain mining district, Washington and Adams counties, Idaho, by D. C. Livingston: Idaho Bureau of Mines and Geology Pamphlet 13, **1925.****

BANNOCK COUNTY

Bannock County is one of the largest and most important of the southeastern counties. It is bounded on the north by Bingham County, on the east by Caribou and Bear Lake counties, on the south by Franklin and Oneida counties, and on the west by Power County. It has an area of 1837 square miles and was accredited with a population of 31,266 in the 1930 census. Pocatello, the second largest city in the State, is the county seat and principal division point of the Oregon Short Line Railroad.

The county is served by two State highways, the Oregon Trail, and Yellowstone Park. The former is the main east and west trunk line, and the latter is the main north and south trunk line of the State system.

The principal mineral resources are phosphate rock, limestone, manganese, copper, silver, gold, and building stone. The limestone is suitable for Portland cement and, as the deposits are extensively distributed and adjacent to transportation, they will eventually add a new and important industry. The phosphate rock covers a large area and constitutes an important latent resource. Considerable prospecting has been done on the copper veins which are found in the Portneuf Mountains south of Pocatello. In 1909 a mill was constructed at one mine; but other than the necessary annual labor no work of importance has been conducted for a number of years. Reports on the manganese deposits near Cleveland and Lava Hot Springs, which were discovered during 1924, indicate that the ore is high grade and that there is a large tonnage available.

1930 Activities

An important enterprise started in 1928 was that of the Idaho Portland Cement Co., near Inkom, about 12 miles south of Pocatello. This company acquired a large deposit of limestone, constructed a new railroad siding, and commenced installation of a 1500-barrel Portland cement plant. Construction was completed and the manufacture of cement started during 1929. The company's product is marketed under the trade name of "Eagle Brand." Operations were conducted throughout 1930, and a large tonnage of cement was manufactured and marketed.

Two manganese mines near Cleveland and one at Lava Hot Springs were active throughout the greater part of the year, and two of them produced and marketed a substantial tonnage of high-grade manganese ore.

BANNOCK MANGANESE MINING CO., LTD.

Office: Box 502, Pocatello. **Officers:** Lewis E. Munk, Pres., Georgetown; L. E. Glennon, Sec.; Wm. Sharp, Mgr., both of Pocatello. **Inc.:** Dec. 17, 1928. **Capital:** 100,000 shares; par value $1; 75,000 shares issued. **Remarks:** Failed to file the reports required by law.

CHATTERTON MINING CO.

Office: Midvale, Utah. **Officers:** Byron Chatterton, Pres., Swan Lake; William Waters, Sec., Midvale, Utah. **Inc.:** Not filed in Idaho. **Capital:** 1,000,000 shares; par value 2½c; 432,580 shares issued. **Property:** Lead Canyon group; 29 unpatented claims, Swan Lake dist.; Swan Lake. **Development:** Approximate total development 212 ft. **Ore:** Lead. **Men employed:** Average, 4. **Remarks:** Company states, "This is only a prospect."

CLEVELAND MINING CORPORATION

Office: Cleveland, Idaho. **Officers:** C. C. Ames, Pres., Cleveland. **Inc.:** July 13, 1925. **Capital:** 400,000 shares; par value 10c; shares issued, unknown. **Remarks:** Failed to file the reports required by law.

FORT HALL MINING & MILLING CO., LTD.

Office: Pocatello. **Officers:** H. M. Palmer, Pres.-Mgr., Pocatello. **Inc.:** Sept. 5, 1902. **Capital:** 1,000,000 shares; par value $1; 260,000 shares issued. **Property:** Fort Hall group; 10 unpatented claims, Fort Hall dist.; Portneuf. **Development:** Principal tunnel 4000 ft. long; total development approximately 8000 ft. **Plant:** MINE: Steam-driven compressor, complete mining equipment. MILL: 50-ton concentrator built 1909. **Ore:** Copper. **Remarks:** Annual labor.

IDAHO MANGANESE MINING CO.
Office: Cleveland. **Officers:** Howard R. Smith, Pres.-Mgr.; George L. Smith, Sec., both of Cleveland. **Inc.:** July 17, 1925. **Capital:** 400,000 shares; par value 10c; all shares issued. **Property:** 260 acres patented land; Grace. **Development:** Approximately 1200 ft. total development. **Mineral sought:** Manganese. **Men employed:** Average, 7. **Remarks:** Active during the early part of the year, after which work was suspended on account of litigation.

IDAHO PORTLAND CEMENT CO.
Office: Inkom. **Officers:** Eugene Enloe, Pres.; D. B. Heil, Sec., both of Spokane, Wash.; J. B. Maxfield, Mgr., Inkom. **Inc.:** July 20, 1928. **Capital:** 6000 shares common, no par value; 5000 shares preferred, par value $100; 5782 shares common, 4564 shares preferred issued. **Property:** 175 acres patented land, unorganized dist.; near Inkom. **Plant:** For a complete description of plant see Thirty-first Annual Report, for the year 1929. **Ore:** Limestone. **Men employed:** Average, 53. **Remarks:** Producers of "Eagle Brand" cement. A large tonnage was manufactured and sold during the year.

LAVA MANGANESE MINING CO.
Office: Lava Hot Springs. **Officers:** R. S. Turner, Pres.; H. R. Turner, Sec., both of Pocatello. **Inc.:** Aug. 10, 1926. **Capital:** 10,000 shares; par value $10; 520 shares issued. **Property:** 3 unpatented claims, Portneuf dist.; Lava Hot Springs. **Development:** 1 tunnel, 450 ft. long. **Ore:** Manganese. **Remarks:** Idle throughout the year.

LEAD BELL MINING CO.
Office: Lava Hot Springs. **Officers:** S. D. Cotton, Pres., 1460 McClelland St., Salt Lake City; Drusilla Godfrey, Sec., Lava Hot Springs. **Inc.:** Nov. 12, 1925. **Capital:** 1,000,000 shares; par value 10c; shares issued, unknown. **Property:** Lead Bell group; 9 unpatented claims, Portneuf dist.; Lava Hot Springs. **Remarks:** Company states, "This is only a prospect and is not being worked."

NORTON GAS & OIL CO.
Office: Pocatello. **Officers:** E. C. Norton, Pres.; Fred P. Brandt, Sec., both of Pocatello. **Inc.:** May 7, 1928. **Capital:** 250,000 shares, par value $1; 200,000 shares issued. **Property:** Oil and gas leases on 640 acres; Arimo. **Development:** A 2690-ft. well, 12 and 8-in. casing. **Plant:** Standard drilling equipment. **Mineral sought:** Oil and gas. **Remarks:** No activity reported for the year.

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

The copper mines of the United States in 1905, by W. H. Weed: U. S. Geol. Survey Bull. 285, pp. 108-109, **1906.***

Notes on the Fort Hall mining district, Idaho, by F. B. Weeks and V. C. Heikes: U. S. Geol. Survey Bull. 340, pp. 175-183, **1908.***

Guidebook of the western United States, by W. T. Lee and others: U. S. Geol. Survey Bull. 612, pp. 114-147, **1915.**‡

Geography, geology, and mineral resources of the Fort Hall Indian Reservation, Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 713, **1920.**‡

The Wasatch and Salt Lake formations of southeastern Idaho, by G. R. Mansfield: Am. Jour. Sci., vol. 49, pp. 399-406, June, **1920.**§

Triassic and Jurassic formations in southeastern Idaho and neighboring regions, by G. R. Mansfield: Am. Jour. Sci., vol. 50, pp. 53-64, July, **1920.**§

Geography, geology, and mineral resources of part of southeastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Prof. Paper 152, **1927.***

A manganese deposit of Pleistocene age in Bannock County, Idaho, by D. F. Hewett: U. S. Geol. Survey Bull. 795, pp. 211-221, **1928.****
Portland cement materials near Pocatello, Idaho, by A. L. Anderson: Idaho Bureau of Mines and Geology Pamphlet 28, **1928.****
Geography, geology, and mineral resources of the Portneuf quadrangle, Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 803, **1929.**‡

BEAR LAKE COUNTY

Bear Lake is the extreme southeastern county of the State. It is bounded on the east by the State of Wyoming and on the south by the State of Utah. On the north and west it adjoins Caribou, Bannock, and Franklin counties. It has an area of 980 square miles and was accredited with a population of 7,872 in the 1930 census. Montpelier, situated in the center of a rich agricultural valley, is the largest town; and Paris, located near the north end of Bear Lake, is the county seat.

The State highway, Oregon Trail, and the main line of the Oregon Short Line Railroad traverse the county east and west, thus giving it good transportation facilities.

The principal mineral resources are phosphate rock, gypsum, manganese, copper, lead, and silver. There are also excellent possibilities for petroleum. Estimates made by geologists of the U. S. Geological Survey credit the State with more than five billion tons of minable phosphate rock, over 85 per cent of the total known phosphate resources of the world. The largest and most accessible areas containing this rock are in Bear Lake County. Phosphate is a necessary soil constituent and it is through the existence of the Idaho deposits that the future of American agriculture is assured. These deposits are practically untouched, as present freight, market, and price conditions are preventing profitable production. They are the greatest potential mineral resources within the State and when properly developed the mining enterprises will dwarf many of the now famous mining districts in the United States. These deposits are fully described, with analyses and tonnage estimates included, in the numerous publications referred to in the bibliography of this county. Four mines are properly equipped with the necessary surface and mining plants, all have a large available tonnage, and production can be started without delay whenever conditions will warrant it.

One of the most outstanding publications issued by the U. S. Geological Survey in recent years is Professional Paper 152, by G. R. Mansfield: "Geography, Geology, and Mineral Resources of Part of Southeastern Idaho." This appeared during 1927; it is profusely illustrated with pictures, maps, and diagrams, and describes in detail the subjects mentioned in its title, dealing especially with the immense areas of phosphate rock found in this county.

Many structures favorable to the accumulation of gas and petroleum in commercial quantities are found in this county. As the formation is similar to the formations in Wyoming which are producing oil, it is reasonable to expect that the probabilities should be at least equal on the Idaho side of the State line.

1930 Activities

One of the principal new activities, and one of great importance to the State, is that of the Solar Development Co. in acquiring and starting work on a phosphate mine near Paris. This company is a subsidiary of the Consolidated Mining & Smelting Co. of Trail, B. C. During 1929 and 1930 the latter company expended over $7,000,000 in the construction of an acid phosphate plant at Trail, and the phosphate rock which is being mined by the Solar Development Co. is being shipped to this plant for treatment. The property was acquired during the latter part of the year. Buildings were constructed, mining equipment was installed, and work was started on sinking an inclined shaft.

Another enterprise which appears to be of importance is that of the Agricultural Potassium-Phosphate Co. of California, Ltd. This company acquired 320 acres of phosphate land near Paris under lease and option, reha-

bilitated the old mine workings, commenced active mining operations, and produced a small tonnage of phosphate rock, which was shipped to the company's manufacturing fertilizer plant at San Pedro, California.

The Paris Mining & Milling Co., Inc., whose activities are based on the development of a copper property near Paris, was incorporated and commenced active development during the year. Reports were to the effect that the work resulted in encountering an excellent showing of copper ore, and that a substantial tonnage was placed in storage. The Sunset Mining Co. was active at its lead property near St. Charles. A substantial amount of mine development was done, and a small tonnage of high-grade ore was mined and placed in storage. The Utah-Idaho Mining & Milling Co., which is developing a copper property near Paris, rehabilitated its mine buildings and machinery and commenced sinking its vertical shaft an additional 100 feet.

AGRICULTURAL POTASSIUM-PHOSPHATE CO. OF CALIFORNIA, LTD.
Office: San Pedro, Calif. **Officers:** A. L. Kreiss, Pres.-Mgr.; J. L. Misenheimer, Sec., both of San Pedro, Calif. **Inc.:** Filed in Idaho, Dec. 18, 1930. **Capital:** 90,000 shares; no par value; 29,127 shares issued. **Property:** 640 acres; owns 320 acres, and 320 acres held under lease from Mary Stucki. **Development:** By 1 tunnel 940 ft. long. **Plant:** Electrically driven 640 cu. ft. Sullivan compressor. **Ore:** Phosphate rock. **Men employed:** Average, 11. **Remarks:** A new organization which commenced operations in December.

BLACKSTONE MINING & POWER CO.
Office: Hood River, Ore. **Officers:** E. B. Cloud, Pres.-Mgr., Hood River, Ore. **Inc.:** Jan. 28, 1907. **Capital:** 1,000,000 shares; par value $1; shares issued unknown. **Property:** Blackstone, 1 patented claim, unorganized dist.; St. Charles. **Remarks:** Idle for many years.

COPPER RESERVE MINING & REDUCTION CO.
Office: Care of Walker Brothers Bank, Salt Lake City, Utah. **Officers:** John M. Wallace, Acting Pres.; Wm. J. Fitzpatrick, Acting Sec., both of Salt Lake City. **Inc.:** Filed in Idaho: Aug. 5, 1912. **Capital:** 500,000 shares; par value 10c; 400,000 shares issued. **Property:** Humming Bird group; 4 patented claims, Bear Lake dist.; Paris. **Remarks:** Inactive since 1917.

GOLD STAR MINING CO.
Office: Paris. **Officers:** L. W. Johnson, Pres.-Mgr., Provo, Utah; H. H. Broomhead, Sec., Bloomington. **Inc.:** May 9, 1928. **Capital:** 1,000,000 shares; par value 2c; 600,000 shares issued. **Property:** 9 unpatented claims, unorganized dist.; Paris. **Development:** By 3 short entries. **Ore:** Lead-copper. **Remarks:** Annual labor only.

KEYSTONE PHOSPHATE CO.
Office: Paris, Idaho. **Officers:** F. S. Irwin, Pres.-Mgr.; Harold F. Irwin, Sec., both of Nampa. **Inc.:** May 4, 1926. **Capital:** 75,000 shares; par value $10. **Remarks:** Failed to file the reports required by law. Press stories which appeared to be for the purpose of selling stock were issued by a W. H. Honefenger, Mgr.

PARIS MINING & MILLING CO., INC.
Office: Paris. **Officers:** F. T. Shepherd, Pres.; F. Leslie Shepherd, Sec., both of Paris. **Inc.:** June 18, 1930. **Capital:** 1,000,000 shares; par value 50c; 267,500 shares issued. **Property:** Bluebird group; 2 unpatented claims; Bear Lake dist.; Paris. **Development:** 1 short tunnel. **Ore:** Copper, gold and silver. **Men employed:** Average, 4. **Remarks:** Active development work throughout the latter part of the year, the results of which were encouraging.

SAN FRANCISCO CHEMICAL CO.
Office: 112 Market St., San Francisco, Calif. **Officers:** Wm. F. Kett, Pres., San Francisco, Calif.; Jos. J. Taylor, Mgr., Montpelier. **Inc.:** July 17, 1906. **Capital:** 2000 shares; par value $100; all shares issued. **Property:** Waterloo group; 10 patented claims; 505 acres; Montpelier. **Development:** 3 tunnels; total development, approximately 4000 ft. **Plant:** Gas-driven compressor and complete mining equipment. **Ore:** Phosphate rock. **Remarks:** Idle.

SOLAR DEVELOPMENT CO.

Office: Trail, B. C. **Officers:** J. J. Warren, Pres., Montreal, Quebec; E. G. Randall, Sec., Trail, B. C. **Inc.:** Sept. 14, 1928. **Capital:** 500 shares; no par value; 420 shares issued. **Property:** 3 patented claims held under lease and option from Francis A. Jeffs, Rockland, Mich. **Plant:** Gas-driven 310 cu. ft. air compressor; complete mining equipment. **Ore:** Phosphate rock. **Men employed:** Average, 26. **Remarks:** This company is a subsidiary of the Consolidated Mining & Smelting Co., Trail, B. C. During the year the latter company constructed a large acid phosphate plant at Trail, B. C., and the phosphate rock mined by the Solar Development Co. is being shipped to Trail for treatment. The property was acquired during the latter part of the year, buildings were constructed, equipment was installed and work was started on sinking an inclined shaft. The entry of this company into Idaho was one of the most important events of the year.

STOCKHOLDERS' SYNDICATE

Office: 1240 So. Main St., Los Angeles, Calif. **Officers:** F. W. Braun, Pres.; Roy V. Boswell, Sec., both of Los Angeles, Calif. **Inc.:** May 27, 1913. **Capital:** 500 shares, par value $100; all shares issued. **Property:** 16 patented claims; approximately 2400 acres; unorganized dist.; Georgetown; R. R., Georgetown, 8 miles. **Development:** 9 tunnels, 2 shafts, approximately 800 ft. **Ore:** Phosphate rock. **Remarks:** Idle. This company owns the property formerly owned by the Utah Fertilizer & Chemical Mfg. Co.

SUNSET MINING CO.

Office: St. Charles. **Officers:** Emery Welling, Pres.; Wm. Clark, Sec.-Mgr., both of St. Charles. **Inc.:** A partnership. **Property:** Sunset group; 13 unpatented claims, unorganized district; St. Charles. **Development:** Principally by an inclined shaft 350 ft. long. Total development, approximately 1000 ft. **Plant:** Small gas-driven hoist. **Ore:** Lead. **Men employed:** Average, 5. **Remarks:** Active throughout the year. A substantial tonnage of ore was produced and marketed.

UTAH-IDAHO MINING & MILLING CO.

Office: Paris, Idaho. **Officers:** L. W. Johnson, Pres., Provo, Utah; H. H. Broomhead, Sec., Bloomington. **Inc.:** Aug. 23, 1926. **Capital:** 1,000,000 shares; par value 2c; 750,000 shares issued. **Property:** Old Boulder group, 18 unpatented claims, unorganized dist.; Paris. **Development:** By 3 tunnels: No. 1, 600 ft. long; No. 2, 150 ft. long; No. 3, 200 ft. long; and a vertical shaft 200 ft. deep. **Plant:** Small steam-driven compressor. **Ore:** Copper. **Men employed:** Average, 4. **Remarks:** In September the mine buildings were enlarged, and work was started on sinking the shaft to a greater depth. Three stock assessments of 1 mill each were levied during the year.

WASATCH MINING & DEVELOPMENT CO.

Office: Preston. **Officers:** G. A. Ransom, Pres.-Mgr., Paris; Chas. Ransom, Sec., both of Preston. **Inc.:** Feb. 6, 1928. **Capital:** 500,000 shares; par value 10c; 282,000 shares issued. **Property:** Midway group; 5 unpatented claims held under lease and option; unorganized dist.; Bloomington. **Development:** By 4 short tunnels. **Remarks:** Annual labor only.

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

Fifth and Eleventh Ann. Repts. U. S. Geol. and Geog. Surveys of the Territories, by F. V. Hayden, **1872** and **1879.***

Report on work in the Great Basin, by G. K. Gilbert: U. S. Geol. Survey Second Ann. Rept. 1880-1881, pp. 169-200, **1882.***

Lake Bonneville, by G. K. Gilbert: U. S. Geol. Survey Mon. 1, **1890.***

Phosphate deposits in western United States, by F. B. Weeks and W. F. Ferrier: U. S. Geol. Survey Bull. 315, pp. 449-462, **1907.***

Phosphate rock in Utah, Idaho, and Wyoming, by C. C. Jones: Eng. and Min. Jour., vol. 83, pp. 953-955, May 18, **1907.**§

Phosphate deposits in the western United States, by F. B. Weeks: U. S. Geol. Survey Bull. 340, pp. 441-447, **1908.***

Geology of the copper deposits near Montpelier, Bear Lake County, Idaho, by H. S. Gale: U. S. Geol. Survey Bull. 430, pp. 112-121, **1909.***

Preliminary report on the phosphate deposits in southeastern Idaho and adjacent parts of Wyoming and Utah, by H. S. Gale and R. W. Richards: U. S. Geol. Survey Bull. 430, pp. 457-531, **1909.***

Gems and precious stones, by D. B. Sterrett: U. S. Geol. Survey Mineral Resources **1909,** pt. 2, p. 804.*

Notes on lead and copper deposits in the Bear River Range, Idaho and Utah, by R. W. Richards: U. S. Geol. Survey Bull. 470, pp. 177-187, **1910.***

Preliminary report on a portion of the Idaho phosphate reserve, by R. W. Richards and G. R. Mansfield: U. S. Geol. Survey Bull. 470, pp. 371-439, **1910.***

A geological reconnaissance in southeastern Idaho, by A. R. Schultz and R. W. Richards: U. S. Geol. Survey Bull. 530, pp. 267-284, **1911.***

Discovery and opening of a new phosphate field in the United States, by C. C. Jones: Am. Inst. Min. Eng. Trans., vol. 47, pp. 192-216, August, **1913.**§

Geology of the phosphate deposits northeast of Georgetown, Idaho, by R. W. Richards and G. R. Mansfield: U. S. Geol. Survey Bull. 577, **1914.***

Revision of the Beckwith and Bear River formations of southeastern Idaho by G. R. Mansfield and P. V. Roundy: U. S. Geol. Survey Prof. Paper 98, pp. 75-84, **1916.***

Phosphate deposits in Idaho, by R. N. Bell: Eng. and Min. Jour., vol. 104, pp. 293-294, Aug. 18, **1917.**§

Oil shale in western Montana, southeastern Idaho and adjacent parts of Wyoming and Utah, by D. D. Condit: U. S. Geol. Survey Bull. 711, pp. 15-40, **1920.**‡

Gypsum deposits of the United States, by R. W. Stone and others: U. S. Geol. Survey Bull. 697, pp. 99-100, **1920.***

The Wasatch and Salt Lake formations of southeastern Idaho, by G. R. Mansfield: Am. Jour. Sci., vol. 49, pp. 399-406, June, **1920.**§

Triassic and Jurassic formations in southeastern Idaho and neighboring regions, by G. R. Mansfield: Am. Jour. Sci., vol. 50, pp. 53-64, July, **1920.**§

Types of Rocky Mountain structure in southeastern Idaho, by G. R. Mansfield: Jour. Geology, vol. 29, No. 5, pp. 444-468, July-August, **1921.**§

Notes on the geology of eastern Bear Lake County, Idaho, with reference to oil possibilities, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 7, **1923.***

Geography, geology, and mineral resources of part of southeastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Prof. Paper 152, **1927.****

The Idaho phosphate field, by G. R. Mansfield: Mining and Metallurgy, vol. 9, pp. 19-20, January, **1928.**§

BENEWAH COUNTY

Benewah is one of the northern counties. It is bounded on the west by the State of Washington, on the north by Kootenai County, and on the east and south by Shoshone and Latah counties. It has an area of 786 square miles and was accredited with a population of 6,371 in the 1930 census. St. Maries, the county seat, is the largest town in the county. Except a small area along the St. Joe and St. Maries Rivers, and the section adjacent to the town of Plummer, which is devoted to agriculture, the entire county is mountainous and heavily timbered. The county is noted for its timber and lumbering industries.

The county is served by lake-boat transportation from Coeur d'Alene to St. Maries, and by two railroads: The Tekoa, Wn.-Wallace, Idaho, branch of the O. W. R. & N. (Union Pacific System), and the main line of the Chicago, Milwaukee & St. Paul Railroad, with its branch line extending from St. Maries to Elk River (Clearwater County).

The principal mineral resources are gold, copper, silver, lead, zinc, iron, and clay. The deposits containing the principal metals have received a small amount of attention; and many of the clays are exceptionally adapted to the ceramic industry. The St. Joe district, which lies east of St. Maries, and the Hoodoo and Camas Cove districts, in the southeastern corner, are the principal mining districts.

1930 Activities

The principal operation in this county was that of the Rainbow Mining & Milling Co., whose property is located in the St. Joe district, near Medimont. This company is driving a long crosscut tunnel, which was advanced approximately 1,000 feet during the year.

Two companies, whose properties are located near Round Top Mountain, did a small amount of development during the summer months. Their work and a slight increase in the number of prospectors gave this county a little more than its usual amount of mining activity.

BUTTE MINING CO.

Office: St. Maries, Idaho. **Officers:** J. J. Martinides, Pres.-Mgr., St. Maries; Simon Doshna, Sec., Coeur d'Alene. **Inc.:** March 27, 1916. **Capital:** 500,000 shares; par value 50c; 407,733 shares issued. **Property:** 1 patented, 6 unpatented claims, St. Joe dist.; St. Maries. **Development:** 1 tunnel, 240 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** Annual labor only, the funds for which were derived from a stock assessment of 2½ mills, levied on Aug. 15, 1930.

OTHELLO MINING CO.

Office: Coeur d'Alene. **Officers:** Orland A. Scott, Pres., Pomeroy, Wash.; Claude M. Smith, Sec., N. 5401 Market St., Spokane, Wash. **Inc.:** Feb. 7, 1930. **Capital:** 2,000,000 shares; par value 25c; shares issued, unknown. **Property:** Old Ironsides group; 6 unpatented claims, St. Joe dist., and 400 acres under lease from the State of Idaho; St. Maries. **Ore:** Lead-silver. **Remarks:** A small amount of prospecting during the summer months.

RAINBOW MINING & MILLING CO.

Office: 301 Mohawk Bldg., Spokane, Wash. **Officers:** Geo. Austin, Pres.-Mgr.; T. W. Schmidt, Sec., Coeur d'Alene. **Inc.:** June 20, 1907. **Capital:** 2,000,000 shares; par value 25c; shares issued, unknown. **Property:** 16 unpatented claims, St. Joe dist.; Medimont. **Development:** Principally by one tunnel 1600 ft. long. **Plant:** Gas-driven compressor, steel sharpener, and complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 4. **Remarks:** The tunnel was advanced without interruption throughout the year. Funds for this work were derived principally from stock assessments.

ROUND TOP MINING CO.

Office: St. Maries. **Officers:** Fulton Cook, Pres.-Mgr.; W. F. Sargent, Sec., both of St. Maries. **Inc.:** Jan. 21, 1926. **Capital:** 1,000,000 shares; par value 10c. **Development:** By 1 tunnel 175 ft. long. **Remarks:** Failed to file the reports required by law.

SILVER STAR MINING & DEVELOPMENT CO.

Office: St. Maries. **Officers:** Earl H. Kidder, Pres.; Margaret Caines, Sec., both of St. Maries. **Inc.:** Aug. 28, 1929. **Capital:** 1,500,000 shares; par value 25c; 285,839 shares issued. **Property:** 7 unpatented claims, Round Top dist.; St. Maries. **Development:** 1 tunnel, 290 ft. long. **Ore:** Lead, silver, gold and copper. **Remarks:** Annual labor only.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Alice Group	Camas Cove	S. R. Walker	St. Maries
Alice Gr.	Grass Mountain	Thos. Egan	St. Maries
Aurora	St. Joe	E. F. Montandon	St. Maries
Bonanza et al.	St. Joe	James M. Warren	St. Maries
Cabin et al.	St. Joe	Fulton Cook	St. Maries
Cedar Creek	Camas Cove	W. I. Hupp et al.	St. Maries
Connelly Bros.	Camas Cove	Connelly Bros.	Tyson
Copperhead	Camas Cove	Bert Whitehead	St. Maries
Donson-Woodard	St. Joe	L. B. Dunson	St. Maries
Flying Stone	Unorganized	William F. Schultz	Plummer
Gladiator Gr.	St. Joe	O. E. Hailey et al.	St. Maries
McLean Placer	Camas Cove	C. A. McLean	Santa
Red Boy	Camas Cove	J. E. Hemmerway	St. Maries
Seledoria	Camas Cove	Sadie Caverni	Clarkia
Tom et al.	Unorganized	William Russell	Chatcolet

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

A geological reconnaissance in northern Idaho and northwestern Montana, by F. C. Calkins, with notes on the economic geology by D. F. MacDonald: U. S. Geol. Survey Bull. 384, **1909.***

Preliminary report on the clays of Idaho, by F. H. Skeels: Idaho Bureau of Mines and Geology Bull. 2, **1920.***

Coeur d'Alene Lake, Idaho, and the overflow lands, by R. W. Davenport: U. S. Geol. Survey Water-Supply Paper 500, pp. 1-31, **1921.***

Ground water for municipal supply at St. Maries, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 17, **1926.***

Some Miocene and Pleistocene drainage changes in northern Idaho, by A. L. Anderson: Idaho Bureau of Mines and Geology Pamphlet 18, **1927.***

A geological reconnaissance in the St. Maries region, Idaho, by A. L. Anderson: Idaho Bureau of Mines and Geology Pamphlet 30, **1928.***

BINGHAM COUNTY

Bingham, a southeastern county, is primarily an agricultural community. It occupies a large part of the Snake River Valley and is bounded by Butte, Blaine, Power, Bannock, Caribou, Bonneville, and Jefferson counties. It has an area of 2184 square miles and was accredited with a population of 18,561 in the census of 1930.

The extensive phosphate beds of southeastern Idaho are exposed in the Blackfoot Mountains which cover the eastern part of the county. Coal also has been found in these mountains, notably along Willow Creek, a small stream which flows in a northerly direction through the east end of the county. The coal beds have received a little attention from prospectors but no coal of commercial importance has been discovered. Structures that appear likely for the presence of petroleum are present also. The fine gold in the placer deposits along Snake River is the only metal resource of the county. In the past these deposits have received the attention of placer miners, but nothing of importance was reported during the year.

MARY LEE GOLD MINING CO.

Office: Gallipolis, Ohio. **Officers:** J. H. Wolf, Pres.; J. V. Lee, Sec.-Treas., both of Gallipolis, Ohio. **Inc.:** Jan. 29, 1919. **Capital:** 1,000,000 shares; par value $1; 500,000 shares issued. **Property:** 47½ acres unpatented land. **Ore:** Placer gold.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Eagle Bend Pl.	Snake River	Alma Clough	Pingree
Eldorado Placer	Snake River	Robert Wheeler	Sterling
Oborn & Coler Pl.	Snake River	John Oborn	Blackfoot
Parsons Placer	Snake River	W. G. Parsons	Aberdeen
Snake River Pl.	Snake River	G. E. Campbell	Blackfoot
Woodruff Bend Pl.	Snake River	James G. Walsh	Blackfoot

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

Fifth, Sixth and Eleventh Ann. Repts. U. S. Geol. and Geog. Survey of the Territories, by F. V. Hayden, **1871, 1873 and 1879.***

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Notes on the Fort Hall mining district, Idaho, by F. B. Weeks and V. C. Heikes: U. S. Geol. Survey Bull. 340, pp. 175-183, **1908.***

A geological reconnaissance in southeastern Idaho, by A. R. Schultz and R. W. Richards: U. S. Geol. Survey Bull. 530, pp. 267-284, **1911.***

Guidebook of the western United States by W. T. Lee and others: U. S. Geol. Survey Bull. 612, pp. 114-147, **1915.‡**

Geology and ore deposits of the Mackay region, Idaho, by J. B. Umpleby: U. S. Geol. Survey Prof. Paper 97, **1917.‡**

Coal in eastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 716, pp. 123-153, **1920.‡**

Geography, geology, and mineral resources of the Fort Hall Indian Reservation, Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 713, **1920.‡**

Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 60, art. 3, pp. 1-33, **1921.‡**

Geology and oil possibilities of Bingham, Bonneville, and Caribou counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Bull. 8, **1924.****

Geography, geology, and mineral resources of part of southeastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Prof. Paper 152, **1927.****

BLAINE COUNTY

Blaine County is bounded on the west by Camas County, on the north by Custer County, and on the east and south, in its greater extent, by Butte and Lincoln counties. Its principal area comprises the drainage basin of Big and Little Wood rivers, which flow in a southerly direction. Its total area is 2797 square miles. The 1930 census accredited the county with a population of 3,768, or 1.3 persons to the square mile. In location it is one of the south-central counties and comprises part of the region known as "Central Idaho's Mineral Empire." The county is primarily recognized as a mining county, but it is also noted for its agricultural and stock raising industries; particularly sheep, as it is one of the largest sheep shipping points in the United States.

The county is served by the Wood River branch of the Oregon Short Line Railroad, which extends from Shoshone to Ketchum; by the Sawtooth Park State highway (U. S. No. 93), State highway No. 22, and a well-kept system of county roads which extend into all of the various mining districts

and sections. All roads are kept in good repair and are open to travel during the larger part of the year. Hailey is the largest town and county seat.

The first discovery of lead-silver ore in the State was made in Blaine County, which was then called Alturas County. The first ore was marketed in 1880 and since then this county has been a consistent producer of these metals. Most of the ores are of such high grade that they can be shipped direct to the smelter without preliminary treatment, thus assuring immediate returns from all discoveries. This fact and the possibilities of discovering and opening new ore bodies will continue to hold Blaine County, particularly the Wood River district, in popular esteem as a favorite section of the State for prospectors, development companies, and those seeking a worthy field for mining enterprises.

The high-grade ores of lead and silver are widely distributed throughout the county, as well as those of gold, zinc, and copper. In addition to the five principal metals—lead, silver, zinc, gold, and copper—deposits of arsenic, antimony, bismuth, quicksilver, graphite, barytes and limestone are found in this county. These minerals occur in sufficient extent to be of commercial importance, and many of the deposits offer an excellent opportunity to development companies or to those in search of these minerals or metals. The barytes deposits are the largest that have ever been found west of the Mississippi River. One large deposit on Deer Creek has been purchased by the Bunker Hill & Sullivan Mining & Concentrating Co.

1930 Activities

The principal operation was that of the Hailey Triumph Mines Co., at the Triumph mine, which adjoins the North Star of the Federal Mining & Smelting Co. Both production and development were maintained until June, when production was suspended; but development, with a crew of 20 men, was continued until September, at which time all operations were suspended. The ore produced was shipped, crude, to a milling plant in Utah for reduction.

The Homestake Mines Corporation, whose property is located on Lake Creek, near Ketchum, was active for eight months in developing its property, the principal work being confined to the extension of its No. 6, or lowest, tunnel. The results of this work were very encouraging.

The Liberty Gem Mines, Inc., whose property is located 7 miles west of Hailey, devoted the entire year to the installation of electric power, construction of a mill building, and installation of milling machinery. These improvements were completed in December, after which mine development was resumed. This work consisted of sinking the principal vertical shaft, which is 100 feet deep, an additional 100 feet. This company's activities constituted the principal new mine plant installation of the year.

Silver Star-Queens Mines, Inc., at the Queen of the Hills group, near Bellevue, was active in reopening the lower or Lusk tunnel. Over 1,000 feet of this tunnel was rehabilitated. The Crooked River Mining Co., operating in the Muldoon district, actively developed its property under contract during the summer months. The United Mines Co. of Idaho, Inc., which is also operating in this district, did a small amount of development and constructed a new camp building. The Treasure Vault Mining Co., whose property is located west of Hailey, performed a small amount of development work. The Utah Bellevue Mines Co., on its property near Bellevue, commenced driving a new tunnel during the early part of the year and continued without interruption.

Peter L. Kent, at the Lone Pine Tree group, near the Red Cloud mine on Deer Creek, maintained development without interruption throughout the summer months. Charles Sonneleitner, lessee at the Star mine, produced and marketed a small tonnage of high-grade lead ore. Lessees at the Baltimore and Parker groups, near Ketchum, maintained development without interruption. A. F. Peery, who is operating the Vienna mine, in the Sawtooth district, conducted active development during the early and latter parts of the year. The Day Development Co. of Wallace, which controls the Badger group, adjoining the property of the Liberty Gem Mines, Inc., performed a

small amount of work during the summer months. Lessees produced and marketed a small tonnage of ore from the Independence and North Star mines owned by the Federal Mining & Smelting Co.

One of the principal geological publications issued during the year by the U. S. Geological Survey, in cooperation with the Idaho Bureau of Mines and Geology, was Bulletin 814, "Geology and Ore Deposits of the Wood River Region, Idaho," by J. B. Umpleby, L. G. Westgate, C. P. Ross, and D. F. Hewett. This bulletin completely describes the Wood River district. It is profusely illustrated with pictures and geologic maps. The findings and conclusions expressed in this publication are favorable for the return of this district as a substantial producer of lead-silver ore.

ARGO MINING CORPORATION

Office: 3725 Kate Ave., Baltimore, Md. **Officers:** Henry Mencken, Pres.; F. H. Gettemuller, Sec., both of Baltimore, Md.; T. R. Bowlden, Mgr., Gannett. **Inc.:** Oct. 15, 1926. **Capital:** 500,000 shares; increased Nov. 13, 1929, to 1,000,000 shares; par value $1; 785,000 shares issued. **Property:** Rattler group; 7 unpatented claims, Mineral Hill dist.; Gannett. **Development:** 4 tunnels, giving approximately 580 ft. vertical depth on vein; total development, 2533 ft. **Plant:** Steam-driven compressor on ground not installed; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** Annual labor only.

ARGOSY MINING & MILLING CO., LTD.

Office: 1125 N. Garfield Ave., Pocatello, Idaho. **Officers:** W. E. Smith, Pres.; Priscilla K. Smith, Sec., both of Pocatello. **Inc.:** Feb. 24, 1904. **Capital:** 50,000 shares; par value $1; all shares issued. **Property:** Argosy group; 5 patented claims, Little Wood River dist.; Muldoon. **Development:** By 5 tunnels; total development approximately 800 ft. **Ore:** Lead-silver. **Remarks:** Idle for 16 years.

BALTIMORE & VICTORIA MINING CO.

Office: Care of Terre Haute Nat'l Bank & Trust Co., Terre Haute, Ind. **Officers:** William K. Hamilton, Pres., Terre Haute, Ind.; Eph Daft, Agent, Hailey. **Inc.:** July 3, 1903. **Capital:** 150,000 shares; par value 10c; all shares issued. **Property:** Ida Harland group; 5 patented, 8 unpatented claims, Warm Springs Creek dist.; Hailey. **Remarks:** Small amount of work by lessees.

BLACKJACK MINES CORPORATION

Office: Room 2, Ward Bldg., Yakima, Wash. **Officers:** S. J. Arkoosh, Pres.; Hunky Shaw, Sec., both of Yakima, Wash. **Inc.:** Jan. 21, 1930. **Capital:** 1,400,000 shares; par value 25c; 1,009,330 shares issued. **Property:** Blackjack group; 10 unpatented claims, Mineral Hill dist.; Bellevue. **Development:** Approximate total development is 2,125 ft. consisting of 5 short tunnels and a number of crosscuts and drifts. **Ore:** Lead-silver. **Remarks:** Annual labor only.

BUNKER HILL & SULLIVAN MINING & CONCENTRATING CO.

(See Shoshone County)

Officers: F. W. Bradley, Pres., 1022 Crocker Bldg., San Francisco, Cal.; Stanly A. Easton, Mgr., Kellogg; James W. Gwinn, Local Mgr., Cascade. **Property:** 10 unpatented claims; Bullion, Mineral Hill dist.; Hailey. **Remarks:** Annual labor only.

CROOKED RIVER MINING CO.

Office: Box 158, Nampa. **Officers:** Melvin T. Rowland, Pres.-Mgr., Nampa; N. S. Talbott, Sec., Dayton, Ohio. **Inc.:** Oct. 5, 1927. **Capital:** 2000 shares, par value $100; 2000 shares, no par value; no shares issued. **Property:** Smuggler and Jupiter groups; 18 unpatented claims held under lease and option, Little Wood River dist.; Muldoon. **Development:** 6 tunnels, totaling over 2,000 ft. **Plant:** Gas-driven C-P compressor; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 4. **Remarks:** Annual labor only.

DAISY MINING & MILLING CO., LTD.
Office: Burrows Motor Co., Yakima, Wash. **Officers:** A. E. Larsen, Pres.; L. A. Devine, Sec., both of Yakima, Wash. **Inc.:** July 6. 1920. **Capital:** 500,000 shares; par value $1; all shares issued. **Property:** Camas group; 18 patented claims, Mineral Hill dist.; Hailey. **Development:** Principally by 1 tunnel 800 ft. long. **Plant:** MINE: Electrically-driven compressor and complete mining equipment. MILL: Small concentrator, including flotation. **Ore:** Lead-silver-gold. **Remarks:** Idle.

DAY DEVELOPMENT CO.
Office: Wallace. **Officers:** Harry L. Day, Pres.; W. B. Heitfield, Sec., both of Wallace. **Inc.:** Nov. 27, 1928, as Hercules Exploration Co.; name changed Nov. 25, 1930. **Capital:** 10,000 shares; par value $1,000; 9,990 shares issued. **Property:** Badger group; 22 unpatented claims, held under lease and option from Leo M. Bresnahan, Mineral Hill dist.; Hailey. **Ore:** Lead-silver. **Remarks:** Annual labor only.

ERVINE MINING CO.
Office: Ketchum. **Officers:** M. A. Costello, Sec., 40 Court St., Boston, Mass.; C. Fred Howe, Mgr., Ketchum. **Inc.:** March 14, 1922. **Capital:** 1,000,000 shares; par value $1; 400,000 shares issued. **Property:** Boyle Mtn. group; 7 patented, 13 unpatented claims, 320 acres, Warm Springs Creek dist.; Ketchum. **Ore:** Silver-lead. **Remarks:** Annual labor only.

EUREKA DEVELOPMENT CO., LTD.
Office: 319 Dooly Blk., Salt Lake City, Utah. **Officers:** W. A. Wilson, Pres.-Mgr., Salt Lake City, Utah. **Inc.:** June 28, 1905. **Capital:** 200,000 shares; par value 50c; 120,794 shares issued. **Property:** Eureka group; 12 patented, 10 unpatented claims, Mineral Hill dist.; Hailey, 7 miles. **Development:** Total development approximately 12,900 ft., the length of the principal workings being: Bay State, 1000 ft.; Chicagoan, 300 ft.; Whale, 1400 ft.; Eureka, 3920 ft.; Idahoan, 5000 ft. One inclined shaft 700 ft. long; 1 inclined shaft 435 ft. long. **Plant:** MINE: 8x10 Lidgerwood hoist; 40 h. p. C-P oil-driven compressor. MILL: 25-ton concentrator. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** The mine was operated by two lessees during the year.

FEDERAL MINING & SMELTING CO. **(See Shoshone County)**
Office: Wallace. **Officers:** F. H. Brownell, Pres.; J. L. Martin, Sec., both of 120 Broadway, New York City; H. G. Washburn, Mgr., Wallace. **Property:** Independence, North Star, Koeninger and Malta groups; 45 patented, 4 unpatented claims, 762 acres, Warm Springs Creek dist.; Hailey, 12 miles. **Development:** Approximately 10 miles of underground workings, the principal of which is the Plummer, or main haulage tunnel, which is over 6000 ft. long and connects the North Star and Independence groups. **Plant:** MINE: 1 English Iron Works 202 single drum 25 h. p. electric hoist; 1 Lidgerwood 8x10 air hoist; 1 I-R 420 cu. ft. compressor; 1 C-P 765 cu. ft. compressor. All electrically driven. Electric haulage through Plummer tunnel. One Waugh drill sharpener and complete mine equipment; 4400 ft. Riblet aerial tram from Plummer tunnel to mill, capacity 20 tons an hour. Shops, timber sheds and bunk houses. MILL: 350-ton concentrator; jaw and gyratory crushers; rolls; Marcy ball mills; Hancock jigs; drag classifiers; Wilfley tables; Dorr thickeners; Oliver filters; electric power. **Ore:** Lead-silver. **Remarks:** Active mining operations were suspended on August 1, 1923, after which various parts of the Independence and North Star mines have been operated by lessees. A small tonnage was produced and marketed during the year.

FIELDS MUTUAL DEVELOPMENT CO.
Office: 254 Alder St., Portland, Oregon. **Officers:** Al. W. Field, Pres.-Mgr.; V. F. Rodgers, Sec., both of Portland, Ore. **Inc.:** Nov. 6, 1926. Formerly known as Field Mutual Mining Co. **Capital:** 500,000 shares; par value $1; 82,690 shares issued. **Property:** 14 unpatented claims, Kelly Mountain, Mineral Hill dist.; Hailey. **Development:** Approximately 3000 ft. of underground work, principally 1 tunnel 1000 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Annual labor only.

HAILEY BONANZA MINING CO.

Office: Hailey. **Officers:** Frank R. Karge, Pres., Chicago, Ill.; Alfred Wolff, Sec.-Mgr., Hailey. **Inc.:** Aug. 9, 1919. **Capital:** 500,000 shares; par value $1; all shares issued. **Property:** Imperial group; 1 patented, 24 unpatented claims, Greenhorn Gulch, Warm Springs Creek dist.; Hailey. **Development:** Approximately 3000 ft. of underground workings, the principal of which is 1 tunnel 1200 ft. long. **Plant:** MINE: Electrically-driven compressor and complete mining equipment. MILL: 100-ton concentrator consisting of tables and jigs. **Ore:** Lead-silver. **Remarks:** Annual labor only.

HAILEY TRAMWAY CO.

Office: 215 Felt Bldg., Salt Lake City, Utah. **Officers:** Geo. W. Snyder, Pres.; G. M. Snyder, Sec., both of Salt Lake City. **Inc.:** Aug. 28, 1929. **Capital:** 200,000 shares; par value 50c; all issued. **Property:** Triumph group; 19 unpatented claims, Warm Springs dist.; Hailey. **Plant:** An aerial wire rope tramway 4 1-10 miles long connects the Triumph mine and the railroad. **Remarks:** This company transports the ore produced from the Triumph mine under contract. The mining claims cover the right-of-way of the tramway.

HAILEY TRIUMPH MINES CO.

Offices: 215 Felt Bldg., Salt Lake City, Utah. **Officers:** Geo. W. Snyder, Pres.; Guy M. Snyder, Sec., both of Salt Lake City; J. C. Jensen, Supt., Hailey. **Inc.:** Aug. 23, 1929. **Capital:** 1,000,000 shares; par value 25c; all shares issued. **Property:** Lease on Triumph mine, owned by Ivanhoe Mining Co.; Warm Springs Creek dist.; Hailey. **Development:** Principally by a vertical shaft 300 ft. deep in which there are 3 levels, and an inclined winze in No. 3 level 500 ft. long. Total development approximately 17,775 ft. **Plant:** Electrically-driven double-drum hoist and 700 cu. ft. compressor; steel sharpener; complete mining equipment; complete modern mining camp.**Ore:** Lead-zinc-silver. **Men employed:** Average, 75. **Remarks:** Production and development maintained until June 20; after which production was suspended and development work maintained with a crew of 30 men until September, when all operations were suspended.

HOMESTAKE MINES CORPORATION

Office: Ketchum. **Officers:** H. L. Kaufman, Pres.-Mgr., Ketchum. **Inc.:** July 27, 1927. **Capital:** 1000 shares; par value $100; all shares issued. **Property:** Homestake group; 13 unpatented claims, Warm Springs Creek dist.; Ketchum. **Development:** Approximately 4000 ft. of workings, the principal being: No. 3 tunnel, 500 ft. long; No. 4 tunnel, 800 ft. long; No. 5 tunnel, 1500 ft. long; No. 6 tunnel, 1800 ft. long. **Plant:** Gas-driven C-P compressor; complete mining equipment. **Ore:** Lead-silver-zinc. **Men employed:** Average, 10. **Remarks:** Active development campaign throughout the summer months in extending No. 6 tunnel.

IDAHO MINERAL PRODUCTS CO., LTD.

Office: Hailey. **Officers:** J. F. McClure, Pres., Mackay; J. G. Hedrick, Sec., Hailey. **Inc.:** July 6, 1920. **Capital:** 100,000 shares; par value $1; shares issued, none. **Remarks:** Company owns no property.

IDAHO SILVER KING MINING CO.

Office: Huntington Beach, Calif. **Officers:** A. B. Watson, Pres., Santa Ana, Calif.; E. E. Wilson, Sec., Huntington Beach, Calif. **Inc.:** July 17, 1926. **Capital:** 500,000 shares; no par value; 257,500 shares issued. **Property:** Silver King group; 2 patented, 1 unpatented claim, Sawtooth dist.; Ketchum. **Development:** By an inclined shaft 600 ft. long, with 3 intermediate levels; total development, approximately 3000 ft. **Plant:** Steam-driven hoist. **Ore:** Silver, antimony. **Remarks:** Idle.

IVANHOE MINING CO.

Office: 485 California St., San Francisco, Calif. **Officers:** Harry L. Tevis, Pres.; William Letson, Sec., both of San Francisco, Calif. **Inc.:** July 28, 1909. **Capital:** 2500 shares; par value $1; all shares issued. **Property:** Durango group, 16 patented claims; Iris group, 5 patented claims; Mineral Hill dist.; Triumph group, 7 patented claims; Warm Springs Creek dist. **Remarks:** Operated by Hailey Triumph Mines Co., lessees.

JENNIE R MINING CO.

Office: Hailey. **Officers:** W. P. Fowler, Pres.-Mgr., Hailey. **Inc.:** Jan. 10, 1929. **Capital:** 50,000 shares; par value $1; 5 shares issued. **Remarks:** Owns no property.

LIBERTY GEM MINES, INC.

Office: 610 Eastman Bldg., Boise. **Officers:** Guy E. Mathews, Pres.; G. Arlon Mathews, Sec., both of Hailey. **Inc.:** Sept. 13, 1927. **Capital:** 250 shares; no par value; all shares issued. **Property:** Liberty group: 20 unpatented claims, Mineral Hill dist.; Hailey. **Development:** Numerous open cuts and 6 4x6-ft. vertical shafts, the deepest of which is 200 ft. Total development, 620 ft. **Plant:** MINE: 2 electrically driven compressors; air-driven hoist; complete mining equipment and camp. MILL: Fine-grinding selective flotation, 100-ton capacity. **Ore:** Lead-silver-zinc. **Men employed:** Average, 10. **Remarks:** Practically no mine development work was performed during the year. All work was directed toward erecting new mine, camp, and mill buildings, installing milling equipment, electric power and road construction; all of which was completed in December, after which work was started on sinking the principal vertical shaft 100 ft. The funds were derived from the sale of stock on a basis of $4,000 per share.



LIBERTY GEM MINES, INC.

MIDVALE MINING CO.

Office: Ketchum. **Officers:** M. A. Costello, Sec., 40 Court St., Boston, Mass.; C. Fred Howe, Mgr., Ketchum. **Inc.:** March 14, 1922. **Capital:** 1,000,000 shares; par value $1; 400,000 shares issued. **Property:** Pay group; 8 unpatented claims, Warm Springs Creek dist.; Ketchum. **Ore:** Zinc. **Remarks:** Annual labor only.

PANDORA MINING CO.

Office: Hootzinger Bldg., Yakima, Wash. **Officers:** Charles A. Mayo, Pres.-Mgr.; Thos. W. Ward, Sec., both of Yakima, Wash. **Inc.:** Unknown. **Capital:** 1,000,000 shares; par value 10c; 512,210 shares issued. **Property:** Pandora group; 15 unpatented claims held under lease and option, Lava Creek dist.; Blaine and Butte counties; Carey. **Development:** Principally by 1 tunnel 900 ft. long. **Plant:** Portable I-R gas-driven compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 6. **Remarks:** Operations were suspended in April on account of financial difficulties. During the closing months of the year arrangements were being completed for the resumption of operations.

QUINCY JUNIOR MINING CO.

Office: 319 Dooly Block, Salt Lake City, Utah. **Officers:** George L. Erwin, Pres., Grand Rapids, Mich.; Florence Glenn, Sec.; W. A. Wilson, Mgr., both of Salt Lake City. **Inc.:** Dec. 20, 1903. **Capital:** 150,000 shares; par value $1; 105,951 shares issued. **Property:** Red Elephant group; 12 patented, 2 unpatented claims, Mineral Hill dist.; Hailey. **Development:** Approximately 15,000 ft. underground workings. **Remarks:** Annual labor and a small amount of work by lessees.

RED ELEPHANT CONSOLIDATED MINES CO.

Office: 319 Dooly Blk., Salt Lake City, Utah. **Officers:** John Rapalji, Pres., Hopewell Junction, N. Y.; Edwin J. Webb, Sec., Beacon, N. Y. **Inc.:** June 16, 1916. **Capital:** 1,500,000 shares; par value $1; 957,167 shares issued. **Property:** Red Elephant Extension group; 1 patented, 16 unpatented claims, Mineral Hill dist.; Hailey. **Remarks:** Annual labor only on unpatented claims.

SILVER SPAR MINING CO.

Office: Idaho Falls. **Officers:** B. M. Rogers, Pres.; Dr. Dwight Lenzi, Sec., both of Idaho Falls. **Inc.:** April 14, 1916, as Falls Mining Co.; name changed April 28, 1917. **Capital:** 200,000 shares; par value $1; 100,000 shares issued. **Property:** Silver Spar group; 18 patented, 7 unpatented claims, Little Wood River dist.; Muldoon. **Development:** By 5 tunnels totaling approximately 1000 ft. in length, and an inclined shaft 200 ft. long. **Plant:** Steam-driven hoist and compressor, complete mining equipment and camp. **Ore:** Silver. **Remarks:** Idle.

SILVER STAR-QUEENS MINES, INC.

Office: Wallace. **Officers:** L. K. Stratton, Pres., Spokane, Wash.; Wm. J. Stratton, Sec., Wallace. **Inc.:** Nov. 22, 1929. **Capital:** 10,000,000 shares; par value 10c; 5,699,039 shares issued. **Property:** Queen of the Hills group; 1 patented, 4 unpatented claims, Mineral Hill dist.; Bellevue. **Development:** Principally by 3 tunnels: No. 1, 900 ft. long; No. 2, 700 ft. long; and Lusk tunnel, 2200 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** Active work throughout the year in reopening the Lusk tunnel. A stock assessment of 5 mills was levied on July 15.

SUNBEAM MINING CO.

Office: 546 So. Main St., Pocatello. **Officers:** W. H. Hall, Pres.; Geo. H. Spongberg, Sec.-Mgr., both of Pocatello. **Inc.:** Sept. 28, 1926. **Capital:** 1,000,000 shares; par value 10c; 500,110 shares issued. **Remarks:** Owns no property.

TIP TOP GROUP MINING CO.

Officers: Sylvester Q. Cannon, Pres., Salt Lake City, Utah. **Inc.:** July 17, 1930. **Capital:** 100,000 shares; par value 10c. **Remarks:** Property located in Warm Springs Creek mining district. Company failed to file the reports required by law.

TORBANEHILL MINING CO.

Office: 810 Deseret Bank Bldg., Salt Lake City, Utah. **Officers:** W. F. Armstrong, Pres.; Oscar W. Moyle, Sec., both of Salt Lake City, Utah. **Inc.:** Sept. 14, 1906. **Capital:** 500,000 shares; par value 1c; all shares issued. **Property:** 7 patented claims, Lava Creek dist.; Carey. **Remarks:** Idle for many years.

TREASURE VAULT MINING CO.

Office: Box 334, Hailey. **Officers:** R. McClure, Pres.; N. Loewen, Sec., both of Hailey. **Inc.:** July 27, 1929. **Capital:** 150,000 shares; par value $1; 80,000 shares issued. **Property:** Treasure Vault group; 8 unpatented claims, Mineral Hill dist.; Hailey. **Ore:** Gold. **Men employed:** Average, 2. **Remarks:** Active throughout the year.

UNITED MINES CO. OF IDAHO, INC.

Office: 275 Yamhill St., Portland, Ore. **Officers:** Geo. E. Taylor, Pres.; A. Pearson, Sec.; T. Ure Williams, Mgr., all of Portland, Ore. **Inc.:** Feb. 2, 1929. **Capital:** 500,000 shares; par value $1; 122,220 shares issued. **Property:** 5 unpatented claims, held under lease and option from United Mines Co.; Garfield Gulch, Little Wood River dist.; Muldoon.

Development: Approximately 1400 ft. of underground workings, consisting principally of 3 tunnels: No. 1, 850 ft. long; No. 2, 280 ft. long; No. 3, 90 ft. long. **Plant:** 7x6 I-R compressor, driven by 34-in. Pelton water wheel, and complete equipment. **Ore:** Lead-silver. **Men employed:** Average, 6. **Remarks:** Active throughout the summer months in constructing buildings and roads.

UTAH-BELLEVUE MINES CO.

Office: Box 1975, Salt Lake City, Utah. **Officers:** E. W. Totten, Pres.; O. R. Totten, Sec.; A. W. Kelley, Mgr.; all of Salt Lake City. **Inc.:** Filed in Idaho Dec. 19, 1914. **Capital:** 500,000 shares; par value 10c; 160,000 shares issued. **Property:** Kelley group; 6 unpatented claims, Mineral Hill dist.; Bellevue. **Development:** Principally by 1 tunnel 300 ft. long and a vertical shaft 125 ft. deep. **Plant:** Small gas-driven compressor and air-driven hoist. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Active throughout the summer months in driving a new tunnel.

WAVA MINING & MILLING CO.

Office: Hailey. **Officers:** C. J. Gordon, Pres., Detroit, Mich.; J. G. Hedrick, Sec., Hailey. **Inc.:** Sept. 18, 1919. **Capital:** 15,000 shares preferred; 35,000 shares common; par value $1; 4282 preferred, 24,282 common issued. **Remarks:** Owns no property.

WOOD RIVER MINING CO.

Office: Thorsen Bldg., Blackfoot. **Officers:** F. T. Halvorson, Pres., Carl Swager, Mgr., both of Blackfoot. **Inc.:** July 30, 1923. **Capital:** 1,000,000 shares; par value 10c; 387,000 shares issued. **Property:** Puritan group; 8 unpatented claims, Warm Springs Creek dist.; Ketchum. **Development:** By 3 tunnels; No. 1, 170 ft. long; No. 2, 290 ft. long; No. 3, 934 ft. long. **Ore:** Silver and lead. **Men employed:** Average, 4. **Remarks:** A small amount of development work was performed during the summer months.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Ajax	Mineral Hill	Leo Barrett	Hailey
Alabama	Little Wood R.	Joe Longono	Muldoon
Alexander	Warm Spgs. Cr.	Oscar Griffith	Ketchum
Alturas & Scotia	Sawtooth	Frank Becker	Hailey
Amazon	Mineral Hill	Chas. R. Walters	Hailey
Anabelle	Mineral Hill	Sibbie Tandy	Hailey
Anna	Mineral Hill	Mrs. P. McMonigle	Hailey
Anna et al.	Warm Spgs. Cr.	Frank Langell	Hailey
Bald Eagle	Mineral Hill	Cecelia J. Thomas	Hailey
Baltimore Ext.	Warm Spgs. Cr.	H. W. Kelley	Hailey
Barbara	Mineral Hill	John Utsch	Hailey
Battling Jack Gr.	Sawtooth	John F. Garrett	Obsidian
Bavarian	Mineral Hill	H. J. Vorberg	Hailey
B B B	Mineral Hill	Beck Bros.	Bellevue
Beaver Gr.	Sawtooth	Thos. Mizer, Sr.	Hailey
Belmont Gr.	Mineral Hill	Jos. Siker	Hailey
Big Mint	Mineral Hill	H. R. Plughoff Est.	Hailey
Black Barb	Mineral Hill	E. B. Williams	Boise
Black Diamond	Warm Spgs. Cr.	Magnolia Gutches	Hailey
Black Horse	Mineral Hill	Mrs. Cecilia Roark	Bellevue
Blue Bell	Warm Spgs. Cr.	Augustine Johnson	Hailey
Bob Tail	Mineral Hill	Rodney Brown	Hailey
Bonanza	Mineral Hill	J. L. Van Over	Bellevue
Boulder Gr.	Warm Spgs. Cr.	M. W. Wood	Boise
Boyle Mt. Gr.	Warm Spgs. Cr.	C. Fred Howe	Ketchum
Broadway	Warm Spgs. Cr.	Fred Vancil	Hailey
Bromide et al.	Mineral Hill	Ella Bresnahan	Hailey
Bull Whacker	Mineral Hill	G. G. Brown	Hailey
California	Mineral Hill	W. J. Sowden Est.	Hailey
Carboniferous	Mineral Hill	Mrs. Frank Campbell	Bellevue
Chloride Point	Warm Spgs. Cr.	Frank H. Morris	Hailey

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Climax	Mineral Hill	Raymond Guyer	Spokane, Wash.
Climax Frac.	Mineral Hill	Geo. Choate	Hailey
Comet Gr.	Mineral Hill	Davidson Groc.	Boise
Compensation Gr.	Mineral Hill	L. A. Ditmer Est.	Hailey
Con Virginia	Mineral Hill	Mark Aukema	Hailey
Cotton Wood et al.	Mineral Hill	Rodney Brown	Hailey
Croesus Gr.	Mineral Hill	Fred C. Robertson	405 Hyde Bldg., Spokane, Wash.
Crown Point	Warm Spgs. Cr.	E. A. Obenchain	Ketchum
Daisy	Warm Spgs. Cr.	Clarence Bonning	Ketchum
Daisy	Mineral Hill	W. J. Oliver	Hailey
Delsie et al.	Unknown	W. H. Uhrig	Gannett
Dewey Gr.	Mineral Hill	Fred W. Smith Est.	Hailey
Double J Gr.	Mineral Hill	J. J. Connor	Heyburn
Easter	Resurrection	Guy U. Lee	Butte, Mont.
Edris	Mineral Hill	R. B. French et al.	Hailey
Elkhorn	Warm Spgs. Cr.	Mrs. Horace Lewis	Ketchum
Ellen Stilts	Mineral Hill	W. A. Holland Est.	Hailey
Elmo	Mineral Hill	Beck Bros.	Rupert
E. Pluribus Unum	Mineral Hill	Geo. W. Hunter	Bellevue
Evelyn	Warm Spgs. Cr.	Hampton & Griffith	Ketchum
Extension	Warm Spgs. Cr.	L. P. McPheters	Ketchum
Flag Staff Gr.	Mineral Hill	E. F. Spooner	Hailey
Free Coinage	Warm Spgs. Cr.	Jas. Bonning Est.	Ketchum
Galena Gr.	Sawtooth	A. C. Martin	Minneapolis, Minn.
Garfield Gulch	Little Wood R.	Chas. Norris Est.	Hailey
Gate City	Mineral Hill	A. M. Glahn, Agt.	Bellevue
Gem	Mineral Hill	Elmer Brown	Hailey
Gilt Edge	Mineral Hill	Sarah Campbell Est.	Bellevue
Glendale Queen	Mineral Hill	W. D. Schraff Est.	Bellevue
Gold King	Mineral Hill	Mark J. King	Hailey
Grayhound et al.	Warm Spgs. Cr.	H. D. Jones et al.	Hailey
Hardscrabble	Mineral Hill	A. M. Singer	Gooding
Hard Times	Mineral Hill	Jos. Werry, Jr.	Bellevue
High Ore et al.	Little Wood R.	A. M. Glahn	Bellevue
Hill Side	Mineral Hill	Sam Carpenter et al.	Bellevue
Hispanolia	Sawtooth	Chas. H. Furey	Pocatello
Homestake Gr.	Warm Spgs. Cr.	J. A. Nelson	Hailey
Hyndman Gr.	Warm Spgs. Cr.	Andrew Johnson	Hailey
Imperial Gr.	Warm Spgs. Cr.	Leo Snider	Hailey
Independence Ext.	Warm Spgs. Cr.	John M. Price	Nampa
Jack Dempsey	Mineral Hill	Joseph Teuscher	Bellevue
Jennie R.	Mineral Hill	W. P. Fowler	Hailey
Jupiter	Little Wood R.	E. M. James Est.	Compton, Calif.
Keystone	Warm Spgs. Cr.	James McKelvey	Mackay
Kitty	Mineral Hill	Thos. Povey	Hailey
La Grande	Mineral Hill	Floyd W. Wilson	Hailey
Lake Creek	Warm Spgs. Cr.	Robt. Koeninger	Ketchum
Lark	Mineral Hill	Mrs. A. I. Harris	Bellevue
Last Chance	Warm Spgs. Cr.	P. M. Gray	Ketchum
Lawrence Gr.	Sawtooth	Geo. H. Spongberg et al.	Pocatello
Lead King Gr.	Mineral Hill	Joe Siker	Hailey
Leinster et al.	Mineral Hill	W. H. MacFarlane et al.	Hailey
Les Despencer	Mineral Hill	Edw. Flannery Est.	Hailey
Lone Jack	Sawtooth	John T. Garrett	Obsidian
Lone Pine Gr.	Little Wood R.	J. H. Glahn	Bellevue
Lone Pine Gr.	Warm Spgs. Cr.	Gus Anderson et al.	Ketchum
Lone Pine Tree	Mineral Hill	Peter Lorillard Kent	Union Club, N.Y.C.
Lucky Boy	Sawtooth	H. D. Jones	Hailey

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Lucky Boy Gr.	Warm Spgs. Cr.	C. Fred Howe	Ketchum
Lucky Coin	Warm Spgs. Cr.	Robert Harrison	Bellevue
Lucky Shot Gr.	Mineral Hill	J. J. McFadden, Agt.	Hailey
Lucky Strike	Mineral Hill	W. D. McKercher	Bellevue
Majestic Gr.	Mineral Hill	Guy U. Lee	Butte, Mont.
Majestic et al.	Warm Spgs. Cr.	Leo P. Snider	Hailey
Mammoth	Mineral Hill	Ralph Edmiston	Gannett
Mary M.	Warm Spgs. Cr.	Gus Anderson	Ketchum
Maybe	Mineral Hill	Chas. Sonneleitner	Hailey
Maybelle	Mineral Hill	Wayne Beck	Bellevue
Minnesota	Warm Spgs. Cr.	Duquette Bros.	Idaho City
Minnie B.	Warm Spgs. Cr.	W. A. Sullivan	Hailey
Mohawk	Warm Springs	Clint Allen	Hailey
Moonlight	Mineral Hill	Sam Carpenter	Bellevue
Moonshine	Warm Spgs. Cr.	Thos. J. Mizer et al.	Hailey
Morning Glory	Warm Spgs. Cr.	Eugene Sorenson	Ketchum
Mountain Lion	Little Wood R.	C. L. Swan	Pocatello
Myrtie	Sawtooth	M. O. Duffy Est.	Hailey
Narrow Gauge	Mineral Hill	Eph Daft	Hailey
Nay Aug	Mineral Hill	J. J. Baker	Hailey
New Hope	Warm Spgs. Cr.	W. H. Warfield	Ketchum
New Year	Mineral Hill	Alex Fischer	Bellevue
New York	Mineral Hill	J. W. Redding	Bellevue
O'Neil-Clark Gr.	Mineral Hill	Geo. Westlake	Hailey
Ontario	Mineral Hill	D. F. Dowd	Idaho Falls
Oriental	Mineral Hill	S. M. Friedman Est.	Hailey
Oriole	Mineral Hill	Wm. McWade	Bellevue
Overland	Mineral Hill	R. B. French	Hailey
Owl	Mineral Hill	Arthur Cloughton	Bellevue
Parnell	Mineral Hill	P. McMonigle Est.	Hailey
Paymaster	Lava Creek	J. G. Hedrick	Ketchum
Portland Gr.	Mineral Hill	D. F. Dowd	Idaho Falls
Porto Rico Gr.	Little Wood R.	Wm. O'Connor Est.	Hailey
Prize Taker	Mineral Hill	F. E. Grenfell, Agt.	Bellevue
Queen Bee et al.	Mineral Hill	Antone Peterlin	Bellevue
Queen Bess	Mineral Hill	J. J. Baker	Hailey
Queen Extension	Mineral Hill	Neil Campbell Est.	Bellevue
Radio	Sawtooth	Frank Croner	Fairfield
Rattler	Mineral Hill	Alex McKibben	Hailey
Red Bird	Mineral Hill	W. R. Edmiston	Gannett
Red Cloud	Mineral Hill	M. J. Smith, Agt.	Hailey
Red Leaf	Mineral Hill	Jos. Siker	Hailey
Red Rocket	Little Wood R.	J. W. Pitman	Meridian
Richmond Gr.	Mineral Hill	Jos. Werry	Bellevue
Riverside Gr.	Mineral Hill	J. J. Rowley	Hailey
Roadside	Mineral Hill	J. S. Shotwell	Gooding
Rockcricker	Mineral Hill	Arthur D. Davis	Hailey
Ruth	Mineral Hill	Victor Haupt	Hailey
Saint Idloes	Mineral Hill	Chas. Sheehan	Boise
Saint Joseph et al.	Mineral Hill	Geo. W. Westlake	Hailey
Silver Bell Gr.	Warm Spgs. Cr.	Arvid Johnson et al.	Hailey
Silver Cord Gr.	Warm Spgs. Cr.	Chas. Swanson Est.	Ketchum
Silver Crown	Warm Spgs. Cr.	S. L. Schwartz	Hailey
Silver King	Mineral Hill	A. D. Hunter	Bellevue
Silver King	Sawtooth	F. E. Riddle	Tulsa, Okla.
Silver Knob	Mineral Hill	W. A. Sullivan	Hailey
Silver Pick	Mineral Hill	T. A. Blakeley	San Bernardino, Calif.
Sitting Bull et al.	Mineral Hill	Joe Day	Hailey
Slab Sides	Warm Spgs. Cr.	H. M. Young	Hailey
Smuggler	Little Wood R.	H. L. Watkins	Muldoon

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Standard	Warm Spgs. Cr.	Richard Hays Est.	Hailey
Star	Mineral Hill	Leo J. Falk	Boise
Stockholder	Mineral Hill	Ira L. Kilgore	Hailey
Sunrise Gr.	Warm Spgs. Cr.	R. J. Blakeley	Hailey
Surprise	Little Wood R.	F. J. Long	Wendell
Susie S.	Mineral Hill	John Hailey Est.	Boise
Telluride	Mineral Hill	Harry Gordon	Bellevue
Tenbrook et al.	Warm Spgs. Cr.	Alonzo Price, Agt.	Ketchum
Tiger	Mineral Hill	Guy U. Lee	Butte, Mont.
Tiger Frac.	Mineral Hill	Fred Reinhard	Hailey
Tom Cat	Mineral Hill	Chas. Sonneleitner	Hailey
Triumph et al.	Warm Spgs. Cr.	M. W. Wood	Boise
Tungad	Mineral Hill	Peter L. Kent	Hailey
Vindicator Gr.	Warm Spgs. Cr.	Archie Bell	Hailey
Wheelbarrow	Warm Spgs. Cr.	A. T. Farnlund	Ketchum
White Elephant	Warm Springs	Jas. Obenchain	Ketchum
White Wing	Unorganized	C. C. Starcher	Carey
Wichita	Warm Spgs. Cr.	J. W. Gailey	Boise
Wolftone	Mineral Hill	W. T. Riley	Boise
Wonder Gr.	Mineral Hill	Robert Justus	Hailey
Wood River Pride	Mineral Hill	Alice Holland	St. Louis, Mo.
Woodrow Gr.	Mineral Hill	V. T. Clark	Bellevue
Woodrow Wilson	Warm Spgs. Cr.	M. A. Morris	Ketchum

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

Graphitic anthracite in the Parker mine, Wood River, Idaho, by W. P. Jenny: Columbia School of Mines Quart., vol. 10, pp. 313-315, **1889.***

A geological reconnaissance across Idaho, by G. H. Eldridge: U. S. Geol. Survey Sixteenth Ann. Rept., pt. 2, pp. 217-276, **1895.***

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey Twentieth Ann. Rept., pt. 3, pp. 65-256, **1900.***

Some Idaho mining districts, by Arthur Lakes: Mines and Minerals, vol. 22, pp. 203-206, December, **1901.***

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

The Bellevue mining district, by Arthur Lakes: Mines and Minerals, vol. 23, pp. 271-272, January, **1903.***

Some of the veins and ore deposits of the Wood River district, by Arthur Lakes: Min. World, vol. 23, pp. 696-697, Dec. 23, **1905.***

A new and large deposit of barite in Idaho, by Arthur Lakes: Min. Reporter, vol. 54, p. 162, Aug. 16, **1906.***

The Bullwhacker mine, near Hailey, Idaho, by Arthur Lakes: Min. Reporter, vol. 53, pp. 168-169, Feb. 15, **1906.***

Faulting in the Red Cloud mine, by H. W. Turner: Min. and Sci. Press, vol. 95, pp. 747-748, Dec. 14, **1907.***

Wood River mining district of Idaho, by Arthur Lakes: Min. World, vol. 34, pp. 307-308, Feb. 4, **1911.***

Barytes and strontium: Idaho, by J. M. Hill: U. S. Geol. Survey Mineral Resources, **1915**, pt. 2, p. 172.‡

Ore deposits in the Sawtooth quadrangle, Blaine and Custer counties, Idaho, by J. B. Umpleby: U. S. Geol. Survey Bull. 580, pp. 221-249, **1915.**‡

Geology and ore deposits of the Mackay region, Idaho, by J. B. Umpleby: U. S. Geol. Survey Prof. Paper 97, **1917.**‡

Geology and ore deposits of Alturas quadrangle, by S. M. Ballard: Idaho Bureau of Mines and Geology Bull. 5, **1922.***

Arsenical ore deposits in the United States, by R. H. Sayre: Eng. and Min. Jour.-Press, vol. 118, pp. 929-932, Dec. 13, **1924.**§

The Vienna district, Blaine County, Idaho, by C. P. Ross: Idaho Bureau of Mines and Geology Pamphlet 21, **1927.****
A lead ore consisting of native lead, leadhillite and lethargite, by E. V. Shannon: Econ. Geology, vol. 22, pp. 826-829, December, **1927.****
A geologic error regarding the Wood River district, by Stewart Campbell: Eng. and Min. Jour., vol. 126, pp. 287-289, Aug. 25, **1928.**§
Craters of the Moon National Monument, Idaho, by H. T. Stearns: Idaho Bureau of Mines and Geology Bull. 13, **1928.***
Geology and ore deposits of the Lava Creek district, Idaho, by A. L. Anderson: Idaho Bureau of Mines and Geology Pamphlet 32, **1929.****
Geology and ore deposits of the Wood River region, Idaho, by D. F. Hewett: U. S. Geol. Survey Bull. 814, **1930.****

BOISE COUNTY

Boise is one of the principal mining counties in the southwestern part of the State. It is bounded by Ada, Gem, Valley, Custer, Blaine and Elmore counties. Included within its area are a part of the drainage basin of the Payette River, practically all of the drainage basin of the South Fork of the Payette River, and all of the drainage basins of Grimes Creek and Moore Creek. The last two comprise the area generally known as the Boise Basin. The county has a total area of 1,840 square miles, and was accredited with a population of 1,847 in the 1930 census, or one person to the square mile. The principal industries are mining, stock raising, timber and lumbering.

Different sections of the county are served by Federal and State highways, which are supplemented by well-maintained county roads. These roads extend into all the various mining districts and are open to automobile travel during the larger part of the year. The western part of the county is traversed by the Nampa-McCall branch of the Oregon Short Line Railroad; the central part, or Boise Basin, is served by the Intermountain Railroad, which extends from Barber, near Boise, to Stierman and Idaho City. Idaho City, the county seat, and one of the oldest towns in the State, dates its existence from 1863, the time of the original gold rush to the Basin. It once boasted of a population as high as seven to ten thousand.

The history of Boise County dates back to the formation of the State in 1860, when placer gold was first discovered near Pierce City (Clearwater County). The overflow from this stampede resulted in the discoveries of Elk City, Florence, and Boise Basin, in quick succession; and by 1863 Boise Basin was one of the most thriving communities in the western part of the United States. In July, 1864, more than nine thousand 20-acre placer claims had been recorded in the three principal mining districts.

During the first few years after the discovery of gold all mining was confined to the placers which were susceptible to hand methods. After these became less profitable, numerous ditches 5 to 30 miles in length were constructed, and hydraulic mining of the higher bench gravels was started. These operations were conducted for many years, and a few have survived to the present day.

Shortly after the placer rush had subsided, attention was given to quartz mining; many discoveries soon were made, mills were constructed, and deep mining started. The principal discovery was the Gold Hill mine at Quartzburg. In 1863 the vein was exposed by placer mining, and by 1867 a mill had been built and was in operation. Except at brief periods when it was being repaired, the mill was operated continuously for 12 years. The mine has been in almost continuous operation since the day of discovery and is credited with a production of six to eight million dollars. This record gives it the distinction of being the oldest and largest producing gold mine in the State. The vein has been opened to a vertical depth of 850 feet only; at this point the ore is still persistent both in grade and extent, and there appears to be no reason why it should not continue deeper.

In addition to the Gold Hill, many other gold mines have a large production record. This production, combined with that derived from placer mining, both hydraulic and dredging, held Boise County in first place in gold production in the State until the year 1923, and it regained this position in 1928. The opening of the ore bodies on the 850-ft. level of the Gold Hill mine, the production from the Belshazzar mine, and the new ore disclosures made during 1930 were instrumental in attracting much attention to the county, as well as proving the permanence of the ore bodies.

As the early-day miner was interested only in the precious metals, gold and silver, which could be recovered by the methods then in use, he disregarded all veins containing the sulphide, or base, ores. Before these ores became valuable prospecting had practically ceased, so the result is that this county offers one of the best fields in the State to prospectors or small development companies in search of lead-zinc-silver ores. Deposits of these metals are widely distributed throughout the county; and a few have been partially developed. When properly exploited and intelligently managed, they will become an important factor in the future prosperity of Boise County and the City of Boise, and will give the State an additional lead-zinc producing district. Although Boise County has always been known as a gold producing county, there are numerous widely distributed deposits of lead, silver, zinc, copper, bismuth, and antimony; in addition to these, monazite is found in the placer deposits in sufficient quantity to be of commercial importance.

1930 Activities

The Gold Hill mine of the Talache Mines, Inc., continued to be the largest gold-producing mine in the State. The shaft was extended to the 850-foot level. The new ore opened on that level was of particular importance, not only because it increased the ore reserves, but because it proved the continuation of the ore with an increase in values as greater depth is obtained. The mine and mill were operated without interruption, new camp buildings were erected, and the mine and mill plants were improved.

The Idawa Gold Mining Co. continued to be an important producer of gold. Production, milling, and development work were conducted without interruption. The mine camp and mill were enlarged and improved, and a large amount of mine development work was performed. The Mineral Mining Co. completed the construction and alteration of its mill, did a large amount of mine development, and operated the mill intermittently. This company also started an extensive mine development campaign in December.

The Missouri Mining Co., Ltd. conducted an active mine development campaign and operated its mill intermittently until August, when operations were suspended on account of legal difficulties. The American Mines Development Co. at its calcite mine, near Banks, completed construction on ore bins and grinding plants and installed an aerial tramway connecting the mine and plant, which is located on the railroad siding. A small tonnage, which was sold to the agricultural and poultry industries, was produced and marketed. The Idaho Gold Dredging Corporation, which is operating a dredge on Grimes Creek, was active throughout the summer months and increased its production over that of the previous year. The Crooked River Mining Co., at the Kempner Ranch placer, changed its dredge from the flume type and conducted operations for a short period during the early part of the year, after which the dredge was again reconstructed and was operated at intervals during the summer months by a lessee. Late in the year the Continental Mining Co. and Inc. commenced the construction of a small gas-driven table concentrating mill at its property near Shafer Butte. Active mine development and construction work were conducted throughout the greater part of the year by the following: Boulder mine; Come Back Mining Co.; Franklin Placer Co.; Fryett Mining Co., Inc.; Penn Mining Co.; V. A. Thorn at the Banner mine; Jarvis Bros. at the Hayfork mine, and J. B. Eldridge at the Mayflower mine. The success of the Gold Hill mine has greatly stimulated prospecting, new locations and investigations by those seeking gold mines.

AMERICAN MINES DEVELOPMENT CO.

Office: 209 N. 10th St., Boise. **Officers:** L. S. Honstead, Pres.-Mgr., Boise. **Inc.:** Mar. 15, 1928. **Capital:** 1,000,000 shares; par value $1; 357,399 shares issued.

GRANDVIEW GROUP

Property: 6 unpatented claims held under lease and option, Pioneerville dist.; Grimes Pass. **Development:** By 2 tunnels: No. 1, 210 ft. long; No. 2, 450 ft. long. **Plant:** Gas-driven G-D compressor; complete mining equipment and camp. **Ore:** Gold. **Remarks:** Idle.

BANKS MINE

Property: 144 acres patented farm land, unorganized dist.; Banks. **Plant:** 150-ton ore bin and 70-ton gas-driven dry-crushing equipment; aerial tramway connecting mine and grinding plant, which is located on the railroad siding. **Ore:** Agricultural limestone. **Men employed:** Average, 10. **Remarks:** Bins and grinding plant were enlarged, and a tramway constructed during the year. A small tonnage was produced and marketed. The product is sold to the agricultural and poultry industries.

BOISE BASIN MINES, INC.

Office: Care of McNeal & Co., 208 S. La Salle St., Chicago, Ill. **Officers:** J. P. Slauson, Chicago, Ill. **Inc.:** Dec. 20, 1930. **Capital:** 1,000,000 shares; par value $1; shares issued, unknown. **Remarks:** Failed to file the reports required by law.

BOISE PLACER CO.

Office: Idaho City. **Officers:** Fleming Howell, Pres., Buckhannon, W. Va.; Paul C. Moore, Sec., Franklin, Pa.; E. F. Blain, Mgr., Boise. **Inc.:** Dec. 11, 1922. **Capital:** 750,000 shares; par value $1; 203,530 shares issued. **Property:** Plowman and Woodburn groups; 300 acres, Idaho City dist.; Idaho City. **Plant:** An oil-driven 10x7 compressor, and complete mining equipment. This equipment is used for the blasting of the big boulders in the hydraulic pits; complete hydraulic mining equipment. **Ore:** Placer gold. **Men employed:** Average, 8. **Remarks:** This company is the largest producer of placer gold in Boise County, and conducts the largest hydraulic mining operation in the State; however, as there was no water during the spring of 1930, the company could not operate. During the summer months ditches, pipe lines, and equipment were repaired.

BOULDER MINE

Officers: D. W. Bowen, Trustee, 3631 E. Marginal Way, Seattle, Wash. **Inc.:** An association. **Property:** Boulder mine; 2 patented, 9 unpatented claims, held under lease and option from Moriarity estate. **Ore:** Gold. **Remarks:** A small amount of development and prospecting work during the summer months.

CLEAR CREEK DEVELOPMENT CO.

Office: Pioneerville. **Officers:** Louis Painich, Pioneerville. **Inc.:** Nov. 26, 1930. **Capital:** 1,000,000 shares; par value 25c; shares issued, unknown. **Remarks:** Failed to file the reports required by law.

COME-BACK MINING CO.

Office: Pioneerville. **Officers:** Jos. Gonnick, Pres.; Louis Painich, Mgr., both of Pioneerville. **Inc.:** Apr. 30, 1928. **Capital:** 1,000,000 shares; par value 25c; all shares issued. **Property:** Come-Back group; 16 unpatented claims, Pioneerville dist.; Pioneerville. **Development:** Principally by 4 tunnels; No. 3, 385 ft. long; No. 4, 1431 ft. long. **Ore:** Lead-silver-gold. **Men employed:** Average, 6. **Remarks:** In addition to maintaining active development work throughout the year, a substantial tonnage of crude ore was produced and marketed. The results of the development work were encouraging.

CONSOLIDATED MINES SYNDICATE

Office: 623 First Nat. Bank Bldg., Boise. **Officers:** Frank E. Johnesse, Pres.; Paul L. Oakes, Sec., both of Boise. **Inc.:** May 6, 1924. **Capital:** 10,000 shares; no par value. On August 15, 1924, the capitalization was

changed to 10,000,000 shares, $2.50 par value; and on May 2, 1925, the capitalization was decreased to 10,000,000 shares, par value $1; 2,810,865 shares issued. **Property:** Washington and Subrosa groups; 4 patented, 14 upatented claims, Gambrinus dist.; Idaho City. **Development:** Total development, approximately 12,000 ft., the principal part of which is the main crosscut tunnel 3700 ft. long, which intersects the bottom of a vertical shaft 414 ft. deep, near the bottom of which is a winze 150 ft. deep. **Plant:** MINE: Diesel oil engine driving a 480-cu.-ft. compressor, and complete mining equipment. Saw mill, modern boarding and bunk houses, change house, and complete camp. **Ore:** Silver-gold. **Remarks:** Idle since 1926.

CONTINENTAL MINING CO. AND INC.

Office: 1310 Main St., Boise. **Officers:** Fred A. Williams, Pres.-Mgr.; M. M. Stevens, Sec., both of Boise. **Inc.:** Oct. 15, 1929. **Capital:** 500,000 shares; par value $1; 282,600 shares issued. **Property:** Long Chance group; 12 unpatented claims, unorganized dist.; Shafer Creek; Horseshoe Bend. **Development:** By 2 tunnels. **Ore:** Gold. **Remarks:** Work was started in October on a small gas-driven table concentrating plant.

CROOKED RIVER MINING CO.

Office: Dayton, Ohio. **Officers:** Melvin T. Rowland, Pres.-Mgr., Nampa; N. S. Talbott, Sec., Dayton, Ohio. **Inc.:** Oct. 5, 1927. **Capital:** 2000 shares common, no par value; 2000 shares preferred, par value $100; no shares issued. **Property:** Kempner Ranch placer; 1 patented, 60 unpatented claims, 1960 acres, Banner dist.; Idaho City. **Plant:** Screen-type dredge, 3-cu. ft. buckets; this dredge is driven by two 60-h. p. Diesel engines. **Ore:** Placer gold. **Men employed:** Average, 9. **Remarks:** During the early part of 1930 the dredge was changed from flume-type to screen and table type. It was operated by the company until June, after which it was further reconstructed and operated at intervals by Mr. Rowland during the remainder of the summer months.

CURRY DITCH GOLD PLACER MINES ASSOCIATION

Office: Oakland, Calif. **Officers:** P. E. Hall, Jr., Pres.-Mgr., 3118 Rawson Ave., Oakland, Calif. **Inc.:** An association. **Capital:** 500,000 shares; par value unfixed; 48,693 shares issued. **Property:** 3 patented, 2 unpatented placer claims, Pioneerville dist.; Pioneerville. **Remarks:** Idle.

DIAMOND L MINING CO., LTD., OF IDAHO

Office: Boise. **Officers:** Lottie Morehead, Pres.-Sec.-Mgr., Idanha Hotel, Boise. **Inc.:** July 1, 1918. **Capital:** 500,000 shares; par value 1 mill; 282,220 shares issued. **Property:** Buckskin group; 13 unpatented claims, Pioneerville dist.; Pioneerville. **Development:** Approximately 2,900 ft. of underground workings, the most important of which are 2 tunnels, 1 900 ft. long, and the other 500 ft. long. **Ore:** Lead-silver-gold. **Men employed:** Average, 2. **Remarks:** Development work was maintained throughout the year.

EDNA MINES CO.

Office: Idaho City. **Officers:** D. J. Atkins, Pres., 124 Front St., New York City. **Inc.:** Aug. 9, 1926. **Capital:** 200 shares; par value $100; all shares issued. **Property:** Edna group; 1 patented, 8 unpatented claims, Banner dist.; Idaho City. **Development:** Principally by 1 tunnel 1100 ft. long, and a vertical shaft 350 ft. deep with 3 intermediate levels. **Ore:** Silver-gold. **Men employed:** Average, 3. **Remarks:** Small amount of work throughout the year.

FRANKLIN PLACER CO.

Office: Idaho City. **Officers:** W. W. Miller, Pres.; Paul C. Moore, Sec., both of Franklin, Pa.; E. F. Blain, Mgr., Idaho City. **Inc.:** July 21, 1928. **Capital:** 300,000 shares; par value $1; 115,000 shares issued. **Property:** Leary and Brogan group, Placerville dist.; Placerville. **Ore:** Placer gold. **Remarks:** During the summer months the Leary and Brogan ditch was cleaned out and enlarged and many of the old flumes were replaced, preparatory to conducting operations.

FRYETT MINING CO., INC.
Office: Idaho City. **Officers:** G. A. McGuire, Sec.; J. W. Fryett, Mgr., both of Idaho City. **Inc.:** Nov. 21, 1930. **Capital:** 500 shares; par value $100; 300 shares issued. **Property:** Mascot group; 5 unpatented claims, held under lease and option from Cora Banwell, Gambrinus dist.; Idaho City. **Development:** By 1 tunnel 330 ft. long. **Ore:** Gold. **Men employed:** Average, 5. **Remarks:** Active during part of the year.

GOLDEN SEAL MINING & MILLING CO.
Office: 427 Idaho Bldg., Boise. **Officers:** C. V. Dowlin, Pres.; Wm. B. Davidson, Sec., both of Boise. **Inc.:** Oct. 28, 1924. **Capital:** 1,000,000 shares; par value 25c; 937,000 shares issued. **Property:** 19 unpatented claims, unorganized dist.; Dry Creek; Boise. **Development:** By 3 tunnels: No. 1, 140 ft. long; No. 2, 100 ft. long; No. 3, 600 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

GOLD HILL & IOWA MINES CO.
Office: 605 Eastman Bldg., Boise. **Officers:** Jess Hawley, Pres., Boise; Wendell H. Marden, Sec., Boston, Mass.; James H. Hawley, Jr., Mgr., Boise. **Inc.:** June 10, 1908. **Capital:** 200,000 shares; par value $10; 194,622 shares issued. **Property:** Gold Hill & Iowa groups; 19 patented, 26 unpatented claims, Quartzburg dist.; Quartzburg. **Remarks:** Under option to Talache Mines, Inc., which see.

GRIMES PASS MINING & MILLING CO.
Officers: Peter N. Alexander, 160 N. La Salle St., Chicago, Ill. **Inc.:** May 24, 1930. **Capital:** 1,000,000 shares; par value $1. **Remarks:** Failed to file the reports required by law.

HALLEY PLACER CO.
Office: Idaho City. **Officers:** E. F. Blain, Mgr., 1601 N. 12th St., Boise. **Inc.:** An association. **Property:** Halley Placers; 7 unpatented placer claims, Placerville dist.; Placerville. **Remarks:** Annual labor only.

IDAHO DEVELOPMENT CO.
Office: 605 Eastman Bldg., Boise. **Officers:** Wendell H. Marden, Pres., Boston; James H. Hawley, Jr., Mgr., Boise. **Inc.:** Dec. 16, 1920. **Capital:** 1000 shares; par value $10; all shares issued. **Property:** 4 unpatented claims, Placerville dist.; Placerville.

IDAHO GOLD DREDGING CORPORATION
Office: 615 First Nat'l Bank Bldg., Boise. **Officers:** S. K. Atkinson, Pres.-Mgr.; W. A. Buis, Sec., both of Boise. **Inc.:** Apr. 9, 1928. **Capital:** 4,000,000 shares; par value 25c; 905,521 shares issued. **Property:** 142 patented, 8 unpatented claims, Placerville dist.; Centerville. **Plant:** Electrically driven Risdon dredge, 2½-cu.-ft. buckets close connected, wood hull. **Ore:** Placer gold. **Men employed:** Average, 12. **Remarks:** A reorganization of the Gold Dredging & Power Corporation. Active operations throughout the summer months. A substantial production was obtained.

IDAWA GOLD MINING CO.
Office: 521 Idaho Bldg., Boise. **Officers:** W. N. Harris, Pres., Turtle Lake, N. D.; E. A. Nordquist, Sec.-Mgr., Boise. **Inc.:** Jan. 3, 1919. **Capital:** 2,000,000 shares; par value 25c; 798,926 shares issued. **Property:** Belshazzar group, 22 unpatented claims, Quartzburg dist.; Quartzburg. **Development:** By 5 tunnels, the principal of which are No. 4, 1200 ft. long, and No. 5, 3000 ft. long. Total development, approximately 11,000 ft. **Plant:** MINE: Electrically driven compressor; complete mining equipment and camp. MILL: 25-ton amalgamation and table-concentration. **Ore:** Gold. **Men employed:** Average, 28. **Remarks:** Active production throughout the year. This is one of the principal gold-producing mines in the State, all operations being conducted through No. 4 tunnel, which is connected with the mill by an aerial tramway. During the year the mill and mine camp were enlarged and improved, and a large amount of mine development work was performed.

INDEPENDENT MINES SYNDICATE
Office: Owyhee Hotel, Boise. **Officers:** Leo J. Falk, Boise. **Remarks:** Failed to file the reports required by law.

IRON DYKE MINES CO.
Office: 326-7 Noble Bldg., Boise. **Officers:** S. T. Schreiber, Pres.-Mgr., Boise. **Inc.:** Apr. 16, 1923. **Capital:** 150,000 shares; par value $1; 100 shares issued. **Property:** Iron Dyke group; 2 patented, 19 unpatented claims, unorganized dist.; Holcomb. **Development:** By 3 tunnels; No. 1, 50 ft. long; No. 2, 25 ft. long; No. 3, 25 ft. long. **Ore:** Gold, silver-lead. **Remarks:** Annual labor only.

McKINLEY MINE
Owners: Thos. Hardin and Wm. Matevia, both of Boise. **Inc.:** Not incorporated. **Property:** McKinley group; 2 patented, 6 unpatented claims, Idaho City dist.; Idaho City. **Development:** 1 tunnel 2085 ft. long. **Plant:** Small gas-driven compressor. **Ore:** Gold, silver, copper. **Men employed:** Average, 2.

MEADOW CREEK GOLD PLACER CO.
Office: Boise. **Officers:** S. O. Kerley, Pres.; Fred E. Lukens, Sec., both of Boise. **Inc.:** Sept. 13, 1924. **Capital:** 500,000 shares; par value 10c; all shares issued. **Ore:** Placer gold. **Remarks:** Annual labor only.

MINERAL MINING CO.
Office: Placerville. **Officers:** A. C. Gallupe, Pres.-Mgr., Placerville; C. C. Fairchild, Sec., Idaho City. **Inc.:** Feb. 6, 1920. **Capital:** 2,500,000 shares; par value 6c; Aug. 23, 1930, increased to 5,000,000 shares; 2,500,000 shares issued. **Property:** Enterprise and Smuggler groups; 12 patented, 21 unpatented claims; Enterprise group held under lease and bond from Exta Lightfoot, Pioneerville; Pioneerville dist.; Pioneerville. **Development:** Approximately 8000 ft. of underground workings. **Plant:** MINE: 25-h. p. steam-driven hoist on Smuggler group; complete mining equipment and camp. MILL: 100-ton concentrator. POWER: Small hydro-electric power plant. **Ore:** Lead-silver-zinc. **Men employed:** Average, 24. **Remarks:** Mill construction was completed and the mill operated for a few days. The mine was developed at intermittent intervals during the summer months.

MISSOURI MINING CO., LTD.
Office: 2035 Osgood St. N. S., Pittsburgh, Pa. **Officers:** T. H. Reiners, Pres.; H. H. Rogge, Sec., both of Pittsburgh, Pa.; Harry A. Foreman, Mgr., Pioneerville. **Inc.:** Feb. 4, 1914. **Capital:** 50,000 shares; par value $1; on June 1, 1925, capitalization was increased to 1,000,000 shares, par value $1; 720,645 shares issued. **Property:** 12 unpatented claims, Pioneerville dist.; Pioneerville. **Development:** Approximately 1400 ft. of underground workings, the principal of which is an inclined shaft 210 ft. long. **Plant:** MINE: 210-cu. ft. C-P gas-driven compressor; complete mining equipment and camp. MILL: 50-ton flotation concentrator. **Ore:** Lead-silver-zinc. **Men employed:** Average, 14. **Remarks:** Active until Aug. 16, after which all operations were suspended on account of legal difficulties. A small tonnage of concentrates was produced and marketed.

NATIONAL MINING & DEVELOPMENT CO.
Office: Placerville. **Officers:** A. C. Gallupe, Pres.; E. A. Gallupe, Sec., both of Placerville. **Inc.:** Sept. 23, 1911. **Capital:** 1,000,000 shares; par value $1; 236,540 shares issued. **Property:** Mountain Chief group; 11 unpatented claims, Quartzburg dist.; Placerville. **Ore:** Gold. **Remarks:** Failed to file the reports required by law.

PAYETTE COAL MINING CO.
Office: 527 Idaho Bldg., Boise. **Officers:** A. H. Meyers, Pres., McCall; J. W. Clarke, Sec., Horseshoe Bend. **Inc.:** Oct. 6, 1928. **Capital:** 500 shares; no par value; all shares issued. **Property:** 320 acres of patented land; Horse Shoe Bend. **Mineral sought:** Coal.

PENN MINING CO.

Office: Placerville. **Officers:** W. W. Miller, Pres.; Paul C. Moore, Sec., both of Franklin, Pa.; E. F. Blain, Mgr., Boise. **Inc.:** Jan. 8, 1929. **Capital:** 200,000 shares preferred, 750,000 shares common; par value $1; 72,500 shares preferred, all shares common issued. **Property:** Coin Bond group; 34 unpatented claims, Placerville dist.; Placerville. **Development:** Principally by 2 tunnels, one of which is 1555 ft. long, the other 1280 ft. long. **Ore:** Gold, lead-silver. **Men employed:** Average, 2. **Remarks:** Active throughout the year in rehabilitating the tunnels and in surface prospecting.

TALACHE MINES, INC.

Office: Quartzburg. **Officers:** A. H. Burroughs, Jr., Pres.-Mgr.; B. K. Burroughs, Sec., both of Quartzburg. **Inc.:** Apr. 21, 1917, as Armstead Mines, Inc.; name changed June 8, 1922. **Capital:** 1,000,000 shares common, 600,000 shares preferred; par value $1; 983,000 shares common, 579,233 shares preferred issued. **Property:** Lease and option on property owned by Gold Hill & Iowa Mines Co., which see. **Development:** Principally by a 700-ft., 3-compartment, vertical shaft and a 150-ft. vertical winze on the 700-ft. level. Total development, over 40,000 ft. in Gold Hill mine. **Plant:** MINE: 250-h. p. double-drum hoist and 600-cu. ft. I. R. compressor, both electrically driven. MILL: 150-ton, including crusher, rolls, Hardinge ball mill, amalgamating plates, concentrating tables, and regrinding. **Ore:** Gold. **Men employed:** Average, 72. **Remarks:** In March, 1927, property was acquired and operations started, the principal part of which was the unwatering of underground workings. This was completed early in 1928, after which a 100-ft. vertical winze was sunk from the 600-ft. level on the ore body. This winze and the drifts at the bottom of it proved the extension of the ore to this level, at which point it was more extensive and of higher grade than on the 600-ft. level. During 1929 the main shaft was connected with the 600-ft. level by raising from the 700-ft. level, and the 850-ft. level was opened by extending the vertical winze from the 700-ft. level. The mill building was enlarged, the mill entirely rehabilitated with practically all new equipment, the mine buildings were completely reconstructed, and a new hoist installed. This work was completed early in 1929; since then production has been maintained without interruption. In August, 1929, the entire town of Quartzburg, including the boarding and bunk house, all of which was owned by the company, was destroyed by fire. The construction of new buildings was completed in 1930. This property was first located in 1865, since which time it has been in practically continuous operation, with a production record of approximately $8,000,000, half of which was produced during the last 15 years prior to 1926, at which time the mine was closed and permitted to fill with water. Its reopening, rehabilitation, and new ore disclosures indicate a future productive period, the length of which can not yet be determined. See page 50 for further information.

WASHOE MINING CO.

Office: 605 Eastman Bldg., Boise. **Officers:** Jess Hawley, Pres.; C. W. Mack, Sec,. both of Boise; Vivian Thorn, Mgr., Banner. **Inc.:** Dec. 16, 1911. **Capital:** 100,000 shares; par value $1; all shares issued. **Property:** Banner group; 7 patented, 15 unpatented claims, Banner dist.; Idaho City. **Development:** 2 tunnels, the principal one of which is 4000 ft. long. **Plant:** 30-ton mill, tables and flotation. **Ore:** Silver. **Remarks:** Idle.

WIONE MINING CO.

Office: 421 Idaho Bldg., Boise. **Officers:** C. B. Wilde, Pres., Portland, Ore.; Ira E. Barber, Sec., Boise. **Inc.:** Apr. 21, 1928. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** 6 unpatented placer claims, held under lease and option from C. R. Poncia and Norman H. Young, Pioneerville dist.; Pioneerville. **Remarks:** Idle.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Adonis	Unknown	Herman Schultz	Boise
Alameda	Unknown	Wm. S. Bella	Boise
Alpine Gr.	Alpine	J. T. C. Harrington	Nampa
American Girl Gr.	Gambrinus	Louise D. Stewart	Boise
Annie Lee	West View	Chas. Smith	Horseshoe Bend
Argonne	Granite Creek	Fred C. Brown	Boise
Argonne Forest	Gambrinus	H. Mauernhamer	Boise
Ashcroft Pl.	Placerville	H. Ashcroft	Placerville
Banner	Banner	V. A. Thorn	Idaho City
Atlast	Unknown	J. F. Thompson	Horseshoe Bend
Beaver Cr. Pl.	Banner	J. D. Demming	Idaho City
Belmont Gr.	Quartzburg	Murty Driscol & F. Daly	Quartzburg
Big Ben	Centerville	Frank H. Cooper	Boise
Blackbird	Pioneerville	Exta Lightfoot	Pioneerville
Blackbird et al.	Cold Springs	Anderson & Newbrand	Idaho City
Black Crook Gr.	West View	Bincord Realty Co.	Denver, Colo.
Black Hawk	Centerville	Homer Granger	Centerville
Black Jack	Summit Flat	Jerry Dowling	Idaho City
Bluebird et al.	Banner	G. R. Moland	Boise
Blue Jet Pl.	Centerville	Archie R. Koppes	Centerville
Blue Grouse	Unknown	Thos. C. Mayne	Idaho City
Blue Ribbon Gr.	Dry Buck	Lee Davis	Horseshoe Bend
Blue Rock	Quartzburg	Allen B. Eaton	Boise
Blue Stone	Idaho City	Henry Holsmeier	Idaho City
Boston Girl	Placerville	Wm. W. Thorn	Centerville
Boulder Gr.	Elk Horn	Patrick Moriarty	Idaho City
Boundary	Dry Buck	Lee Davis	Horseshoe Bend
Buffalo Gr.	Elk Creek	Frank Cooper	Boise
Bull Durham Pl.	Boise River	I. I. Youngblood	Boise
Bummer Hill	Quartzburg	H. C. Granger	Centerville
Calumet	West View	G. Faull	Horseshoe Bend
Cash Register	Placerville	Frank H. Cooper	Centerville
Catherine	Placerville	Pat H. Quirk	Boise
Claude Marsh	Summit Flat	Edward Brisbin	616 S. 17th St., Boise
Clay Gulch	Placerville	J. T. Blair	Centerville
Clear Cr. Pl.	Pioneerville	J. A. Adams	Pioneerville
Cleopatra et al.	Pioneerville	Skidmore & McDonald	Pioneerville
Climax	Banner	Chris Smith	Idaho City
Cold Springs	Idaho City	O. F. Sibley	Boise
Coon Dog	Pioneerville	C. C. Fairchild	Idaho City
Deer Horn Pl.	Gambrinus	Joe Elliott	Idaho City
Dew Drop	Centerville	Warren J. Cooper	Centerville
Dog Tooth	Quartzburg	Allen B. Eaton	Boise
Edna	Banner	F. A. Willson	Idaho City
Eldorado Gr. Pl.	Banner	Harold Rowland	Nampa
Elkhorn	Gambrinus	Lippincott & Warner	Idaho City
Elkmeat	Idaho City	Chas. E. Clark	Soldiers' Home Boise
Etta B. Gr.	Placerville	Robt. S. Bunch	Centerville
Eureka Gr.	Gambrinus	Mrs. P. J. Hall	Boise
Fall Creek	Placerville	Albert Elster	Placerville
Florence	Quartzburg	C. C. Fairchild et al.	Idaho City
Franklin	Idaho City	H. A. Schlosser	Idaho City
Gambrinus	Gambrinus	V. A. Thorn	Idaho City
Gem of the Mts.	Placerville	C. C. Fairchild	Idaho City
Golconda	Idaho City	B. F. Kloppenburg	Idaho City
Gold Coin	Gambrinus	M. L. Phelps	Idaho City

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Gold Dollar	Summit Flat	James H. Hawley	Boise
Gold Lodge Pl.	Idaho City	Henry Holsmeier	Idaho City
Golden Seal	Unorganized	Jas. Curtin	905 Idaho St., Boise
Goodenough Pl.	Idaho City	Jas. King	Idaho City
Gornick Pl.	Pioneerville	Joe Gornick	Pioneerville
Grant Gr.	Idaho City	John Jamieson	Idaho City
Great Western	Gambrinus	J. W. Duquette	Idaho City
Grooms Pl.	Payette River	James L. Tyson	Banks
Hamilton Pl.	Pioneerville	Ezra E. Howard	Pioneerville
Hard Times	Unorganized	C. M. Hunt	Twin Springs
Hay Fork	Moore Creek	H. R. Jarvis	Idaho City
Hidden Treasure	Pioneerville	J. D. Branson	Pioneerville
Highland Valley	Barber	P. J. Smith	Barber
Hilltop	Quartzburg	Louis Klein	Grand Hotel, Boise
Hilltop	West View	L. C. Hall	Horseshoe Bend
Homestake	Summit Flat	Joe Labbee	Idaho City
Honey Bee	Shaw Mountain	Elmer Gettys	Boise
Hooch Can Gr.	Pioneerville	J. O. McDonald	Pioneerville
Hoodoo Pl.	Pioneerville	C. R. Poncia	Pioneerville
Idaho Pl.	Idaho City	James Farrell	Idaho City
Illinois	Idaho City	Abraham Duquette	Idaho City
I. X. L. Pl.	Pioneerville	P. J. Shaughnessy	Pioneerville
J. S. Gr.	Pioneerville	A. E. Anderson	Garden Valley
K. C. Fraction	Pioneerville	Damien Ader	Pioneerville
Kentuck	Placerville	John Golden	Centerville
King Lead Gr.	Pioneerville	A. E. Yoder	Pioneerville
Kirkham	Banner	Ira R. Cromwell	Idaho City
K. M. Gr.	Cold Springs	M. Marchmonte	Idaho City
Last Chance et al.	Quartzburg	Frank Daly	Quartzburg
Leary & Brogan	Placerville	Michael Leary	Placerville
Long Chance	Shaffer Creek	R. C. Hall	Horseshoe Bend
Lucky Boy Gr.	Gambrinus	Lucky Boy Mining Assoc.	Idaho City
McKinley	Idaho City	Thos. Hardin	Boise
Mamie Pl.	Summit Flat	S. Frank Smith et al.	Idaho City
Mammoth	Pioneerville	Nelson Bottcher	Idaho City
Mary Lou	Elk Horn	Garrecht & Campbell	Idaho City
May Flour	Gambrinus	John McCarthy	Idaho City
Mayflower	Quartzburg	Stephen Mackin	Placerville
Nally Placers	Pioneerville	Stephen Nally	Pioneerville
New Era Gr.	Pioneerville	Jos. Gornick	Pioneerville
New York	Gambrinus	D. R. Morgan	Idaho City
Nighthawk	Pioneerville	John Miller	Pioneerville
Olympia	Summit Flat	Mary Berry	701 E. Jefferson St., Boise
Ophir & Ophir 2	Pioneerville	Peter Reichert	Pioneerville
Orofino	Elkhorn	Janette Jordan	San Francisco, Cal.
Oxbow Gr. Pl.	Grimes Pass	Mary L. Bunch et al.	Boise
Paul's Gulch et al.	Pioneerville	Andrew Hansen	Pioneerville
Pioneer	Quartzburg	P. J. Evans	Quartzburg
Poor Man	Willow Creek	J. J. Shanahan	Idaho City
Pot Latch	Pioneerville	Sherman O. Barker	Grimes Pass
Printer	Idaho City	Amelia Garrecht	Idaho City
Queen of the Mts.	Rock Creek	James E. Fox	Boise
Riley & Farren	Placerville	J. J. Brogan	Placerville
Riverside	South View	Robt. W. Clarke	Horseshoe Bend
Rough & Ready	Unorganized	P. S. Smith	Barber
St. Clair Gr.	Pioneerville	Damien Ader	Placerville
Saunders	Placerville	W. F. Hiatt	Placerville
Seventeen Pl.	Placerville	Lee Bunch	Boise

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Seventy-four	Pioneerville	C. R. Poncia	Pioneerville
Shamrock	Summit Flat	Mrs. E. W. Barry	Boise
Silver Bell	Placerville	W. F. Hiatt	Placerville
Sniveley Pl.	Centerville	H. C. Granger	Centerville
Sourdough	Summit Flat	J. D. Smith	Idaho City
Standby Pl.	Placerville	August Michelson	Beaverton, Ore.
Stanton Gulch	Placerville	John Stanton	Placerville
Sunny Day Gr.	Alpine	E. R. Swindler	Banks
Sunrise Pl.	Placerville	Nellie T. Wood et al.	Boise
Swede Gulch et al.	Pioneerville	Carlo Poncia	Centerville
Terry Gr.	Willow Creek	J. T. Blair	Centerville
Trader	Idaho City	J. H. Eggars	Idaho City
Tuxedo Pl.	Boise River	C. J. Schooler et al.	Boise
Venture	Unorganized	John Benzer	Hailey
Windfall	Pioneerville	Robt. D. Aikens	Boise

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

The Boise basin in Idaho, by J. B. Hastings: Sci. Am. Suppl., vol. 38, Aug. 18, 1894; Eng. and Min. Jour., vol. 58, p. 56, July 21, **1894.**§

A geological reconnaissance across Idaho, by G. H. Eldridge: U. S. Geol. Survey Sixteenth Ann. Rept., pt. 2, pp. 211-276, **1895.***

Monazite in Idaho, by Waldemar Lindgren: Am. Jour. Sci., 4th ser., vol. 64, p. 63, July, 1897; Eng. and Min. Jour., vol. 64, pp. 63-67, July 17, **1897.**§

Description of the Boise quadrangle, by Waldemar Lindgren, U. S. Geol. Survey Geol. Atlas, Folio No. 45, **1898.***

Mining districts of the Idaho Basin and the Boise Ridge, Idaho, by Waldemar Lindgren: U. S. Geol. Survey Eighteenth Ann. Rept., pt. 3, pp. 625-736, **1898.***

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey Twentieth Ann. Rept., pt. 3, pp. 65-256, **1900.***

The Boise Basin mining district, by Robert Nye: Min. and Sci. Press, vol. 81, p. 400, Oct. 6, **1900.***

Preliminary report on artesian basins in southwestern Idaho and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Water-Supply Paper 78, pp. 29-30, **1903.**‡

Boise Basin, Idaho, by W. A. Scott: Min. and Sci. Press, vol. 101, pp. 76-78, July 16, **1910.***

Coal at Horseshoe Bend and Jerusalem Valley, Boise County, Idaho, by C. F. Bowen: U. S. Geol. Survey Bull. 531, pp. 245-251, **1911.***

Boise Basin, Idaho, by W. L. Brown: Pacific Miner, vol. 18, February, **1911.***

Gold dredging in the Boise Basin of Idaho, by J. H. Miles: Min. and Sci. Press, vol. 105, pp. 330-332, Sept. 14, **1912.***

Winter dredging in Idaho, by J. H. Miles: Min. and Sci. Press, vol. 108, p. 455, Mar. 14, **1914.***

Lode mining in the Quartzburg and Grimes Pass porphyry belt, Boise Basin, Idaho, by E. L. Jones, Jr.: U. S. Geol. Survey Bull. 640, pp. 83-111, **1916.**‡

The Boise Basin district in Idaho, by S. M. Ballard: Eng. and Min. Jour., vol. 109, pp. 881-882, Apr. 10, **1920.**§

Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 60, art. 3, pp. 1-33, **1921.**‡

Ore deposits of Gold Hill mine, at Quartzburg, Idaho, by A. J. McDermid: Eng. and Min. Jour.-Press, vol. 114, pp. 537-540, Sept. 23, **1922.**§

Geology and gold resources of Boise Basin, Boise County, Idaho, by S. M. Ballard: Idaho Bureau of Mines and Geology Bull. 9, **1924.****

A disseminated lead prospect in northern Boise County, Idaho, by C. P. Ross: Idaho Bureau of Mines and Geology Pamphlet 20, **1926.***

Idawa Gold Mining Co.: Belshazzar mill, by S. M. Ballard: Idaho Twenty-ninth Ann. Rept. Min. Industry, **1927.***

BONNER COUNTY

Bonner constitutes an important part of the Idaho Panhandle and is one of the extreme northern counties. It is bounded on the east by the State of Montana, and on the west by the State of Washington; Boundary County adjoins it on the north, and Kootenai and Shoshone counties on the south. It contains an area of 1748 square miles and was accredited with a population of 13,152 in the 1930 census. The principal industries are lumbering mining, stock raising, and agriculture. Although the county is recognized as one of the important mining counties of the State, the proportion of the population that is interested in mining is very small.

The county is exceptionally fortunate with respect to transportation facilities, as it is served by two State highways, lake boats, and three transcontinental railroads. Boats that can reach any point on Lake Pend d'Oreille give connection with the railroads at Sandpoint and Bayview.

Practically all the mining has been devoted to the areas adjacent to Pend d'Oreille and Priest lakes and the Clark Fork River. However, mining locations are numerous and widely scattered throughout the county. The mining history of the county dates back to the discovery of silver ores near Lakeview in 1888, which resulted in a stampede from the Coeur d'Alene district. Since that time there has always been a small amount of mining, but the county did not attract attention in recent years until the Talache mine was a proved and successful operation. The Talache has been a big factor in drawing attention to the mineral possibilities and prospecting opportunities of the county, resulting in a large increase in mining activities during the past few years.

The principal minerals are those of silver, lead, copper, zinc, and gold. These metals, and the limestone quarried near Lakeview, constitute the chief mineral resources. Silver is the most widely distributed metal and constitutes the most important part of the ores.

1930 Activities

The Whitedelf Mining & Development Co. maintained production and development without interruption, and during the latter part of the year commenced work on extending its shaft an additional 200 feet. The development work done by the Hope Mining Co. increased its ore reserves. Late in the year this company commenced work on installing electric power and an 85-ton flotation concentrator. The Idaho Lakeview Mines Co. at the Hewer Mine, in the Bayview district, extended the inclined shaft an additional 200 feet and performed a large amount of lateral development work during the early part of the year. The results were very encouraging. Explorers Inc., a new company, which holds the Boyer group under lease and option, did a small amount of diamond drilling, the results of which were sufficiently favorable to warrant further development; and work was started in December in sinking a shaft.

Press reports were to the effect that active operations were conducted and that a compressor and mining equipment were installed at the Silver Star group, near Cocolalla, by T. W. Roberts, who is holding the property under a lease and option and financing the operations through the sale of "options." Prospecting and small development companies which were active during a large part of the year were: Amazon Mines Inc.; Gene Lee Mines Inc.; Minerva Silver, Inc.; North Idaho Mining & Development Co.; Syringa Mining Co.

The success with which the Whitedelf and Hope mines, in the Clark Fork section, are meeting greatly stimulated prospecting and development work. Activities were further stimulated by the publication of Bulletin 12 of the Idaho Bureau of Mines and Geology, "Geology and Ore Deposits of the Clark Fork District, Idaho," by A. L. Anderson, which was issued in March.

AMAZON MINES, INC. (Proposed)
Office: 546 Skinner Bldg., Seattle, Wash. **Officers:** A. A. Fagnant, Pres., Seattle, Wash.; R. M. Taylor, Supt., Sandpoint. **Inc.:** Unknown. **Capital:** 1,000,000 shares; par value $1; shares issued, unknown. **Property:** Falls Creek group; 11 unpatented claims, held under lease and option; Pend d'Oreille dist.; Hope. **Development:** 3 tunnels, 1 about 1900 ft. long. **Plant:** MINE: Water-driven compressor, complete mining equipment and camp. MILL: 50-ton gravity concentrator. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** A small amount of work during the summer months.

AMERICAN EAGLE MINING CO.
Office: Sandpoint. **Officers:** R. A. Martin, Pres., Martinsdale, Mont.; H. L. Thomason, Sec.; James A. Evans, Mgr., both of Sandpoint. **Inc.:** May 28, 1919. **Capital:** 10,000 shares; par value $100; 608 shares issued. **Property:** American Eagle group; 7 unpatented claims, Pend d'Oreille dist., Sandpoint. **Development:** 1 tunnel 1790 ft. long, which is principally a drift on the vein. **Ore:** Lead-silver. **Remarks:** Failed to file the reports required by law.

ARGUS MINING CO.
Office: Cleveland, Ohio. **Officers:** Daniel Myers, Pres., Athletic Club, Cleveland, Ohio. **Inc.:** April 20, 1917. **Capital:** 800,000 shares, par value $1; 500,000 shares issued. **Property:** Argus group; 5 unpatented claims, Lakeview dist.; Lakeview. **Development:** 5 tunnels, totaling approximately 1200 ft. in length. **Ore:** Lead-silver. **Remarks:** Annual labor only.

AUXER GOLD MINES CO.
Office: Sandpoint. **Officers:** James Campbell, Pres.-Mgr., Hope; H. H. Braden, Sec., Sandpoint. **Inc.:** June 24, 1920. **Capital:** 500,000 shares; par value $1; 395,285 shares issued. **Property:** Boston group; 9 unpatented claims, Pend d'Oreille dist.; Hope. **Development:** Approximately 2000 ft. of underground workings, the principal one of which is a tunnel 1000 ft. long. **Plant:** Gas-driven compressor and complete mining equipment. **Ore:** Gold. **Men employed:** Average, 4. **Remarks:** Principal tunnel was extended a short distance during two months of the year.

BIG FIVE MINING CO.
Officers: Earl Eagan, Sec., Hope. **Inc.:** June 10, 1910. **Capital:** 1,500,000 shares; par value $1; 1,079,852 shares issued. **Development:** 1 tunnel 640 ft. long. **Plant:** Steam-driven Sullivan compressor; complete mining equipment. **Ore:** Lead-silver. **Remarks:** Annual labor only.

BINARCH CREEK MINING CO.
Office: 501 City Hall Bldg., Spokane, Wash. **Officers:** Arthur L. Hooper, Pres.-Mgr.; W. W. Greenwood, Sec., both of Spokane, Wash. **Inc.:** July 30, 1928. **Capital:** 500,000 shares; par value $1. **Remarks:** Failed to file the reports required by law.

BLACKTAIL CONSOLIDATED MINING CO.
Office: Talache. **Officers:** T. P. Harsh, Pres., Spokane, Wash.; H. E. Peters, Sec., Snohomish, Wash. **Inc.:** March 25, 1929. **Capital:** 3,000,000 shares; par value 50c; 2,199,281 shares issued. **Property:** 5 unpatented claims, held under lease and option, Pend d'Oreille dist.; Talache. **Ore:** Silver. **Remarks:** Legal difficulties were encountered in September.

BONNER MINING CO.
Office: Oakesdale, Wash. **Officers:** H. E. Kendall, Pres.; J. A. Henderson, Sec., both of Oakesdale, Wash. **Inc.:** Unknown. **Capital:** 1,500,000 shares; par value 5c; 1,244,150 shares issued. **Property:** 1 patented, 10 unpatented claims, Pend d'Oreille dist.; Hope. **Development:** 3 tunnels; approximate total development 1750 ft. **Plant:** Water-driven I-R compressor. **Ore:** Gold, silver, lead, copper, zinc. **Men employed:** Average, 3. **Remarks:** A stock assessment of 4 mills was levied on March 15.

BOYER MINES, INC.
Office: Sandpoint. **Officers:** J. B. Gardner, Pres.; Bruce Turnbull, Sec., both of Sandpoint. **Inc.:** Sept. 3, 1929. **Capital:** 2,500,000 shares; par value $1; 500,000 shares issued. **Property:** Boyer group; 2 patented claims, Pend d'Oreille dist.; Sandpoint. **Development:** By 1 tunnel 155 ft. long and a vertical shaft 43 ft. deep. **Remarks:** Property under option to Explorers, Inc.

CAMPBIRD MINING & DEVELOPMENT CO.
Office: Sandpoint. **Officers:** J. W. Lloyd, Pres., Spokane, Wash.; L. W. Peterson, Sec.; E. W. Driesbach, Mgr., both of Sandpoint. **Inc.:** Aug. 21, 1911. **Capital:** 1,500,000 shares; par value $1; 1,350,000 shares issued. **Property:** Campbird group; 5 patented, 4 unpatented claims, Priest Lake dist.; Priest River. **Development:** By 3 tunnels: No. 1, 750 ft. long; No. 2, 150 ft. long; No. 3, 700 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

CARPIE MINING CO.
Office: Cabinet, Idaho. **Officers:** J. W. Powell, Pres.-Mgr.; Cabinet. **Inc.:** Unknown. **Capital:** 750,000 shares; par value $1; 400,000 shares issued. **Property:** Carpie group; 4 unpatented claims, Pend d'Oreille dist.; Cabinet. **Development:** By a vertical shaft 300 ft. deep, in which are 5 levels. **Plant:** Steam-driven hoist and small Sullivan compressor. **Ore:** Copper. **Remarks:** Annual labor only.

CLARINDA COPPER MINING CO.
Office: 50 Broad St., New York City. **Officers:** John P. Delaney, Pres., New York City; Compton I. White, Sec.-Mgr., Clark Fork. **Inc.:** July 30, 1920. **Capital:** 1,500,000 shares; par value $1; 340,628 shares issued. **Property:** 9 unpatented claims, Pend d'Oreille dist.; Clark Fork. **Development:** By 5 tunnels, the longest of which is No. 5, totaling 2100 ft. in length. **Plant:** Electrically-driven compressor and complete mining equipment. **Ore:** Copper. **Remarks:** Annual labor only. Involved in litigation.

EMPIRE TUNGSTEN MINING CO.
Office: 2808 Sheridan Road, Evanston, Ill. **Officers:** Frank G. Forbes, Pres.; George S. Smith, Sec., both of Evanston, Ill. **Inc.:** March 20, 1914. **Capital:** 1,500,000 shares; par value 1c; all shares issued. **Property:** Rainbow; 1 patented claim, Lakeview dist.; Lakeview. **Remarks:** Idle.

EXPLORERS, INC.
Office: Spokane, Wash. **Officers:** John L. Dirks, Pres.; James P. Dillard, Sec., both of Spokane, Wash. **Inc.:** March 4, 1930. **Capital:** 250,000 shares; par value $1; 75,000 shares issued. **Property:** Boyer group; 2 patented claims, held under lease and option, Pend d'Oreille dist.; Sandpoint. **Remarks:** A small amount of diamond drilling during the early part of the year. In December arrangements had been completed for sinking a shaft.

FALLS CREEK MINING CO.
Office: Sandpoint. **Officers:** W. C. Ames, Pres.-Mgr.; Wm. Hollembaek, Sec., both of Sandpoint. **Inc.:** Nov. 11, 1911. **Capital:** 500,000 shares; par value $1. **Remarks:** Failed to file the reports required by law. Amazon Mines, Inc., reported that it is holding this property under lease and option.

GENE LEE MINES, INC.
Office: Clark Fork. **Officers:** C. L. Heffron, Pres.-Mgr.; Gene Heffron, Sec., both of Clark Fork. **Inc.:** May 21, 1930. **Capital:** 500,000 shares; par value $1; 478,721 shares issued. **Property:** Gene Lee group; 9 unpatented claims, Pend d'Oreille dist.; Clark Fork. **Development:** 2 short tunnels. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Active during the latter part of the year.

GOAT MOUNTAIN MINING CO.

Office: Clark Fork. **Officers:** E. C. Aschenbrenner, Pres., Bonners Ferry; Bessie Teague, Sec.; I. J. Brant, Mgr., both of Clark Fork. **Inc.:** Apr. 26, 1926. **Capital:** 1,500,000 shares; par value 10c; 427,200 shares issued. **Property:** Goat Mountain group, 11 unpatented claims, Pend d'Oreille dist.; Clark Fork. **Development:** By 3 tunnels; No. 1, 200 ft. long; No. 2, 814 ft. long. **Men employed:** Average, 2. **Ore:** Lead-silver. **Remarks:** Annual labor only.

HALLIDAY MINING CO.

Office: Halliday Hotel, Spokane, Wash. **Officers:** C. A. Kerr, Pres., Priest River; W. W. Greenwood, Sec., Spokane, Wash. **Inc.:** Mar. 28, 1929. **Capital:** 250,000 shares; par value $1. **Remarks:** Officers report: "The company never completed its incorporation and has no property."

HOPE MINING CO.

Office: Clark Fork. **Officers:** O. A. Holte, Pres., Coeur d'Alene; C. C. Jensen, Sec.; S. W. Purdy, Mgr., both of Clark Fork. **Inc.:** Nov. 19, 1927. **Capital:** 1,500,000 shares; par value 10c; 1,485,000 shares issued. **Property:** Elsie K. group; 10 unpatented claims, Pend d'Oreille dist.; Clark Fork. **Development:** By 5 tunnels, the principal one of which is No. 4, 1500 ft. long. Total development about 5000 ft. **Plant:** Gas-driven 6x6 compressor, complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 15. **Remarks:** A small tonnage of ore was produced and marketed by the company and lessee operations. During the closing months of the year construction and installation of an 85-ton flotation concentrator plant and the installation of electric power were started. Mine development work exceeding 1100 ft. was done during the year.

IDAHO LAKEVIEW MINES CO.

Office: Lakeview. **Officers:** D. M. Drumheller, Jr., Pres., Spokane, Wash.; E. G. Randall, Sec., Trail, B. C.; F. A. Fortier, Mgr., Kimberley, B. C. **Inc.:** June 28, 1928. **Capital:** 2,100,000 shares; par value 20c. Increased Nov. 23, 1929, to 2,310,000 shares; increased Apr. 3, 1930, to 2,510,000 shares; par value 20c; 2,310,000 shares issued. **Property:** Hewer group; 4 patented, 11 unpatented claims, Lakeview dist.; Lakeview. **Development:** Total development approximately 13,500 ft.; principally by 1 tunnel 2,200 ft. long, in which is an inclined shaft 1600 ft. long. **Plant:** MINE: 500-cu.-ft. I-R compressor; electrically-driven hoist; 75-kw. generator, driven by 100 h. p. semi-Deisel engine; complete mining equipment. MILL: 100-ton concentrator, fine grinding and flotation; driven by semi-Deisel oil engine. **Ore:** Silver-lead-zinc. **Men employed:** Average, 28. **Remarks:** During the early part of the year the inclined shaft was extended 200 ft. and a large amount of lateral development work was performed. All work, excepting pump attendance, was discontinued on June 1.

INTERNATIONAL PORTLAND CEMENT CO., LTD.

Office: 1124 Old National Bank Bldg., Spokane, Wash. **Officers:** R. K. Neill, Pres.; H. M. Heleniak, Sec., both of Spokane, Wash. **Inc.:** Filed in Idaho, September 9, 1911. **Capital:** 30,000 shares; par value $100; 27,233 shares issued. **Property:** 5 patented claims, 524 acres, near Bayview. **Development:** Open quarry. **Plant:** 300-cu.-ft. compressor, driven by Deisel engine; steam-shovel; gas-driven shovel; crushing plant; complete mining equipment; machine shops, buildings, and mine camp. **Ore:** Limestone. **Men employed:** Watchman only.

KANE MINING CO.

Officers: Harry J. Kane, Seattle, Wash. **Inc.:** Unknown. **Property:** Supposed to be located near Priest Lake. **Remarks:** Name gleaned from the press.

KANIKSU MINING CO.
Office: 302 Paulsen Bldg., Spokane, Wash. **Officers:** J. W. Lloyd, Pres.; Dr. Earl H. Current, Sec., both of Spokane, Wash. **Inc.:** Sept. 16, 1922. **Capital:** 100,000 shares; par value $1. Increased July 13, 1929, to 3,000,000 shares; par value 10c; 1,255,952 shares issued. **Property:** Wood Rat group; 11 unpatented claims, Priest Lake dist.; Priest River. **Development:** By a shaft 400 ft. long, which is part vertical and part inclined. **Plant:** Steam-driven hoist and complete hand-mining equipment. **Ore:** lead-silver. **Men employed:** Average, 3. **Remarks:** Annual labor only consisting principally of road construction.

KEEP COOL MINING CO.
Office: P. O. Box 2181, Spokane, Wash. **Officers:** T. S. Griffith, Pres.; R. Insinger, Sec., both of Spokane, Wash. **Inc.:** June 16, 1922. **Capital:** 1,500,000 shares; par value 5c; 1,018,167 shares issued. **Property:** Keep Cool group; 4 patented claims, Lakeview dist.; Lakeview. **Ore:** Lead-silver. **Remarks:** Property under option to Idaho Lakeview Mines Co.

KING SOLOMON'S MINES CO.
Office: Sandpoint. **Officers:** J. W. Newton, Pres.; Wm. Hollembaek, Sec.-Mgr., both of Sandpoint. **Inc.:** Oct. 1, 1921. **Capital:** 500,000 shares; par value $1. **Remarks:** Failed to file the reports required by law.

LAWRENCE CONSOLIDATED MINING CO.
Office: Clark Fork. **Officers:** Joseph Reed, Pres.-Mgr., Clark Fork; Ada I. Bungay, Sec., Spokane, Wash. **Inc.:** Mar. 3, 1923. **Capital:** 1,500,000 shares; par value 1c; 980,000 shares issued. **Property:** Lawrence group; 12 unpatented claims, Pend d'Oreille dist.; Clark Fork. **Development:** 5 tunnels, the principal one being 1240 ft. long; approximate total development 4800 ft. **Plant:** MINE: Water-driven compressor; complete mining equipment. MILL: 50-ton concentrator, crushers, 2 sets rolls, 2 jigs, 3 tables. **Men employed:** Average, 2. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of 1 mill was levied on Jan. 2, 1930.

LONE BUTTE MINING CO.
Office: Sandpoint. **Officers:** Jacob N. Reynolds, Pres., Sandpoint. **Inc.:** An association. **Remarks:** Name furnished by Industrial Accident Board. Failed to file the reports required by law

LUCKY STRIKE MINING CO.
Office: Clark Fork. **Officers:** W. W. Webb, Pres.-Mgr., Clark Fork. **Inc.:** Oct. 25, 1913. **Capital:** 1,000,000 shares; par value $1; 584,281 shares issued. **Property:** Lucky Strike group; 8 unpatented claims, Pend d'Oreille dist.; Clark Fork. **Development:** 2 tunnels: No. 1, 55 ft. long; No. 2, 250 ft. long. **Plant:** Gardner-Ricks gas-driven compressor. **Men employed:** Average, 2. **Remarks:** Annual labor only.

MILWAUKEE MINES, INC.
Office: 501 City Hall Bldg., Spokane, Wash. **Officers:** J. W. Lloyd, Pres.; Arthur L. Hooper, Sec.-Mgr., both of Spokane, Wash. **Inc.:** Apr. 6, 1928. **Capital:** 2,000,000 shares; par value 25c; increased Jan. 22, 1930, to 5,000,000 preferred, par value 10c, and 5,000 common, no par value; changed July 30, 1930, to 250,000 preferred, par value $10, and 500,000 common, no par value. **Remarks:** Failed to file the reports required by law.

MINERVA SILVER, INC.
Office: Granite Creek. **Officers:** E. R. Lindsey, Pres.-Mgr.; E. Mahoney, Sec., both of Spokane, Wash. **Inc.:** July 25, 1929. **Capital:** 1,500,000 shares; par value 25c; 705,000 shares issued. **Property:** Minerva group; 4 patented claims, Pend d'Oreille dist.; Sandpoint. Held under lease and option. **Development:** By 6 tunnels; approximate total development 2900 ft. **Ore:** Lead-silver. **Remarks:** A small amount of work during the latter part of the year.

NAOMI MINING CO.
Office: Glengary. **Officers:** Leslie Kipper, Pres., Tacoma, Wash.; Fred Kipper, Sec., R. 1, Eatonville, Wash.; Albert Buehimann, Mgr., Glengary. **Inc.:** Mar. 16, 1929. **Capital:** 32,000 shares; par value $1; 17,200 shares issued. **Property:** 6 unpatented claims, Pend d'Oreille dist.; Glengary. **Development:** By 1 tunnel 800 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Small amount of work.

NEVADA MINES
Office: 501 City Hall Bldg., Spokane, Wash. **Officers:** J. V. Campbell, Pres.; Arthur L. Hooper, Sec.-Mgr., both of Spokane, Wash. **Inc.:** Aug. 20, 1928. **Capital:** 250,000 shares; par value 10c. **Remarks:** Failed to file the reports required by law.

NORTH IDAHO MINING & DEVELOPMENT CO.
Office: Sandpoint. **Officers:** W. J. Doust, Pres., Spokane, Wash.; H. D. Alcorn, Sec.; A. F. Alcorn, Mgr., both of Yakima, Wash. **Inc.:** Mar. 14, 1929. **Capital:** 2,000,000 shares common, par value 20c; 100,000 shares preferred, par value $1; 1,217,534 shares common, 43,370 shares preferred issued. **Property:** I. J. Brant group; 11 unpatented claims, Clark Fork dist.; Clark Fork. **Development:** Principally by 1 tunnel 825 ft. long. **Plant:** Gas-driven C-P compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** A small amount of work during the latter part of the year, and a small amount of work by lessees.

OPPORTUNITY MINING CO.
Office: E. 607-25th Ave, Spokane, Wash. **Officers:** N. A. Kranz, Pres.; M. R. Odegaard, Sec., both of Spokane, Wash.; A. A. Heskestad, Mgr., Sagle. **Inc.:** Aug. 18, 1919. **Capital:** 1,500,000 shares; par value 5c; 507,295 shares issued. **Property:** 11 unpatented claims, Pend d'Oreille dist.; Sagle. **Development:** Approximately 2440 ft. of underground workings, consisting of 6 tunnels and 5 shafts, the principal tunnel being 650 ft. long. **Plant:** Steam-driven compressor, complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 1. **Remarks:** Active development work throughout the year, the funds for which were derived from a stock assessment of 2 mills, levied May 8.

PONDERA MINING & POWER CO.
Office: Grand Forks, N. D. **Officers:** Joseph Bilden, Pres., Northwood, N. D.; J. D. Runswold, Jr., Sec.-Treas., 1316 11th Ave. S., Fargo, N. D. **Inc.:** July 2, 1912. **Capital:** 2,000,000 shares; par value $1; 379,675 shares issued. **Property:** 10 patented claims, Pend d'Oreille dist.; Sandpoint. **Remarks:** Idle.

PONDOROSA MINING CO.
Office: Clark Fork. **Officers:** J. P. Delaney, Pres., New York City; Compton I. White, Sec., Clark Fork. **Inc.:** Jan. 18, 1927. **Capital:** 1,500,000 shares; par value $1; shares issued, unknown. **Property:** Pondorosa group; 6 unpatented claims, Pend d'Oreille dist.; Clark Fork. **Remarks:** Annual labor only.

PRIEST RIVER MINING CO.
Office: Sandpoint. **Officers:** C. P. Stackhouse, Sandpoint. **Inc.:** Nov. 29, 1930. **Capital:** 1,500,000 shares; par value 10c. **Remarks:** Failed to file the reports required by law.

REGAL MINING CORPORATION
Office: 50 Broad St., New York City. **Officers:** J. P. Delaney, Pres., W. M. Thompson, Sec., both of New York City; Compton I. White, Mgr., Clark Fork. **Inc.:** Feb. 10, 1928. **Capital:** 1,000,000 shares; par value $1; 900,000 shares issued. **Property:** 8 unpatented claims, Pend d'Oreille dist.; Clark Fork. **Development:** By 2 short tunnels. **Plant:** Water-driven I-R compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Remarks:** Annual labor only.

R. J. PRICE MINING CO.

Office: Pasco, Wash. **Officers:** J. W. Blanton, Pres.; E. J. O'Connor, Sec., both of Pasco, Wash. **Inc.:** Sept. 20, 1923. **Capital:** 500,000 shares; par value $1. On June 5, 1928, increased to 1,000,000 shares; par value $1; 337,807 shares issued. **Property:** 3 patented claims, Pend d'Oreille dist.; Cabinet. **Development:** By 1 tunnel 200 ft. long. **Remarks:** Idle.

SILVER MOUNTAIN MINING CO.

Office: Sandpoint. **Officers:** John T. Elsasser, Mgr., Sandpoint. **Inc.:** July 24, 1909. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Silver Mountain group; 6 unpatented claims, Priest Lake dist.; Priest River. **Development:** 2 tunnels: No. 1, 400 ft. long; No. 2, 625 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

SILVER STAR GROUP

Lessee: T. W. Roberts, 101 East Nora St., Spokane, Wash. **Property:** Silver Star group; 1 unpatented claim and 140 acres patented land, held under lease and option from Silver Star Mining Co., Ltd., Pend d'Oreille dist.; Cocolalla. **Development:** Principally by 1 tunnel 575 ft. long. **Ore:** Lead-silver-zinc. **Men employed:** Average, 3. **Remarks:** Development work is being financed through the sale of "options." Press reports were to the effect that active operations were conducted throughout the year, and that compressor and mining equipment were installed.

SILVER STAR MINING CO., LTD.

Officers: N. M. Sholz, Pres.-Mgr.; Ray Dahlberg, Sec., both of Route 1, Sagle. **Inc.:** Jan. 19, 1927. **Capital:** 2500 shares; par value $10; 894 shares issued. **Property:** Silver Star mine; 1 unpatented claim and 140 acres patented land, Pend d'Oreille dist.; Cocolalla. **Development:** By 1 tunnel 575 ft. long. **Ore:** Lead-silver-zinc. **Remarks:** Property leased to T. W. Roberts.

STANDARD STATIONS, INC.

Officers: Paris Martin, Attorney, Boise. **Inc.:** Nov. 5, 1930. **Capital:** 340,000 shares; par value $25; 40,000 shares preferred. **Remarks:** Failed to file the reports required by law.

SYRINGA MINING CO.

Office: Sandpoint. **Officers:** B. I. Hunt, Pres.; Frank E. Kempt, Sec., both of Sandpoint. **Inc.:** Dec. 17, 1928. **Capital:** 300 shares; par value $100. Increased Oct. 25, 1929, to 1,000,000 shares; par value $1; 862,829 shares issued. **Property:** 328 acres patented land. Pend d'Oreille dist.; Sandpoint. **Development:** By 2 tunnels; No. 1, 120 ft. long; No. 2, 390 ft. long. **Plant:** Small gas-driven compressor. **Ore:** Gold. **Remarks:** A small amount of development work during the latter part of the year.

TALACHE MINES, INC.

Office: Talache. **Officers:** A. H. Burroughs, Jr., Pres.-Mgr.; B. K. Burroughs, Sec., both of Quartzburg. **Inc.:** Apr. 21, 1917, as Armstead Mines, Inc.; name changed June 8, 1922. **Capital:** 1,000,000 shares common, 600,000 shares preferred; par value $1; 983,000 shares common, 579,233 shares preferred issued. **Property:** Armstead mine; 18 patented, 44 unpatented claims, Pend d'Oreille dist.; Talache. **Development:** Approximately 34,591 ft. of underground workings, the principal of which are a main haulage tunnel, 3900 ft. long, the main inclined raise 916 ft. long and an inclined shaft 200 ft. long. **Plant:** MINE: 9x10 Hendre-Bolthoff electrically-driven geared hoist; 1574 cu. ft., 2 stage I-R type Pre-2 compressor, electrically driven; haulage, G. E. 4-ton storage battery locomotive; buildings, 44 room hotel, 24 residences, compressor house, blacksmith shop, warehouse, cook house, store, dry room and office. MILL: 150-ton flotation, 2 stage crushing to ½ in. fine grinding to 80 mesh, electrically driven. **Ore:** Silver. **Remarks:** Operations were suspended in October, 1926. In March, 1927, the famous Gold Hill & Iowa mine at Quartzburg, Boise County, was acquired and operations were transferred to that mine.



WHITEDELF MINING & DEVELOPMENT CO. MILL

WHITEDELF MINING & DEVELOPMENT CO.

Officers: John P. Delaney, Pres., 50 Broad St., New York; Compton I. White, Mgr., Clark Fork. **Inc.:** March 17, 1926. **Capital:** 100,000 shares, par value $1; 65,000 shares issued. Company reported 1000 shares; par value $100; all shares issued. Change not filed in Idaho. **Property:** 160 acres of patented land, Pend d'Oreille dist.; Clark Fork. **Development:** Principally by 3 tunnels, with a total of over 2500 feet, and an inclined shaft 300 ft. long. **Plant:** MINE: Electrically-driven compressor; complete mining equipment. MILL: 75-ton flotation concentrator. **Ore:** Lead-silver. **Men employed:** Average, 23. **Remarks:** In addition to the work performed by the company, part of the mine was under operation by lessees. A large tonnage of high-grade lead-silver crude ore and concentrate was produced and marketed. The development work consisted principally of lateral work on the 100, 200 and 300-ft. levels, and extending the shaft an additional 200 ft. The success with which this enterprise is meeting has been instrumental in attracting a large amount of attention to the Clark Fork district.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Aberdeen et al.	Pend d'Oreille	King Solomon Mines Co.	Sandpoint
Alamo Gr.	Pend d'Oreille	Sam Owen	Hope
Alpine	Priest Lake	E. W. Butts et al.	Priest River
American Eagle	Clark Fork	Edward Hanson et al.	Clark Fork
American Legion et al.	Priest Lake	Chas. Hagenson	Sandpoint
Anna et al.	Priest Lake	A. W. Eynon	Priest River
Antlers et al.	Pend d'Oreille	T. W. Whalen Est.	Juliaetta
Apex Lode Gr.	Lakeview	E. D. Faust	Lakeview
Badger et al.	Priest Lake	Clyde Smith	Priest River
Bank Roll	Priest Lake	J. A. Adam	Sandpoint
Basaltic et al.	Priest Lake	N. Y. Mt. Chief Cons. M. Co.	Priest River
Bellvill et al.	Lakeview	Chas Wiberg	Lakeview
Bernice et al.	Lakeview	Fount Perry Jr.	Lakeview
Big Four et al.	Priest Lake	Stewart Coolin et al.	Coolin
Big View et al.	Priest Lake	Leo Gwinn	Priest River
BiMetallic et al.	Pend d'Oreille	Marie E. Root	Hope

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Black Angel et al.	Priest Lake	James Elsasser et al.	Elmira
Black Bear et al.	Priest Lake	H. B. Gumaer et al.	Priest River
Black Hornet et al.	Lakeview	John & Louis Weissenberger	Hope
Black Jack et al.	Priest Lake	John Elsasser et al	Sandpoint
Black Prince et al.	Priest Lake	Joseph Saccomanno	Priest River
Black Slate et al.	Pend d'Oreille	E. B. Clark	Clark Fork
Blanket Ledge Gr.	Lakeview	O. L. McNall	Lakeview
Blowout et al.	Priest Lake	John Hamberg	Priest River
Bluebird	Lakeview	Walter Street	Lakeview
Bluebird Gr.	Pend d'Oreille	Ernest E. Ward	Sagle
B & M et al.	Priest Lake	J. E. Peterkin et al.	Newport, Wash.
Bob Cat	Priest Lake	Katherine L. Brown	Priest River
Boulder et al	Priest Lake	J. W. and C. Butts	Priest River
Buck Horn et al.	Pend d'Oreille	Arthur E. Smith	Talache
Cabinet	Priest Lake	G. A. Naccarato et al.	Priest River
Catherine	Pend d'Oreille	Helmer Foss et al.	Sandpoint
Clagg	Pend d'Oreille	J. Reed & E. Clagg	Clark Fork
Copper Butte	Priest Lake	I. Daugherty	Priest River
Copper Coin	Pend d'Oreille	Dyrskog Bros.	Midas
Copper King	Pend d'Oreille	John Larson	Hope
Cuban et al.	Priest Lake	Cuban Mt. Mng. Co.	Priest River
Dad's Dream	Pend d'Oreille	E. E. Ralph	Clark Fork
Deer Park et al.	Pend d'Oreille	G. M. Walker et al.	Sandpoint
Deer Track	Priest Lake	O. E. Burquist	Sandpoint
Dirty Deuce	Priest Lake	Wm. Moscript et al.	Priest River
Easter Sunday	Lakeview	Frank Drummond	Lakeview
E & C Gr.	Pend d'Oreille	J. R. Coleman et al.	Sagle
Ella et al.	Lakeview	John W. Sheer	Lakeview
Felice et al.	Pend d'Oreille	C. I. White	Clark Fork
Frances B	Clark Fork	J. O. Peterson et al.	Clark Fork
Garfield Gr.	Pend d'Oreille	Gotlib Baker	Ponderay
General Pershing et al.	Pend d'Oreille	H. F. Rau et al.	R. 3, Tacoma, Wash.
Glasgow	Lakeview	R. C. Henry	Lakeview
Gray Goose	Priest Lake	C. W. Beardmore	Priest River
Hog Eye et al.	Lakeview	W. F. Sharai	Lakeview
Honest John et al.	Lakeview	J. Flewelling et al.	Sandpoint
Horseshoe	Priest Lake	S. S. Beldon et al.	Priest River
Imogene et al.	Lakeview	Wm. Shannon	Lakeview
Joker et al.	Priest Lake	W. B. Quinn	Molson, Wash.
Jumbo Gr.	Pend d'Oreille	E. H. Becker	Clark Fork
Keno et al.	Lakeview	Dr. H. C. Meyers	Lakeview
Last Chance	Priest Lake	Bert Fry et al.	Priest River
Lincoln	Pend d'Oreille	Harry Churchill et al.	Spokane, Wash.
Little Bench	Pend d'Oreille	C. A. Johnson	Clark Fork
Little Geraldine Fr.	Priest Lake	Alex Judge	Box 1734, Spokane, Wash.
Little Three	Priest Lake	L. G. Brown et al.	Priest River
Lookout	Pend d'Oreille	W. W. Derr et al.	Clark Fork
Lucky Strike et al.	Priest Lake	F. C. Fredericks et al.	Spangle, Wash.
Morning Star	Pend d'Oreille	F. S. Hayes	Hope
Nest Egg	Pend d'Oreille	J. O. Derr	Clark Fork
North Star Pl.	Lakeview	S. R. Catlow	Clark Fork
Ontario et al.	Lakeview	Robt. Rennie	Lakeview
Rainbow et al.	Pend d'Oreille	Goat Mt. Mng. Co.	Clark Fork
Ready Cash	Lakeview	Bruyere & Hanchett	Bayview

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Red Horse	Pend d'Oreille	Ed Hammon	Sandpoint
Scotchman	Pend d'Oreille	Dr. C. P. Stackhouse	Sandpoint
Silver Fox Gr.	Priest Lake	J. A. Adams	Sandpoint
Silver Star	Pend d'Oreille	C. O. Olsen	Sandpoint
Snowbird	Pend d'Oreille	Walter Blossom	Lindelle Bldg., Spokane, Wash.
Snow Slide	Pend d'Oreille	Foster & Bixel	Clark Fork
T. Bone	Lakeview	Frank Brown	Lakeview
Tiger	Priest Lake	Alex Judge	Spokane
Triangle	Lakeview	Ralph Henrichs et al.	Hope
True Fisher	Pend d'Oreille	Fred Vogel	Clark Fork
Twilight et al.	Pend d'Oreille	C. B. Stuart	Sandpoint
View Point	Pend d'Oreille	Ernest Becker	Clark Fork
West Point	Pend d'Oreille	Henry F. Phillips	Clark Fork

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

Survey of the boundary line between Idaho and Montana from the international boundary to the crest of the Bitterroot Mountains, by R. U. Goode: U. S. Geol. Survey Bull. 170, **1900.***

Geology of the region adjoining the western part of the international boundary, by R. A. Daly: Canada Geol. Survey Ann. Rept., vol. 14, pp. 39-51a, **1901.**§

Economic features of northern Idaho and northwestern Montana, by D. F. MacDonald: U. S. Geol. Survey Bull. 285, pp. 41-52, **1905.***

Priest Lake mining district, Idaho, by W. M. Curtis: Eng. and Min. Jour., vol. 82, p. 866, Nov. 10, **1906.**§

A geological reconnaissance in northern Idaho and northwestern Montana, by F. C. Calkins, with notes on the economic geology, by D. F. MacDonald: U. S. Geol. Survey Bull. 384, **1909.***

Lawrence mine and mill in Kootenai County (Bonner), Idaho, by A. L. Flagg: Min. and Eng. World, vol. 38, p. 340, Feb. 15, **1913.***

Guidebook of the Western United States, by M. R. Campbell, and others: U. S. Geol. Survey Bull. 611, pp. 150-156, 160, **1915.**‡

The mining districts of northern Idaho, by E. K. Soper: Min. and Sci. Press, vol. 116, pp. 125-126, **1918.***

Silver mining and milling at Talache, Idaho, by F. E. Wormser: Eng. and Min. Jour.-Press, vol. 114, pp. 581-585, Sept. 30, **1922.**§

Some Miocene and Pleistocene drainage changes in northern Idaho, by A. L. Anderson: Idaho Bureau of Mines and Geology Pamphlet 18, **1927.***

Granodiorites in the Pend d'Oreille district of northern Idaho, by J. L. Gillson: Jour. Geol., vol. 35, pp. 1-33, **1927.**§

Geology and silver ore deposits of the Pend d'Oreille district, Idaho, by Edward Sampson: Idaho Bureau of Mines and Geology Pamphlet 31, **1928.****

Contact metamorphism of the rocks in the Pend d'Oreille district, northern Idaho, by J. L. Gillson: U. S. Geol. Survey Prof. Paper 158-F, **1929.****

Sequence of ore deposition in north Idaho, by A. L. Anderson: Econ. Geology, vol. 25, pp. 160-175, March-April, **1930.****

Geology and ore deposits of the Clark Fork district, by A. L. Anderson: Idaho Bureau of Mines and Geology Bull. 12, **1930.****

BONNEVILLE COUNTY

Bonneville County is bounded on the south by Caribou and Bingham counties, on the west by Bingham County, on the north by Jefferson, Madison and Teton counties, and on the east by the State of Wyoming. It is one of the principal, as well as one of the largest, southeastern counties; and has an area of 1,904 square miles, and population of 19,664 at the time of the 1930 census. The larger part of the population is in the Snake River valley, which occupies all of the western part of the county. The southeastern part, which is occupied by the Caribou Range of the Snake River Mountains, is drained by the South Fork of the Snake River and its tributaries. It is primarily an agricultural county and is noted for its potato and sugar-beet industries, particularly potatoes, as it is one of the largest potato shipping points in the United States. Idaho Falls, the largest town, and civic center of the Upper Snake River valley, is the county seat.

Although recognized only as an agricultural community, this county was once the scene of many active mining operations. This was during the gold rush in the Mt. Pisgah, or Caribou, district at the time placer gold was discovered on McCoy and Gray's creeks. These placers produced a creditable amount of gold, and subsequently a few lode deposits were discovered and exploited. In late years a small dredge was constructed, but this and the deep mines are now idle and the only gold produced is from a few small placer operations.

The principal mineral resources of Bonneville County are gold, phosphate rock, copper, silver, and coal. Many structures favorable to the accumulation of petroleum in commercial quantity are found throughout the southern and eastern parts of the county.

The extensive phosphate beds of southeastern Idaho are exposed over a large area. These, and possibly petroleum, will eventually add to the county's prosperity and put it into the list of important mining counties.

1930 Activities

The placer deposits on McCoy's and Gray's Creeks received much attention from responsible operators, who had the thought in view of installing newly devised placer mining equipment.

BONNEVILLE MINING CO., INC.

Office: Rexburg. **Officers:** Francis J. Kiely, Sr., Pres.; Raymond Sherry, Sec., both of Jersey City, N. J.; Lewis A. Lee, Vice-pres., Rexburg. **Inc.:** July 9, 1929. **Capital:** 250,000 shares; par value $1. **Remarks:** Failed to file the reports required by law.

THE CALIFORNIA CO.

Office: 225 Bush St., San Francisco, Calif. **Officers:** K. R. Kingsbury, Pres.; J. H. Tuttle, Sec., both of San Francisco; E. G. Lawson, Mgr., Kemmerer, Wyo. **Inc.:** Filed in Idaho Mar. 19, 1928. **Capital:** 5,000 shares; par value $100; 1,000 shares issued. **Property:** 920 acres held under oil and gas lease. **Development:** 14 to 10-in. well, 3780 ft. deep. **Plant:** 90-ft. steel derrick; complete drilling equipment, gas-driven; complete and modern camp. **Mineral sought:** Oil and gas. **Men employed:** Average, 4. **Remarks:** This company is a subsidiary of the Standard Oil Co. of California. The rig was installed in May, 1928, and active well-drilling operations were commenced on June 10, 1928, and continued without interruption throughout 1929. Operations were suspended in January, 1930.

IDAHO GOLD MINING CO.

Office: 319 Dooly Block, Salt Lake City, Utah. **Officers:** Chas. C. Dey, Pres.; W. A. Wilson, Sec.-Mgr., both of Salt Lake City, Utah. **Inc.:** April 19, 1917. **Capital:** 150,000 shares; par value 10c; 130,026 shares issued. **Property:** Robinson group; 2 patented claims, Mt. Pisgah dist.; Gray. **Ore:** Gold. **Remarks:** Idle for many years.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
American Placer	Mt. Pisgah	W. H. Stocks	Gray
Anderson Bar et al.	Mt. Pisgah	Helmer Ronback, Agt.	Gray
Barnes Gr.	Mt. Pisgah	W. K. Lynch, Agt.	Gray
Idaho Gr.	Mt. Pisgah	W. K. Lynch, Agt.	Gray
Oneida Gr.	Mt. Pisgah	Fred Brenzinger, Agt.	Gray
Oneida South	Mt. Pisgah	Miles Schneider, Agt.	Gray
Pisgah Gr.	Mt. Pisgah	Fred Brenzinger, Agt.	Gray
Silver Bell Gr.	Mt. Pisgah	Fred Brenzinger, Agt.	Gray
Timber Line	Mt. Pisgah	Leroy Layland	Gray
Toway	Mt. Pisgah	J. C. Beatty	Soda Springs
Wolfe Bar	Mt. Pisgah	Amos S. Clark	Unknown

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

Fifth, Sixth and Eleventh Ann. Repts., U. S. Geol. and Geog. Survey of the Territories, by F. V. Hayden, **1871, 1873** and **1879.***

The gold ore deposits of Mount Caribou, Idaho, by E. B. Kirby: Colorado Sci. Soc. Proc., vol. 5, pp. 72-75, **1898.***

Mount Caribou gold deposits, by Arthur Lakes: Mines and Minerals, vol. 19, pp. 55-56, September, **1898.***

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

A geological reconnaissance in southeastern Idaho, by A. R. Schultz and R. W. Richards: U. S. Geol. Survey Bull. 530, pp. 267-284, **1911.***

Guidebook of the western United States, by W. T. Lee and others: U. S. Geol. Survey Bull. 612, pp. 114-147, **1915.**‡

A geologic reconnaissance for phosphate and coal in southeastern Idaho and western Wyoming, by A. R. Schultz: U. S. Geol. Survey Bull. 680, **1918.**‡

Coal in eastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 716, pp. 123-153, **1920.**‡

Oil shale in western Montana, southeastern Idaho, and adjacent parts of Wyoming and Utah, by D. D. Condit: U. S. Geol. Survey Bull. 711, pp. 15-40, **1920.**‡

The Wasatch and Salt Lake formations of southeastern Idaho, by G. R. Mansfield: Am. Jour. Sci., vol. 49, pp. 399-406, June, **1920.**§

Triassic and Jurassic formations in southeastern Idaho and neighboring regions, by G. R. Mansfield: Am. Jour. Sci., vol. 50, pp. 53-64, July, **1920.**§

Types of Rocky Mountain structure in southeastern Idaho, by G. R. Mansfield: Jour. Geology, vol. 29, No. 5, pp. 444-468, July-August, **1921.**§

Geology and oil possibilities of Bingham, Bonneville, and Caribou counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Bull. 8, **1924.****

Oil possibilities of southeastern Idaho, by V. R. D. Kirkham: Mining and Metallurgy, vol. 6, No. 218, Feb., **1925.**§

Ground water for municipal supply at Idaho Falls, Idaho, by A. M. Piper and V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 16, **1926.****

Geography, geology, and mineral resources of part of southeastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Prof. Paper 152, **1927.****

BOUNDARY COUNTY

Boundary County is bounded on the north by the Dominion of Canada, on the east by the State of Montana, on the west by the State of Washington, and on the south by Bonner County. Its principal area comprises the drainage basins of the Moyie River, which flows in a southerly direction, and the Kootenai River, which flows northerly from Bonners Ferry, the county seat and principal town. It has a total area of 1,276 square miles, and was accredited with a population of 4,555 in the 1930 census. The principal industries are lumbering, farming, and mining.

The county is served by two transcontinental railroads, the Great Northern, with its branch line from Bonners Ferry to Porthill, on the Canadian border, and the Spokane International; by the North and South Highway, with an easterly outlet from Bonners Ferry; and by a system of county roads which extend into the different sections along the main stream valleys.

The principal mineral resources are lead, silver, gold, copper, zinc, tungsten, and molybdenum. These metals are widely distributed, and a few of the deposits have been partially developed. Heavy overburden, dense overgrowth, and limited accessibility have retarded prospecting, discovery, and development. The many favorable areas and wide diversity of mineralization make this county an exceptionally favorable field for the prospector and the small development company.

1930 Activities

The year 1930 witnessed but little new activity and but a small improvement in development work by the old companies. Two new enterprises, the Silver Spoon Mining Co., Inc., whose property is in the Moyie Yaak district, near Meadow Creek, and J. I. Zigler, at the Donahoe property, in the Moyie Yaak district, near Copeland, installed small gas-driven compressors and commenced work on sinking shafts. The Metals Mining Co. and the Moyie Gold Copper Mining & Milling Co., Ltd. both expanded their operations over those of the previous year. The Idamont Lead-Zinc Mines Co. was active for a few months. An attempt was made to reorganize the companies controlling two lead-silver properties in the Katka district. Newspaper reports were to the effect that a new discovery of lead-silver was made on the Moyie River.

BRUSH LAKE MINES CO.

Office: 412 Ziegler Block, Spokane, Wash. **Officers:** J. W. Reid, Pres., Bonners Ferry; David Emley, Sec., Coolin. **Inc.:** Aug. 6, 1921. **Capital:** 2,000,000 shares; par value 10c; 642,600 shares issued. **Property:** Bethlehem group; 7 unpatented claims, Moyie Yaak dist.; Bonners Ferry. **Development:** Approximately 1200 ft. of underground workings. **Ore:** Lead-silver. **Remarks:** Annual labor only.

CLANCY MINING CO.

Office: Bonners Ferry. **Officers:** Abe Stemeny, Pres.; H. H. McNamara, Sec.; James Clancy, Mgr., all of Bonners Ferry. **Inc.:** July 20, 1929. **Capital:** 500,000 shares; par value $1; 272,500 shares issued. **Property:** 7 unpatented claims, Moyie Yaak dist., Boulder Creek; Bonners Ferry. **Development:** By 1 tunnel 300 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

COPPER FALLS MINING CO.

Office: Eastport. **Officers:** Gus Kallman, Pres.-Mgr., Gem; Spencer Lewis, Sec.-Treas., Eastport. **Inc.:** March 30, 1911. **Capital:** 1,000,000 shares; par value $1; 830,228 shares issued. **Property:** Copper Falls group; 5 unpatented claims, Moyie Yaak dist.; Addie. **Development:** 2 tunnels: No. 1, 240 ft. long; No. 2, 600 ft. long; 1 vertical shaft, 45 ft. deep. Total development, approximately 1185 ft. **Ore:** Lead-silver. **Remarks:** Annual labor.

CYNIDE GOLD MINING CO., LTD.

Property: Buckhorn group; 18 unpatented claims, Moyie Yaak dist.; Bonners Ferry. **Remarks:** Sold to bondholders on June 5; J. W. Reid, Trustee, Bonners Ferry.

DONAHOE PROPERTY

Officers: W. S. Higgins, Pres., New York City; J. I. Zigler, Mgr., Bonners Ferry. **Property:** 40 acres patented land, Moyie Yaak dist.; Copeland. **Development:** By an inclined shaft 135 ft. long. **Plant:** Gas-driven Sullivan compressor. **Ore:** Copper, gold, silver. **Men employed:** Average, 4. **Remarks:** Active throughout the early part of the year in sinking the inclined shaft.

GOLDEN SCEPTRE MINING CO.

Office: N. 3321 Nevada St., Spokane, Wash. **Officers:** O. L. Elvigen, Pres.; C. F. Halverson, Sec.-Mgr., both of Spokane, Wash. **Inc.:** Aug. 30, 1909. **Capital:** 1,500,000 shares; par value 50c; 552,966 shares issued. **Property:** 8 unpatented claims, Port Hill dist.; Port Hill. **Development:** 4 tunnels; No. 1, 1800 ft. long. **Plant:** Gas-driven C-P compressor; complete mining equipment and mine camp. **Ore:** Copper, gold, silver. **Men employed:** Average, 2. **Remarks:** Annual labor only.

IDAMONT LEAD-ZINC MINES CO.

Office: Leonia. **Officers:** J. S. Hutchinson, Pres., Portland, Ore; M. E. Carson, Sec., Leonia. **Inc.:** Sept. 10, 1928. **Capital:** 1,000,000 shares; par value $1; 624,130 shares issued. **Property:** 66 placer and lode claims, approximately 2400 acres, Moyie Yaak dist.; Leonia. **Development:** 5-mile, 200 sec.-ft. capacity canal, giving a working head of approximately 430 ft.; in 2 sections, upper 3 miles long, lower 2 miles, with a difference in elevation of 210 ft. Water conducted from upper to lower through two 22-inch steel pipes; about 20 miles of road, 5 of which were very heavy construction. Lode claims developed by numerous cuts and tunnels. **Plant:** Approximately 3000 ft. steel pipe, one 8-inch giant, operating under a 430-ft. head and two 5-inch giants, operating under 130-ft. head; bed rock flume and spillway 300 ft. long on a grade of 10 inches in 12 ft.; in 3 sections, spillway 12 ft. wide by 8 ft. deep; one flume 6 ft. wide and one 12 ft wide, both 8 ft. deep. Concentrates from flume discharge into cement lined tank of approximately 15,000-ton capacity from which they are elevated into cleaning plant on top of flume. Cleaning plant consists of Ogden tables, classifiers and specially designed riffles. Complete machine shop, sawmill, planing mill, overhead cable system operated by steam; tractor haulage; complete company buildings and 35 individual homes for the men. **Ore:** Principally placer gold. **Men employed:** Average, 6. **Remarks:** A reorganization of the Leonia Gold Mining Co., in order that the stock might be made assessable. The principal activity during the year was the development of a lead-zinc vein.

INTERNATIONAL MOLYBDENUM CO.

Office: Porthill. **Officers:** H. A. French, Pres.; P. W. Stas, Sec., both of Porthill. **Inc.:** Feb. 3, 1926. **Capital:** 25,000 shares; par value $1; 13,568 shares issued. **Property:** Hottentot group; 5 unpatented claims, Porthill dist.; Porthill. **Development:** 2 tunnels with a total length of 188 ft., and a number of open cuts. **Ore:** Molybdenum. **Men employed:** Average, 3. **Remarks:** Active prospecting work was maintained for a period of 3 months. A stock assessment of 10c was levied on March 4, 1930.

LEAD CONSOLIDATED MINING CO.

Officers: H. I. Monks, Bonners Ferry. **Inc.:** April 11, 1929. **Capital:** 3,000,000 shares; par value $1. **Remarks:** This company has never filed the reports required by law.

LUCKY ABE MINING CO.

Office: Priest Lake. **Officers:** T. F. Nelson, Sec., Priest Lake. **Inc.:** March 1, 1916. **Capital:** 1,000,000 shares; par value 10c; 480,000 shares issued. **Property:** 6 unpatented claims, Priest Lake dist.; Priest River. **Development:** 3 short tunnels. **Ore:** Gold, silver, lead, and copper. **Remarks:** Annual labor only.

METALS MINING CO.

Office: Bonners Ferry. **Officers:** A. Strom, Pres.; Carl J. Strom, Sec., both of Bonners Ferry. **Inc.:** Unknown. **Capital:** 1,000,000 shares; par value 1c; 322,296 shares issued. **Property:** 8 unpatented claims, Katka dist.; Leonia. **Ore:** Silver-lead. **Men employed:** Average, 2. **Remarks:** Active during the summer months.

MOYIE GOLD COPPER MINING & MILLING CO., LTD.

Office: Bonners Ferry. **Officers:** A. J. Kent, Pres.; G. E. Crocker, Sec.; Sven A. Anderson, Mgr., all of Bonners Ferry. **Inc.:** Sept. 16, 1911. **Capital:** 1,250,000 shares; par value $1; 1,205,350 shares issued. **Property:** Queen and Damon groups; 7 unpatented claims, Moyie Yaak dist.; Bonners Ferry. **Development:** 5 tunnels and 2 shafts, approximately 700 ft. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** Principal tunnel extended 125 ft. during the year.

NORTH IDAHO DEVELOPMENT CO.

Officers: Eric Larson, Bonners Ferry. **Inc.:** Feb. 20, 1929. **Capital:** 500 shares; par value $10. **Remarks:** Failed to file the reports required by law.

SILVER SPOON MINING CO., INC.

Office: Bonners Ferry. **Officers:** R. L. Hoisington, Pres.; Emma Hoisington, Sec., both of Bonners Ferry. **Inc.:** Sept. 6, 1930. **Capital:** 1,000,000 shares; par value 5c; 80,170 shares issued. **Property:** Silver Spoon group; 7 unpatented claims, Moyie Yaak dist.; Meadow Creek. **Plant:** Gas-driven C-P compressor; complete mining equipment. **Ore:** Lead-silver, zinc. **Men employed:** Average, 4. **Remarks:** Buildings erected, mine plant installed, and work started in sinking a small shaft during October.

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

Survey of the boundary line between Idaho and Montana from the international boundary to the crest of the Bitterroot Mountains, by R. U. Goode: U. S. Geol. Survey Bull. 170, **1900.***

Geology of the region adjoining the western part of the international boundary, by R. A. Daly: Canada Geol. Survey Ann. Rept., vol. 14, pp. 39-51a, **1901.§**

A geological reconnaissance in northern Idaho and northwestern Montana, by F. C. Calkins, with notes on the economic geology, by D. F. MacDonald: U. S. Geol. Survey Bull. 384, **1909.***

The mining districts of northern Idaho, by E. K. Soper: Min. and Sci. Press, vol. 116, pp. 126-127, **1918.***

Tungsten, cinnabar, manganese, molybdenum and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****

Geology and ore deposits of Boundary County, Idaho, by V. R. D. Kirkham and E. W. Ellis: Idaho Bureau of Mines and Geology Bull. 10, **1926.****

BUTTE COUNTY

Butte is one of the south-central counties, being bounded by Lemhi, Custer, Blaine, Bingham, Jefferson, and Clark counties. The Big and Little Lost rivers flow in a southerly direction across the county, and the lower valleys of these rivers constitute the larger part of its area of 2,048 square miles. Arco, situated near the lower end of Big Lost River valley, is the largest town and the county seat. It is primarily an agricultural and stock-raising community, although its mining industry is gaining recognition and importance. The publicity given and the travel attracted to the new national monument, the Craters of the Moon, which is located in this county, have widely advertised the resources and scenic attractions of the State.

Two State highways have been designated and completely constructed, the Lost River Highway, which extends from Blackfoot to Challis and passes

through Arco and Big Lost River valley, and the Idaho Central Highway from Hailey to Dubois, which serves the Craters of the Moon. The county is served by the Blackfoot-Mackay branch of the O. S. L. Railroad.

The principal mineral resources are lead, silver, zinc, gold, tungsten, manganese, limestone, and marble, the high-grade lead-silver ores being the most important, as they are found in all the mining districts of the county. The other metals occur in sufficient extent to be of commercial importance. Butte is one of the principal lead-silver producing counties in southern Idaho.

1930 Activities

The Wilbert Mining Co., operating in the Dome district, maintained active production and mine development. This company is one of the largest producers of lead-silver ore in southern Idaho, and the success with which it is meeting has been instrumental in attracting much attention to the mineral resources of this county. The Dahle Bros., at the Horn Silver mine, in the Lava Creek district, whose company is known as the Horn Silver Consolidated Mines Co., maintained active development throughout the year. This work increased the known resources of the mine. One small shipment of crude ore was marketed. The other companies in this district performed only the necessary annual labor; however, there was a substantial increase, over that of the previous year, in the number of prospectors who were active throughout the summer months.

BADGER MINES CO.

Office: Rexburg. **Officers:** S. H. Abbott, Pres.-Mgr.; Fay Abbott, Sec., both of Rexburg. **Inc.:** June 8, 1925. **Capital:** 1,000,000 shares; par value 3c; 959,400 shares issued. **Property:** Badger group; 8 unpatented claims, Dome dist.; Howe; held under lease and option. **Development:** Principally by 1 tunnel, 2355 ft. in length. **Plant:** MINE: Gas-driven compressor and complete mining equipment. MILL: 25-ton concentrator, driven by gas engine. **Ore:** Lead-silver. **Remarks:** Annual labor only.

BUTTE ANTELOPE MINING CO.

Office: Moore. **Officers:** H. E. Lisonbee, Sec., Moore. **Inc.:** Sept. 8, 1927. **Capital:** 1,000,000 shares; par value 5c. **Remarks:** Since 1928 this company has failed to file the reports required by law.

GOLDEN CHARIOT MINING CO.

Office: 3207 Clinton Ave., Berwyn, Ill. **Officers:** Mabel R. Rush, Pres.; Frank C. Hamm, Sec., both of Berwyn, Ill. **Inc.:** June 12, 1929. **Capital:** 500,000 shares; par value $1; no shares issued. **Property:** 8 unpatented claims, Lava Creek dist.; Arco. **Ore:** Gold, lead, silver and zinc. **Remarks:** Annual labor only.

HORN SILVER CONSOLIDATED MINES CO.

Office: Arco. **Officers:** Edward Dahle, Pres.-Mgr.; M. M. Dahle, Sec., both of Arco. **Inc.:** Dec. 21, 1925. **Capital:** 100,000 shares; par value $1; all shares issued. **Property:** Horn Silver group; 3 patented, 7 unpatented claims, held under lease and option; Lava Creek dist.; Martin. **Development:** By 3 tunnels: No. 1, 630 ft.; No. 2, 530 ft.; No. 3, 1500 ft. **Plant:** Gas-driven compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 7. **Remarks:** Active development work throughout the year, which consisted principally of drifting on the vein in No. 3 tunnel. This work opened a substantial showing of ore. All the men employed are interested in the mine and work without wages. The Dahle brothers are to be complimented for hard work, intelligent manner of developing the property and economy of operation.

LEAD BELT MINES CO.

Officers: C. S. Cresser, Moore. **Inc.:** Unknown. **Remarks:** Name of the company was obtained from the press stories given by Mr. Cresser.

MAUDE ELLEN OIL CO.

Office: P. O. Box 239, Pocatello. **Officers:** A. E. Fridenstine, Pres.; R. A. Carson, Sec.-Mgr., both of Pocatello. **Inc.:** Oct. 26, 1925. **Capital:** 15,000,000 shares; no par; 9,022,955 shares issued. **Property:** 1 unpatented claim, Lava Creek dist.; Arco. **Development:** 1 short tunnel. **Remarks:** Idle.

METTA MINING CO., LTD.

Office: Blackfoot. **Officers:** W. R. Jones, Pres., Blackfoot. **Inc.:** Oct. 20, 1906. **Capital:** 1,000,000 shares; par value $1; 386,500 shares issued. **Property:** Metta group; 9 unpatented claims, Hamilton dist.; Howe. R. R. Dubois, 47 miles. **Development:** 3 short tunnels and 3 short vertical shafts; total development work approximately 1000 ft. **Ore:** Lead-silver. **Remarks:** This company states that the property has been leased to the Richmond Developing Co. The latter company has not filed the reports required by law.

ST. LOUIS MINING CO.

Office: 981 First Ave., Salt Lake City, Utah. **Officers:** Earl Wright, Pres.; Mrs. Jessie B. Russell, Sec., both of Salt Lake City. **Inc.:** Filed in Idaho, July 3, 1929; charter forfeited Dec. 1, 1930. **Capital:** 750,000 shares; par value 1c; 395,899 shares issued. **Property:** St. Louis group; 5 unpatented claims, Lava Creek dist.; Arco. **Development:** By 3 tunnels: No. 1, 600 ft. long; No. 2, 400 ft. long; No. 3, 450 ft. long; and an inclined shaft 160 ft. long. **Plant:** Gas-driven Gardner compressor; small air-driven hoist; complete mining equipment. **Ore:** Silver. **Remarks:** Annual labor only.

WILBERT MINING CO., LTD.

Office: 221 Kearns Bldg., Salt Lake City, Utah. **Officers:** J. A. Foley, Pres.-Mgr.; T. L. Mitchell, Sec., both of Salt Lake City, Utah. **Inc.:** Apr. 10, 1907. **Capital:** 2,000,000 shares; par value 50c; 1,566,128 shares issued. **Property:** Daisy Black group; 7 patented, 32 unpatented claims, Dome dist.; Howe. R. R. Arco, 42 miles. **Development:** Approximately 16,000 ft. of underground workings, the principal of which is No. 4 tunnel, in which there is an inclined shaft 550 ft. long with 4 intermediate levels. When this tunnel was completed to 2800 ft. in length, a raise was put through at its end and connection made with the old workings. **Plant:** MINE:



MINE CAMP AND MILL: WILBERT MINING CO., LTD.

Hoist and 2 electrically-driven compressors; complete mining equipment and camp. MILL: 75-ton concentrator, electrically driven. **Ore:** Lead-silver. **Men employed:** Average, 25. **Remarks:** In addition to maintaining production and shipping a large tonnage of concentrate during the year, a large amount of mine development work was performed. This property is one of the largest lead-producing mines of southern Idaho.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Apex, Apex 3	Lava Creek	Edward Dahle	Martin
Badger 1, 2, 3, 4	Hamilton	William Deusner	Howe
Badger Creek	Hamilton	Frank Peete	Clyde
Betty Lou	Lava Creek	C. V. Genoway	Boise
Big Butte	Hamilton	B. A. Smith	Arco
Black Hawk	Hamilton	Chas. W. Johnson	Howe
Bluebird et al.	Hamilton	Roy Hawley	Howe
Bonanza Gr.	Dome	W. W. Brown	Arco
Bozette Gr.	Lava Creek	J. W. Gamett	Moore
Comstock	Lava Creek	Mrs. E. H. Brim	Martin
Copper King Gr.	Lava Creek	B. A. Smith	Arco
Crater View Gr.	Lava Creek	J. Y. Greene et al.	Arco
Crown Point	Lava Creek	P. J. McQuaid	Arco
Cut Wall	Hamilton	W. A. Beakley	Blackfoot
Denver Gr.	Lava Creek	Leonard Dresser	Emmett
Divide et al.	Lava Creek	Mary V. Stone	Martin
Edmonville	Badger Creek	Louis Edmon	Howe
Ella	Lava Creek	B. F. Morrison	Martin
Flora	Hamilton	G. W. Hooper et al	Howe
Foot Wall	Lava Creek	Ardell Gamett	Moore
Garage	Lava Creek	C. J. Samuels	Arco
Gold Belt Gr.	Lava Creek	J. M. Walker	Blackfoot
Granite Mountain	Lava Creek	E. H. Hammond	Arco
Gray Wolfe et al.	Hamilton	S. H. Abbott	Howe
Great Western	Lava Creek	Daniel Romney	Arco
Happy Hooligan	Lava Creek	Ardell Gamett	Moore
Hidden Treasure	Lava Creek	Mattie D. Martin	Martin
Homestake	Lava Creek	J. F. Houf	Arco
Hub Gr.	Lava Creek	S. O. Nelson	Boise
Humdinger	Lava Creek	Ole Anderson	Martin
Iron Dyke et al.	Lava Creek	V. R. Markel	Martin
Ironsides	Lava Creek	A. Brim	Martin
Ironsides	Lava Creek	Gordon Lee	Boise
Johnson Gr.	Dome	Lew Johnson	Howe
Josephine et al.	Hamilton	W. C. Hammond	Martin
Joyce	Lava Creek	M. Shaughnessy	Arco
Lead Belt	Lava Creek	H. W. Weiler Est.	Mackay
Lindy No. 1	Dome	Geo. H. Shail	Rexburg
Little Jim	Lava Creek	John T. Welch	Arco
Lone Pine	Badger Creek	George Hooper	Howe
Lost Gold et al.	Lava Creek	Mattie D. Martin	Martin
Matilda	Lava Creek	M. Weeks	Arco
Neppar et al.	Hamilton	John Linder	Howe
Nester	Lava Creek	Thos. D. Kilion	Arco
O My	Unorganized	H. L. Race	Arco
Oxide Lode	Lava Creek	Ole Anderson	Arco
Pacific et al.	Lava Creek	M. L. Shanafelt	Hailey
Pandora	Lava Creek	Mattie D. Martin	Martin
Pioneer	Lava Creek	Ardell Gamett	Moore
Policy	Lava Creek	Hugo Vogelsang	Arco
Rabbits Foot	Lava Creek	H. C. Schwamb	Hailey
Reliance	Lava Creek	T. C. Woodbridge	Arco
Rosetta	Lava Creek	Rose Shaughnessy	Arco
St. Louis et al.	Lava Creek	T. H. Philipson	Arco

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Sam & Tom	Lava Creek	Ira Petty	Howe
Second Chance	Lava Creek	Riley Kent	Arco
Senator Gooding	Lava Creek	D. W. Nichols	Martin
Shail & Comstock	Dome	Shail & Comstock	Rexburg
Silent Friend	Dome	J. D. Powell	Howe
Silver Bell	Lava Creek	Ardell Gamett	Moore
Silver Bell	Lava Creek	P. J. McGuinness	Martin
Silver Horn et al.	Lava Creek	E. B. Jones	Martin
Sooge Gr. et al.	Hamilton	Louis Edmonds	Howe
Sunbeam	Dome	Isidore Fallert	Howe
West Idaho et al.	Lava Creek	W. H. Miller et al.	Arco

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Notes on geology of southwestern Idaho and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Bull. 217, pp. 36-47, 59, **1903.**‡

The lead-silver deposits of the Dome district, Idaho, by J. B. Umpleby: U. S. Geol. Survey Bull. 540, pp. 212-222, **1912.***

Geology and ore deposits of the Mackay region, Idaho, by J. B. Umpleby: U. S. Geol. Survey Prof. Paper 97, **1917.**‡

Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****

A geologic reconnaissance of Clark and Jefferson, and parts of Butte, Custer, Fremont, Lemhi and Madison counties, Idaho, by V. R. D. Kirkham; Idaho Bureau of Mines and Geology Pamphlet 19, **1927.***

Craters of the Moon National Monument, Idaho, by H. T. Stearns: Idaho Bureau of Mines and Geology Bull. 13, **1928.***

Lava Creek vents, Butte County, Idaho, by A. L. Anderson, Northwest Science, vol. 3, pp. 13-18; also issued privately; December, **1928.**§

The "Craters of the Moon" in Idaho, by H. T. Stearns: Ann. Rept. Smithsonian Institution, pp. 307-313, **1928.**§

Geology and ore deposits of the Lava Creek district, Idaho, by A. L. Anderson: Idaho Bureau of Mines and Geology Pamphlet 32, **1929.****

CAMAS COUNTY

Camas County is one of the south-central counties, being bounded on the north and east by Blaine, on the south by Lincoln and Gooding, and on the west by Elmore County. It has an area of 1,070 square miles, and was accredited with a population of 1,411 in the 1930 census, or 1.3 persons to the square mile. The population is engaged in stockraising and dry farming, which pursuits are confined to the 300,000 fertile acres of the Camas Prairie.

The county is served by locally maintained roads, two Forest Service highways, and the Shoshone-Hill City branch of the O. S. L. Railroad. Fairfield is the largest town and county seat.

The principal mining districts are the Rosetta, Little Smoky, and Skeleton. The Skeleton district includes the drainage area forming the headwaters of the South Fork of the Boise River, and Little Smoky district comprises the drainage area of Little Smoky and Carrie Leonard Creeks. The ores found in the latter are those of lead-silver and zinc, and the mines in the former are principally gold, both placer and lode. In addition to the foregoing, the other mineral resources are copper, tungsten, and diatomaceous earth.

The mines in the Carrietown section of the Little Smoky district have a good production record to their credit, and their latent possibilities still offer excellent opportunities for profitable mines, either through the apparent

possibility in some mines for finding the ore beyond the faults which caused a suspension of operations in the early nineties, or, in other mines, of adapting modern flotation methods to the large bodies of proven low-grade ore.

1930 Activities

One of the largest expenditures and the one of the most importance to the county was that of the Silver Star Queens Mines, Inc. in constructing the remaining 6 miles of highway between Fairfield and the Silver Star mine at Carrietown. This work was done in cooperation with the U. S. Forest Service. Its completion makes the Carrietown section accessible to the railroad by a standard forest highway.

The Consolidated Mines Syndicate, which is developing a prospect in the Willow Creek section, maintained exploration work with a small crew during 10 months of the year. The Perseverance Mines Co., Inc., was reorganized after an action brought by the stockholders in the U. S. Federal Court had removed the former president and general manager. Stock assessments were then levied, and the funds used to drive a new tunnel.

The gold resources of this county, both placer and lode, on the South Fork of the Boise River and in the Big Smoky section received more attention than during the previous year. Much prospecting and development work was done during the summer months. The Idaho Placer Mines Co., a new organization, constructed a 3-mile ditch and did a little trenching.

CARRIE LEONARD MINING CO.

Office: 319 Dooly Blk., Salt Lake City, Utah. **Officers:** Boyd T. Park, Pres.; W. A. Wilson, Sec.-Mgr., both of Salt Lake City. **Inc.:** Filed in Idaho, July 21, 1926. **Capital:** 200,000 shares; par value 10c; 188,142 shares issued. **Property:** Carrie Leonard group; 8 patented claims, Little Smoky dist.; Fairfield. **Ore:** Lead-silver. **Remarks:** Idle.

CLIPPER GOLD MINING & MILLING CO.

Office: Box 61, Fairfield. **Officers:** Chas. J. Sherry, Sr., Pres.-Mgr., Fairfield; C. J. Sherry, Jr., Sec., Long Beach, Calif. **Inc.:** Apr. 3, 1907. **Capital:** 500,000 shares; par value $1; 25,000 shares issued. **Property:** Clipper group; 4 unpatented claims, Rosetta dist.; Fairfield. **Development:** By 3 short tunnels. **Remarks:** Annual labor only.

CONSOLIDATED MINES SYNDICATE

Office: 623 First Nat'l Bank Bldg., Boise. **Officers:** Frank E. Johnesse, Pres.-Mgr.; Paul L. Oakes, Sec., both of Boise. **Inc.:** May 6, 1924. **Capital:** 10,000 shares; no par value. On August 15, 1924, the capitalization was changed to 10,000,000 shares, $2.50 par value; and on May 2, 1925, the capitalization was decreased to 10,000,000 shares; par value $1; 2,810,865 shares issued. **Property:** Princess-Blue Ribbon groups; 7 unpatented claims, unorganized dist.; Beaver Creek; Fairfield. **Development:** By 4 tunnels: No. 1, 170 ft.; No. 2, 415 ft.; No. 3, 350 ft.; No. 6, 575 ft. **Plant:** Gas-driven compressor; air-driven hoist; complete mining equipment and camp. **Ore:** Lead-silver-gold. **Men employed:** Average, 7. **Remarks:** Active exploratory work during 10 months of the year, part of which consisted of sinking a short vertical shaft in the lower tunnel. Work was suspended in November.

GLACIER GOLD PLACER MINING CO.

Office: Fairfield. **Officers:** J. R. Prentice, Pres., Mountain Home. **Inc.:** April 4, 1930. **Capital:** 100,000 shares; par value $1; 500 shares issued. **Property:** 1 unpatented claim, unorganized dist.

HIDDEN TREASURE MINE & MILLING CO.

Office: Fairfield. **Officers:** Chas. J. Sherry, Sr., Pres.-Mgr.; Fairfield. **Inc.:** July 10, 1916. **Capital:** 500,000 shares; par value 10c; 450,000 shares issued. **Property:** Hidden Treasure group; 4 unpatented claims, Little Smoky dist.; Fairfield. **Development:** By 3 tunnels; total development, approximately 3000 ft. **Plant:** Partly dismantled 50-ton concentrator. **Ore:** Lead-silver. **Remarks:** Annual labor only.



VIEW OF NEW HIGHWAY TO SILVER STAR MINE

IDAHO PLACER MINES CO.

Office: Twin Falls. **Officers:** B. A. Drake, Sec.-Mgr., Twin Falls. **Inc.:** Aug. 30, 1930. **Capital:** 150,000 shares; par value $1; 26,050 shares issued. **Property:** 9 unpatented claims, Rosetta dist.; Fairfield. **Ore:** Placer gold. **Men employed:** Average, 8. **Remarks:** A 3-mile ditch was constructed, and a small amount of surface trenching was done during the summer months.

MALAHAT MINING CO.

Office: 1301 N. 22d St., Boise. **Officers:** Robert Leaper, Pres.-Mgr., Fairfield; William MacLeod, Sec., Boise. **Inc.:** Aug. 19, 1930. **Capital:** 100,000 shares; par value $1; 51,000 shares issued. **Property:** Stormy-Galore group; 3 unpatented claims, held under lease and option, Little Smoky dist.; Fairfield. **Development:** Principally by 1 tunnel 600 ft. long. **Ore:** Lead-silver.

PERSEVERANCE MINES CO., INC.

Office: 602 Hyde Bldg., Spokane, Wash. **Officers:** Oscar E. Anderson, Pres.-Mgr., Fairfield; Isobel Wood, Sec., Spokane, Wash. **Inc.:** May 28, 1927; charter forfeited Nov. 30, 1930. **Capital:** 4,000,000 shares; par value 25c; 2,407,909 shares issued. **Property:** Five Point group; 12 unpatented claims, Little Smoky dist.; Fairfield. **Development:** 4 short tunnels. **Ore:** Lead-silver, gold. **Men employed:** Average, 3. **Remarks:** A new tunnel 230 ft. long was driven during the year. Stock assessments were levied as follows: May 22, 2 mills; Sept. 10, 3 mills. Through the efforts of the present directors Mr. George R. Colvin, formerly president and general manager, was removed by an action in the U. S. Federal Court.

RICHARD ALLEN MINES CO.

Office: Gooding. **Officers:** F. D. Wagner, Pres., Picabo; Mrs. Kate Finch, Sec., Fairfield. **Inc.:** May 23, 1927. **Capital:** 600,000 shares; par value 5c; 93,160 shares issued. **Property:** 3 unpatented claims, unorganized dist., Soldier Mountain; Fairfield. **Development:** By 3 tunnels; total development, approximately 2000 ft. **Ore:** Copper-silver-gold. **Remarks:** Annual labor only. An annual stock-selling campaign during the year. The company reports some "white metal."

SILVER STAR-QUEENS MINES, INC.

Office: Wallace. **Officers:** L. K. Stratton, Pres., Spokane, Wash.; Wm. J. Stratton, Sec., Wallace. **Inc.:** Nov. 22, 1929. **Capital:** 10,000,000 shares; par value 10c; shares issued, 5,699,039. **Property:** Silver Star group, 11 patented claims, Little Smoky dist.; Fairfield. **Development:** By 3 tunnels: No. 1, 700 ft. long; No. 2, 900 ft. long; No. 3, 1100 ft. long; and an inclined shaft 200 ft. long. Total development over 6000 ft., which opens the vein to a depth of 500 ft. **Ore:** Lead-zinc-silver. **Remarks:** In cooperation with the U. S. Forest Service 6 miles of standard highway were constructed during the summer months. This work completed the highway between the mine and Fairfield. A stock assessment of 5 mills was levied on July 15.

TAFT MINE

Office: Hailey. **Owner:** Homer D. Jones, Hailey. **Property:** Taft group; 4 unpatented claims, Little Smoky dist.; Fairfield. **Development:** By 2 tunnels: No. 1, 165 ft. long; No. 2, 200 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Axalorr	Skeleton Creek	R. M. Angel	Fairfield
Bear Creek	Skeleton Creek	R. S. Mockett	Lincoln, Neb.
Blue Bird	Little Smoky	Robt. Leaper	Fairfield
Carrie Leonard	Little Smoky	Jas. Gilson, Agt.	Hailey
Climax	Little Smoky	Jas. Williams	Fairfield
Dollarhide	Little Smoky	R. D. Leach	Pocatello
Five Points	Little Smoky	Wm. Finney	Soldier
Fourth of July	Little Smoky	H. D. Jones	Hailey
Golden Star	Little Smoky	Chris Christofsen	Fairfield
Hercules	Big Smoky	W. W. Counterman	209 So. 3d St., Boise
Horn Silver	Little Smoky	P. E. Fletcher	Fairfield
Idaho Chief	Little Smoky	Philip B. Becker	Fairfield
Isabella	Little Smoky	Edw. Somers Est.	Hailey
Gold Bar Placer	Skeleton Creek	Chris L. Giskey	Fairfield
King of the West	Little Smoky	Maylan C. Fox	P. O. Box 774, Salt Lake City, U.
Little Bob	Little Smoky	M. Ryan	Fairfield
Lucky Strike	Little Smoky	Joe Vogner	Fairfield
Manchuria Placer	Rosetta	H. D. Jones	Hailey
Ohio Placer	Little Smoky	Geo. E. Ball	Bridgeport, Conn.
Princess	Willow Creek	Roy Jones	Fairfield
Silver King	Little Smoky	H. D. Jones, Agt.	Hailey
Smoky Bullion	Little Smoky	Ernest Worswick Est.	Reno, Nev.
Square Deal	Little Smoky	Robert Leaper	Fairfield
.....	Little Smoky	Wm. Lewis	Fairfield

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

A geological reconnaissance across Idaho, by G. H. Eldridge: U. S. Geol. Survey Sixteenth Ann. Rept., pt. 2, pp. 217-276, **1895.***

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey Twentieth Ann. Rept., pt. 3, pp. 75-256, **1900.***

Nitrate deposits in southern Idaho, and eastern Oregon, by G. R. Mansfield: U. S. Geol. Survey Bull. 620, pp. 19-44, **1915.***

Ore deposits in the Sawtooth quadrangle, Blaine and Custer counties, Idaho, by J. B. Umpleby: U. S. Geol. Survey Bull. 580, pp. 221-249, **1915.**‡

Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****

Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 60, art. 3, pp. 1-33, **1921.**‡

Ground water for irrigation on Camas Prairie, Camas and Elmore counties, Idaho, by A. M. Piper: Idaho Bureau of Mines and Geology Pamphlet 15, **1926.****

Geology and ore deposits of the Seafoam, Alder Creek, Little Smoky and Willow Creek districts, Custer and Camas counties, by C. P. Ross: Idaho Bureau of Mines and Geology Pamphlet 33, **1930.****

CANYON COUNTY

The only known mineral resources of this county are diatomaceous earth, various clays of excellent quality, and a few gold placer deposits along the Snake River. Three companies, based on the development of oil and gas in this county, were incorporated during the year. They obtained a large acreage under lease, but none of them commenced drilling operations.

INTERMOUNTAIN COOPERATIVE GAS & OIL CO.

Office: Caldwell. **Officers:** F. Lee Johnson, Pres., Parma; W. F. Homan, Sec., Weiser. **Inc.:** Feb. 5, 1930. **Capital:** 25,000 shares; par value $1; 6,700 shares issued. **Property:** Approximately 20,000 acres of oil and gas leases in Canyon County, Idaho, and Malheur County, Oregon, under contract with United Utilities Corporation for development. **Mineral sought:** Gas and oil.

TRI-STATE DEVELOPMENT CO., INC.

Officers: Hugh N. Caldwell, Caldwell. **Inc.:** Dec. 3, 1930. **Capital:** 100,000 shares; par value $1; 10,000 preferred, 90,000 shares common. **Remarks:** Failed to file the reports required by law.

UNITED UTILITIES CORPORATION

Office: Caldwell. **Officers:** Geo. Thorson, Pres.-Mgr.; G. W. Bauch, Sec., both of Minneapolis, Minn. **Inc.:** July 15, 1930. **Capital:** 2,500 shares; par value $100; all shares issued. **Property:** Approximately 20,000 acres of oil and gas leases in Canyon County, Idaho, and Malheur County, Oregon, under contract for lease. **Mineral sought:** Gas and oil.

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Notes on geology of southwestern Idaho and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Bull. 217, **1903.**‡

Description of the Nampa quadrangle, by Waldemar Lindgren and N. F. Drake: U. S. Geol. Survey Geol. Atlas, Folio No. 103, **1904.***

Gas and oil prospects near Vale, Oregon, and Payette, Idaho, by C. W. Washburne: U. S. Geol. Survey Bull. 431, pp. 26-55, **1909.***

Oil and gas possibilities of eastern Oregon, by J. P. Buwalda: Oregon Bureau of Mines and Geology, vol. 3, No. 2, **1921.***

A preliminary reconnaissance of the gas and oil possibilities of southwestern and south-central Idaho, by J. P. Buwalda: Idaho Bureau of Mines and Geology Pamphlet 5, **1923.***

CARIBOU COUNTY

Caribou is one of the large southeastern counties of the State, being bounded on the east by the State of Wyoming, on the south by Bear Lake, on the east by Bannock, and on the north by Bingham and Bonneville counties. It has an area of 1,263 square miles, and was accredited with a population of 2,121, or 1.7 persons to the square mile, in the 1930 census. Soda Springs, the county seat and the only settlement of importance, is situated in the southeastern corner. The county is principally a sheep raising and agricultural community, and Soda Springs is one of the largest sheep shipping points in the United States.

The southeastern corner of the county is served by the main line of the O. S. L. Railroad, with an 8-mile branch road to Conda, the scene of the Anaconda Copper Mining Co.'s operation, and by the main east and west State highway, the Old Oregon Trail.

The principal mineral resources are phosphate rock, salt, sulphur, and mineral springs, and there are excellent possibilities for the discovery of petroleum. These resources are different from those of most counties, and when properly exploited will be a material factor in the prosperity of the county and State.

A large part of the five billion tons of minable phosphate rock, estimated by geologists of the U. S. Geological Survey, is in this county. These deposits are practically untouched, and constitute one of the greatest potential mineral resources of the State. They are fully described, including analyses and tonnage estimates, in the numerous publications referred to in the bibliography. The Anaconda Copper Mining Co. is pioneering in the development of the rock phosphate industry and has expended over $2,000,000 in its mine, mine plant, mill, railroad, power lines, and townsite.

One of the most outstanding publications issued by the U. S. Geological Survey in recent years is Professional Paper 152, by G. R. Mansfield: "Geography, Geology, and Mineral Resources of Part of Southeastern Idaho". This appeared during 1927; it is profusely illustrated with pictures, maps, and diagrams, and describes in detail the subjects mentioned in its title, dealing especially with the immense areas of phosphate rock found in this county.

The only salt found in the State is in Caribou County. Geologists of the U. S. Geological Survey conservatively estimate five million tons in one deposit, with the possibility of a large tonnage in adjacent areas. The deposits are located on Stump and Tygee creeks, near the State line.

The mineral springs, which are located at Soda Springs, constitute an important resource which is lying dormant. The waters from these springs have exceptional medicinal qualities, are excellent for table use, and offer a great possibility if properly developed and exploited.

A number of structures favorable to the accumulation of petroleum are found in the eastern part of the county. The location and geology of these areas are fully described in the publications issued by the Idaho Bureau of Mines and Geology.

1930 Activities

The Anaconda Copper Mining Co., which is operating one of the largest phosphate mines in the United States, enlarged its mining equipment, constructed three new homes for its employees, maintained a large production throughout the greater part of the year, and extended its principal (No. 3) tunnel about 7,000 feet. The phosphate rock which this company is producing is shipped to Anaconda, Montana, where it is manufactured into high-grade fertilizer and sold under the trade name of "Anaconda treble superphosphate."

ANACONDA COPPER MINING CO.

Office: Anaconda, Mont. **Officers:** C. F. Kelley, Pres.; A. H. Melin, Sec., both of 25 Broadway, New York City; E. M. Norris, Local Mgr., Conda, Idaho. **Inc.:** Filed in Idaho: Apr. 10, 1916. **Capital:** 12,000,000 shares; par value $50; 5,415,266 shares issued. **Property:** 23 patented claims; 3403 acres, unorganized dist.; Conda. **Development:** 3 adits, 45 ft. above railroad-track level, 9x9 ft. inside of timbers: No. 1, 6050 ft. long; No. 2, 2660 ft. long; No. 3, 8200 ft. long. The main operating tunnels are equipped with 25-lb. rail, 36-in. gauge track, 15-ton storage-battery locomotive capable of hauling a 100-ton net load at a speed of 4 to 7 miles per hour, 10-ton side dump ore cars, power loading machines operated by compressed air and No. 4 sirocco fan. **Plant:** MINE: 1000-cu.-ft. compressor; drill sharpeners; machine, blacksmith and carpenter shops with latest type power-driven equipment; switch boards and motor generator charging set; laboratory; electric sub-station, sawmill, and preservative plant for treating mine timbers all housed in fireproof gunited and steel buildings. MILL: Crushing and drying plant. The mill feed and storage bins are connected with the main tunnels by large trestles. The storage bins, with a capacity of over 4000 tons, and houses over them are protected with several inches of gunite. The main storage bin is equipped with an Ottumwa boxcar loader and modern railroad scales. The rock drawn from the mill feed bin, which has a capacity of 450 tons, passes over shaking grizzlies, the oversize going to a 12-inch Traylor gyratory crusher, which reduces it to about 2½ inches. The product from the crusher and the undersize is elevated and passed over a Mitchell vibrating screen. The rock passing through this screen goes to the dryer feed bin, and the oversize to 22x54-inch Anaconda rolls that reduce it to three-fourths of an inch. The product from the rolls is elevated and again passes over the Mitchell vibrating screen. The crushed rock drawn from the dryer feed bins is conveyed into class A-12 Ruggles-Coles dryers by apron feeders. After leaving the dryer the rock goes over a shaking feeder to a chain bucket elevator. This elevator carries it to the top of the mill where it passes through a Vezin sampler, and it is then conveyed to the storage bins. The present capacity of the mill is 400 tons in 24 hours. This output can be increased to 1000 tons in the same time by adding another



CONDA, IDAHO

dryer. **Railroad:** 8-mile branch from Soda Springs to mine, with storage tracks that will accommodate 100 fifty-ton railroad cars, spurs to mill and coal bins, and wyes at each end of the yards. The gradient of the storage tracks is such that the cars are operated by gravity to and from the storage bins. **Town:** The company has erected a model mine town consisting of modern homes, which are rented to the employees at a nominal figure. Company offices, bunk and boarding houses, superintendent's home, recreation hall and a number of small homes have been erected. A fully equipped store is maintained by the company, a post-office has been established, and a modern school erected and maintained. A complete water system for the town and plant has been installed; the water is piped a distance of 2 miles to a 100,000-gallon storage tank from which it is distributed. **Ore:** Phosphate rock. **Men employed:** Average, 70. **Remarks:** During the greater part of the year active production was maintained at the rate of approximately 200 tons per day. Note pages 26 to 31 of Twenty-fifth Annual Report for complete description of this operation, and pages 28 and 29 of Thirty-first Annual Report for stoping methods used. No. 3 tunnel was extended without interruption. This tunnel ran through such heavy ground that it was necessary to support it for a length of 200 ft. with steel sets and reinforced concrete.

GEBO CONSOLIDATED OIL CO.

Office: 616 Walker Bank Bldg., Salt Lake City, Utah. **Officers:** Wm. R. Calvert, Pres., San Antonio, Texas; C. L. Cundick, Sec.; Orman W. Ewing, Mgr., both of Salt Lake City. **Inc.:** Filed in Idaho, Dec. 16, 1930. **Capital:** 2,000,000 shares; no par value; 474,919 shares issued. **Property:** 600 acres patented land on Crow Creek, held under oil and gas lease.

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

Phosphate deposits in western United States, by F. B. Weeks and W. F. Ferrier: U. S. Geol. Survey Bull. 315, pp. 449-462, **1907.***

The salt resources of the Idaho-Wyoming border, with notes on the geology, by C. L. Breger: U. S. Geol. Survey Bull. 430, pp. 555-569, **1910.***

Preliminary report on a portion of the Idaho phosphate reserve, by R. W. Richards and G. R. Mansfield: U. S. Geol. Survey Bull. 470, pp. 371-439, **1910.***

Sulphur deposits near Soda Springs, Idaho, by R. W. Richards and J. H. Bridges: U. S. Geol. Survey Bull. 470, pp. 499-503, 1910; Eng. and Min. World, vol. 36, p. 12, Jan. 6, **1910.***

A geological reconnaissance in southeastern Idaho, by A. R. Schultz and R. W. Richards: U. S. Geol. Survey Bull. 530, pp. 267-284, **1911.***

Geology of the phosphate deposits northeast of Georgetown, Idaho, by R. W. Richards and G. R. Mansfield: U. S. Geol. Survey Bull. 577, **1914.***

Revision of the Beckwith and Bear River formations of southeastern Idaho, by G. R. Mansfield and P. V. Roundy: U. S. Geol. Survey Prof. Paper 98, pp. 75-84, **1916.***

Salt resources of the United States, by W. C. Phalen: U. S. Geol. Survey Bull. 669, pp. 131-137, **1919.***

Oil shale in western Montana, southeastern Idaho, and adjacent parts of Wyoming and Utah, by D. D. Condit: U. S. Geol. Survey Bull. 711, pp. 15-40, **1920.**‡

Petroleum possibilities of certain anticlines in southeastern Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Bull. 4, **1922.***

The Wasatch and Salt Lake formations of southeastern Idaho, by G. R. Mansfield: Am. Jour. Sci., vol. 49, pp. 390-406, June, **1920.**§

Triassic and Jurassic formations in southeastern Idaho and neighboring regions, by G. R. Mansfield: Am. Jour. Sci., vol. 50, pp. 53-64, July, **1920.**§

Types of Rocky Mountain structure in southeastern Idaho, by G. R. Mansfield: Jour. Geology, vol. 29, No. 5, pp. 444-468, July-August, **1921.**§

Phosphate mine of Anaconda Copper Company, by C. E. Nighman: Idaho Twenty-fifth Ann. Rept. Min. Industry, **1923.***
Geology and oil possibilities of Bingham, Bonneville, and Caribou counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Bull. 8, **1924.****
Geography, geology, and mineral resources of part of southeastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Prof. Paper 152, **1927.***
The Idaho phosphate field, by G. R. Mansfield: Mining and Metallurgy, vol. 9, pp. 19-20, January, **1928.**§
Geography, geology, and mineral resources of the Portneuf quadrangle, Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 803, **1929.**‡

CASSIA COUNTY

Cassia is one of the principal southern counties, being bounded on the south by the States of Nevada and Utah, on the west by Twin Falls, and on the east by Oneida and Power counties. Snake River forms its northern boundary, which is also a part of the southern boundary of Jerome, Minidoka, Blaine, and Power counties. It has an area of 2,595 square miles, and was accredited with a population of 13,116 in the 1930 census. The principal industries are stockraising and farming. Burley, which is on the Snake River, near the center of the Minidoka project of the U. S. Reclamation Service, is the largest town and county seat.

The northern part of the county is served by the Old Oregon Trail State Highway; the other parts by a well-maintained system of county roads. Its railroad is the Minidoka-Buhl branch of the O. S. L. Railroad, from which there are branch lines extending from Burley to Idahome, and from Burley to Oakley.

The minerals found in this county are silver, lead, copper, gold, limestone, building stone, marble, cinnabar, and lignite. In the past, a little drilling has been done for petroleum, but all the companies have been practically idle for the past four years. These varied mineral resources, particularly the high grade lead-silver and silver-copper ores of the Stokes and Dolomite districts, offer excellent opportunities and possibilities for prospectors and development companies.

1930 Activities

The Silver Hills Mining Co. was the only active company in the county during the year. New camp buildings were erected, a gas-driven compressor and complete mining equipment were installed, and a large amount of development was done. This company's property is located in the Black Pine district, which is in the southeast corner of the county near the Utah line.

BIG BERTHA MINING CO.

Officers: T. E. Walton, P. O. Box 354, Shoshone. **Inc.:** Sept. 30, 1924. **Capital:** 25,000 shares; par value $1. **Remarks:** Failed to file the reports required by law.

GOOSE CREEK OIL & DEVELOPING CO.

Office: Penn Ave. & 18th St., Pittsburgh, Pa. **Officers:** W. M. Gill, Pres.; H. E. Wynn, Sec.; D. P. Carpenter, Mgr., all of Pittsburgh, Pa. **Inc.:** Oct. 28, 1920. **Capital:** 1,000,000 shares; par value 50c; 333,200 shares issued. **Property:** Government prospecting permit on 8000 acres on Coal and Goose creeks; Oakley. **Development:** 1800-ft. well. **Mineral sought:** Oil and gas. **Remarks.** Idle.

MELCHER MINING & MILLING CO.

Office: 503 McIntyre Bldg., Salt Lake City, Utah. **Officers:** Samuel McIntyre, Sr., Pres.; Roy A. McIntyre, Sec., both of Salt Lake City. **Inc.:** May 2, 1899. **Capital:** 500,000 shares; par value 10c; all shares issued. **Development:** By 2 tunnels: No. 1, 3300 ft. long; No. 2, 1600 ft. long. **Remarks:** Annual labor only.

SILVER HILLS MINING CO.

Office: 1258 Crandall Ave., Salt Lake City, Utah. **Officers:** W. J. Burridge, Pres.-Mgr.; L. M. Francis, Sec., both of Salt Lake City, Utah. **Inc.:** Mar. 31, 1920. **Capital:** 800,000 shares; par value 10c; Aug. 7, 1930, increased to 1,000,000; 603,553 shares issued. **Property:** Busy Bee and Joven groups; 37 unpatented mining claims, Black Pine dist.; Black Pine. **Development:** 5 tunnels, 1 shaft; approximately 3300 ft. total development. **Plant:** Gas-driven compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 4. **Remarks:** A mine plant was installed, and a new boarding and bunk house, a new blacksmith shop, compressor building and a large water tank were erected. The mine development work progressed without interruption during the year.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Alice	Stokes	W. E. Langford	229 W. 2d St. N., Salt Lake City
Albion Gr.	Stokes	J. E. Comerford	Rupert
Bimetallic	Stokes	F. E. Trayme	Albion
Giant	Stokes	Samuel McIntyre	Salt Lake City
Golden Eagle	Stokes	O. H. Melcher	Albion
Hazel Pine	Black Pine	F. B. Platt	265 E. Broadway, Salt Lake City
Ken-Sko	Dolomite	Robt. B. Kenner	Salt Lake City
Last Chance	Unorganized	Charles Ransom	Burley
Last Chance Gr.	Grape Creek	J. W. Durfee	Malta
Sample Placer	Snake River	Thomas C. Elgin	Neeley
Walton No. 2	Stokes	T. C. Walton	Burley

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Lignite in the Goose Creek district, Cassia County, Idaho, by C. F. Bowen: U. S. Geol. Survey Bull. 531, pp. 252-262, **1913.***

Portland cement materials and industry in the United States, by E. C. Eckel, with contributions by E. F. Burchard and others: U. S. Geol. Survey Bull. 522, p. 135, **1913.***

Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****

Preliminary report on the clays of Idaho, by F. H. Skeels: Idaho Bureau of Mines and Geology Bull. 2, **1920.***

Geology and water resources of the Goose Creek Basin, Cassia County, Idaho, by A. M. Piper: Idaho Bureau of Mines and Geology Bull. 6, **1923.***

CLARK COUNTY

Clark is one of the southeastern counties, adjoining and lying east of Lemhi and Butte counties, and bounded on the north by the State of Montana, on the east by Fremont County, and on the south by Jefferson County. It contains an area of 1,778 square miles and was accredited with a population of 1,122 in the 1930 census. Dubois is the principal town and county seat.

The Pocatello-Butte division of the O. S. L. Railroad, and the Idaho-Montana State highway traverse the county north and south, thus giving it good transportation facilities.

The Lemhi Mountains, which extend into the northwest corner of the county, constitute the principal mining district. This district is named from Birch Creek, which flows in a southern direction and which divides the district. The western part is an extension of the Dome, or Hamilton, district of Butte County, and the eastern part is an extension of the Nicholia district

of Lemhi County. The ores found throughout this area are lead-silver, copper-silver, and zinc. The deposits have been partially developed and a small tonnage has been marketed.

Deposits of coal and bentonite of sufficient extent to be of commercial importance and structures favorable to the accumulation of oil and gas in commercial quantities occur in the Beaverhead Mountains, the summit of which is the state line between Idaho and Montana.

The geography, geology, and ore deposits of the Birch Creek district are fully described, together with maps and illustrations, in a publication issued during 1928 by the Idaho Bureau of Mines and Geology as Pamphlet No. 27: "Geology and Ore Deposits of the Birch Creek District, Idaho," by P. J. Shenon.

1930 Activities

The Birch Creek district experienced a small amount of development work and investigation during the year. Press reports were to the effect that the Monida Oil Co., an organization which entered the county in 1929, installed drilling equipment and conducted operations until July, when all operations were suspended.

BIRCH CREEK MINING CO., LTD.

Office: Idaho Falls. **Officers:** George Brunt, Pres.; A. T. Shane, Sec., both of Idaho Falls. **Inc.:** June 21, 1907. **Capital:** 1,000,000 shares; par value 10c; 500,000 shares issued. **Property:** Scott group; 9 unpatented claims, Birch Creek dist.; Winsper, R. R. Dubois, 35 miles. **Ore:** Lead.

MONIDA OIL CO.

Office: 11 Myler Bldg., Portland, Ore. **Officers:** Fred G. Ostland, Pres., Portland, Ore.; Paul R. Greever, Sec., Cody, Wyo. **Inc.:** Filed in Idaho Nov. 7, 1929; charter forfeited Nov. 30, 1930. **Capital:** 20,000 shares; par value $25. **Remarks:** Failed to file reports required by law. An active stock-selling campaign during the early part of the year. Press reports were to the effect that a well had been sunk to a depth of 1400 ft. and that operations were suspended in July.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Aviator et al.	Birch Creek	R. A. Connell and J. O'Brien	Reno
Big Dyke	Birch Creek	John Peterson	Winsper
Elephant	Birch Creek	David Bloom et al.	Idaho Falls
Lead Basin	Birch Creek	Frank Worthing	Reno
Lucky Strike No. 1	Unorganized	E. M. Kaufman	Dubois
Lucky Strike No. 2	Unorganized	C. H. Manhart	Dubois
Snow Flake Pl.	Birch Creek	John Peterson	Winsper
Sunset	Birch Creek	Ray Best et al.	Dubois
Sun Shine	Heart Mountain	Geo. A. Briggs et al.	Winsper
Tip Top	Birch Creek	Wm. Garretson et al.	Dubois

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

Geology and ore deposits of the Mackay region, Idaho, by J. B. Umpleby: U. S. Geol. Survey Prof. Paper 97, **1917.**‡

Geology and water resources of the Mud Lake basin, Idaho, by H. T. Stearns and L. L. Bryan: U. S. Geol. Survey Water-Supply Paper 560, pp. 85-134, **1925.**‡

A geologic reconnaissance of Clark and Jefferson, and parts of Butte, Custer, Fremont, Lemhi and Madison counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 19, **1927.***

Geology and ore deposits of the Birch Creek district, Idaho, by P. J. Shenon: Idaho Bureau of Mines and Geology Pamphlet 27, **1928.****

CLEARWATER COUNTY

Clearwater is one of the large northern counties, being bounded on the north by Shoshone County, on the east by the State of Montana, on the south by Idaho County, and on the west by Lewis, Nez Perce, and Latah counties. It has an area of 2,508 square miles and was accredited with a population of 6,599 in the 1930 census. Orofino, which is on the Clearwater River, near the western border, is the largest town and county seat. Except a small area adjacent to Orofino, which is devoted to agriculture, the entire county is mountainous and heavily timbered. The largest body of virgin white pine timber in the United States is located in this county.

It is served by three State highways which are partly constructed, by good county-maintained roads, and by the Lewiston-Stites branch of the Northern Pacific Railroad, which follows the Clearwater River.

Pierce City, which is the principal mining district in the county, was the scene of the first gold discovery in Idaho. This discovery was made in 1860, and the ensuing stampede soon crowded the district and the overflow spread into other sections. The stampede and resulting overflow formed the nucleus of the State, and shortly thereafter the Territory of Idaho was formed. Practically all the placer gold that could be recovered by hand methods or hydraulicking was exhausted years ago, and all recent operations have been devoted to dredging and lode mining.

Gold—placer and lode—silver, monazite, and copper are the principal minerals found in the Pierce City district. Lead, zinc, and silver occur in the Neva Hill section, and placer gold is still found in some of the isolated sections.

1930 Activities

The principal mining activities were those of the Clearwater Lime Co. and the Sewell Lime Co., whose properties are located near Orofino, and whose product, a high-grade white limerock, is sold to the agricultural, powder, and paper manufacturing industries. The former company completed construction and installation of an aerial tramway, ore bins, and grinding plants. It produced and marketed a substantial tonnage of rock. The Sewell Lime Co. commenced the construction of a railroad siding and the installing of quarrying equipment.

The gold resources of the Pierce City district received more attention than at any time during the past 10 years. Two new enterprises based on the recovery of placer gold and three new enterprises based on the development of quartz mines entered the district and did a small amount of work. The lead-silver deposits, in the Neva Hill section, near Elk River, received some attention, the principal operations being those of the Ruby Creek Mining Co., which did a little development work and commenced construction and installation of a small flotation concentrator. The Independence Placer Mining Co., Ltd. in the Moose City district performed a small amount of construction work during a period of four months. A publication of importance, which was issued in 1930, and which displays the geology and mineral resources of this county, was Pamphlet 34 of the Idaho Bureau of Mines and Geology, "Geology and Mineral Resources of the Region about Orofino, Idaho," by A. L. Anderson.

ALDER CREEK MINING CO.

Office: 404 Court House, Duluth, Minn. **Officers:** Thos. Owens, Pres., Two Harbors, Minn.; F. H. Grannis, Sec., Breckenridge, Texas. **Inc.:** Apr. 4, 1902. **Capital:** 200,000 shares; par value $1; 178,000 shares issued. **Property:** 800 acres patented land, Pierce City dist.; Orofino. **Ore:** Placer gold. **Remarks:** Idle.

AMERICAN PLACER MINING CO., LTD.

Office: Peyton Bldg., Spokane, Wash. **Officers:** D. W. Porter, Sec., Spokane. **Inc.:** Nov. 18, 1893. **Capital:** 500,000 shares, par value $1; all shares issued. **Property:** 3 patented, 1 unpatented claim; Pierce. **Ore:** Placer gold. **Remarks:** Annual labor only on the unpatented claim.

CLEARWATER LIME CO.
Office: Orofino. **Officers:** L. G. Kimzey, Pres.; G. S. Burford, Sec.-Mgr., both of Colfax, Wash. **Inc.:** As Clearwater Lime Products Co. Sept. 4, 1928; name changed May 19, 1930. **Capital:** 500,000 shares; par value $1; 192,545 shares issued. **Property:** 3 unpatented claims held under lease. **Development:** 1 tunnel 255 ft. long, and quarry. **Plant:** MINE: Electric ally driven G-D compressor, complete mining and quarrying equipment; 1200-foot aerial tramway connecting mine and mill. MILL: Crude ore bin capacity 600 tons. Finished product bin capacity 1000 tons. Complete 3-stage grinding and screening equipment. **Ore:** Limerock. **Men employed:** Average, 6. **Remarks:** A substantial tonnage of rock was mined and marketed during the year. The product is being sold to the agricultural, and powder and paper manufacturing industries. This enterprise is fully described with illustrations in Pit and Quarry, vol. 19, pp. 67-73, March 12, 1930.

CLEARWATER PLACER MINING CO.
Office: 601 Hutton Bldg., Spokane. **Officers:** H. E. Rhodehamel, Pres.; Chas. H. Ennis, Sec., both of Spokane. **Inc.:** Aug. 21, 1923. **Capital:** 1,400,000 shares; par value 10c; all shares issued. **Property:** Yellow Bar group; 8 unpatented claims, Pierce City dist.; Pierce.

COBRA MINING & MILLING CO.
Officers: W. C. Kirby, Sec., 1516 Eighth Ave., Lewiston. **Inc.:** May 7, 1925. **Capital:** 5,000,000 shares; par value 1c. **Remarks:** Failed to file the reports required by law.

IDAHO DREDGING CO.
Office: 639 Peyton Bldg., Spokane, Wash. **Officers:** W. J. Delaney, Pres.-Mgr., Spokane, Wash. **Inc.:** Oct. 10, 1929. **Capital:** 500,000 shares; par value $1; shares issued, unknown. **Property:** Cow Creek group; 6 unpatented placer claims, held under lease and option from J. R. Crawford, Pierce City dist.; Pierce. **Ore:** Placer gold. **Remarks:** Ditches repaired and a small amount of work done during the late summer. (See Custer County.)

INDEPENDENCE PLACER MINING CO., LTD.
Office: Wallace. **Officers:** Wm. Fahle, Pres.-Mgr.; Hugh Toole, Sec., both of Wallace. **Inc.:** Oct. 25, 1906. **Capital:** 1,000,000 shares; par value $1; 596,536 shares issued. **Property:** 16 unpatented claims, Moose City dist.; Rivulet, Mont. **Men employed:** Average, 3. **Ore:** Placer gold. **Remarks:** A small amount of ditch construction and repair work during a period of 4 months.

NEVA COPPER CO.
Office: Bovill. **Officers:** George Brady, Pres.-Mgr., Bovill; Vera Harris, Sec., Spokane, Wash. **Inc.:** Feb. 29, 1924. Charter forfeited Nov. 30, 1929. **Capital:** 1,000,000 shares; par value 25c; 515,000 shares issued. **Property:** 2 unpatented claims, Ruby Creek dist.; Bovill. **Ore:** Copper-silver. **Remarks:** Annual labor only.

OXFORD COPPER MINING CO., LTD.
Office: Moscow. **Officers:** Samson Snyder, Pres., Orofino; L. F. Parsons, Sec., Boise. **Inc.:** Apr. 10, 1907. **Capital:** 1,000,000 shares; par value $1; 610,467 shares issued. **Property:** 7 unpatented claims, Pierce City dist.; Pierce. **Development:** Approximately 500 ft. of underground workings. **Plant:** Steam-driven hoist. **Ore:** Copper. **Remarks:** Annual labor only.

PIERCE CITY GOLD PROJECT
Office: 120 Wall St., Spokane, Wash. **Officers:** R. H. Pfeffer, Pres., Spokane, Wash. **Inc.:** "An option project." **Property:** 2 unpatented claims, held under lease and option from William H. Stowell, Spokane, Wash.; Pierce City dist.; Pierce. **Development:** By 1 tunnel 600 ft. long. **Plant:** Steam-driven compressor. **Ore:** Gold. **Remarks:** The jurat on the report filed by this project was signed, "R. H. Pfeffer, President, American Expiration Co."

PIERCE ENTERPRISE CONSOLIDATED MINING CO., INC.

Office: Orofino. **Officers:** Theo. Fohl, Pres.; W. F. Robertson, Sec., both of Orofino; James D. Kennelley, Mgr., Pierce. **Inc.:** May 5, 1930. **Capital:** 500,000 shares; par value $1; 265,015 shares issued. **Property:** Silver Creek group; 4 unpatented claims, Pierce City dist.; Pierce. **Development:** Numerous old tunnels, cross cuts and open cuts. **Ore:** Gold. **Remarks:** A small amount of work during the summer months.

RUBY CREEK MINING CO.

Office: Bovill, Idaho. **Officers:** P. A. Hughes, Pres.; J. M. Evans, Sec.; Ralph Griffiths, Mgr., all of Bovill. **Inc.:** Sept. 14, 1925. **Capital:** 1,500,000 shares; par value 10c; 798,640 shares issued. **Property:** Ruby Creek group; 22 unpatented claims, Ruby Creek dist.; Bovill. **Development:** By 1 tunnel 665 ft. long, and a vertical shaft 170 ft. deep. **Plant:** Steam-driven compressor; complete mining equipment, and camp. **Ore:** Lead-zinc-silver. **Men employed:** Average, 10. **Remarks:** Annual labor only. A small amount of mine development work and construction started on the erection of a mill building.

SEWELL LIME CO.

Office: Orofino. **Officers:** Herbert D. Britan, Pres.; Joseph M. Molloy, Sec.-Mgr., both of Orofino. **Inc.:** Jan. 21, 1930. **Capital:** 500,000 shares; par value $1; 265,300 shares issued. **Property:** Lime Mountain; 240 acres held under mineral lease from the State. **Mineral sought:** Limestone. **Men employed:** Average, 6. **Remarks:** Work was started on constructing a railroad siding; mine camp buildings were erected; and preparatory work for quarrying operations was done.

WASHINGTON GOLDEN EAGLE MINING CO.

Office: Yakima, Wash. **Officers:** Ed. F. Flanagan, Pres., Wapato, Wash.; P. J. Lieuven, Sec., Yakima, Wash. **Inc.:** July 3, 1930. **Capital:** 2,500,000 shares; par value 15c; 774,575 shares issued. **Property:** 5 patented, 2 unpatented claims, held under lease and option, Pierce dist.; Pierce. **Development:** 1 short tunnel. **Ore:** Gold. **Men employed:** Average, 6. **Remarks:** A small amount of work during the closing months of the year.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Aurora et al.	Pierce City	Franz Magnus	Orofino
Chloe	Pierce City	A. B. Rhude	Pierce
Collins	Pierce City	J. E. Collins	Pierce
Cow Creek	Pierce City	Jas. Crawford	Grangemont
Deep Placer	Moose Creek	E. J. Hughes	Pierce
Dream, The	Pierce City	Fred Forsman	Pierce
Elsie Lucky et al.	Moose Creek	Hans Ehret	.....
Gold Dust Gr.	Pierce City	Chas. Rogers	Pierce
Gold Island	Pierce City	Lewis Pratt	Pierce
Granite et al.	Ruby Creek	P. A. Hughes	Bovill
Jericho	Burnt Creek	F. A. Losekamp	Elk River
K. H. C. et al.	Ruby Creek	K. Barker	Elk River
Little Joe	Pierce City	Joseph Frank	Orofino
Little Mascot	Pierce City	Earl McHenry	Orofino
Lone Pine et al.	Pierce City	J. R. Crawford	Orofino
Ozark	Pierce City	Chas. Meyers	Greer
Oyama et al.	Pierce City	Agnes M. Kelly	Spokane
Rummel et al.	Pierce City	James Clark	Pierce
Russell Gr.	Pierce City	J. E. Rudersdorf	Pierce
Silver Creek Pl.	Pierce City	Gus Anderson	Pierce
Snake Creek Pl.	Pierce City	G. V. Friedman	Pierce
Trapper et al.	Pierce City	R. E. Willoughby	Pierce
Venus Placer	Burnt Creek	John Pearson	Dent
Victoria et al.	Ruby Creek	Geo. Brady	Bovill
Victory Loan	Pierce City	H. J. Steffey	Pierce
Vida Pl. et al.	Pierce City	J. H. Wells et al.	Pierce
Wendell Placer	Burnt Creek	Walter Wendell	Dent
Wild Rose	Pierce City	John Gaffney	Pierce
Wonder	Pierce City	P. H. Sayles	Lapwai
Yukon et al.	Burnt Creek	Peter Skjarve	Deary

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

Bitterroot Forest Reserve (Idaho-Montana), by R. U. Goode: Nat. Geog. Mag., vol. 9, pp. 387-400, **1898.§**

Geology and water resources of Nez Perce County, Idaho, by I. C. Russell: U. S. Geol. Survey Water-Supply Papers 53 and 54, **1901.‡***

Mineral deposits of the Bitterroot Range and Clearwater Mountains, by Waldemar Lindgren: U. S. Geol. Survey Bull. 213, pp. 66-70, **1903.***

A geological reconnaissance across the Bitterroot Range and Clearwater Mountains in Montana and Idaho, by Waldemar Lindgren: U. S. Geol. Survey Prof. Paper 27, **1904.***

Central Idaho gold districts, by S. P. Jellum: Northwest Min. News, vol. 3, pp. 83-91, 107-114, 134-139, **1908**; vol. 4, pp. 2-6, 31-37, 66-73, **1909.***

An occurrence of monazite in northern Idaho, by F. C. Schrader: U. S. Geol. Survey Bull. 430, pp. 184-191, **1909.***

Portland cement materials and industry in the United States, by E. C. Eckel, with contributions by E. F. Burchard and others: U. S. Geol. Survey Bull. 522, pp. 135-140, **1913.***

The Orofino coal field, Clearwater, Lewis, and Idaho counties, Idaho, by C. T. Lupton: U. S. Geol. Survey Bull. 621, pp. 99-108, **1915.***

Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 60, art. 3, pp. 1-33, **1921.‡**

Geology and gold resources of north central Idaho, by F. A. Thomson and S. M. Ballard: Idaho Bureau of Mines and Geology Bull. 7, **1924.****

Geology and mineral resources of the region about Orofino, Idaho, by A. L. Anderson: Idaho Bureau of Mines and Geology Pamphlet 34, **1930.****

CUSTER COUNTY

Custer County is bounded on the north by Lemhi County, on the east by Butte, on the south by Blaine, and on the west by Boise and Valley counties. Its principal area comprises the drainage basins of the headwaters of the Salmon River, Big Lost River, and Little Lost River. It has an area of 4921 square miles, and was accredited with a population of 3,162 in the 1930 census, or 0.6 persons to the square mile. A comparison of the area and density of population with the State of Connecticut, which contains 4845 square miles and a population of 286.4 persons to the square mile, conveys a good idea of the size of Custer County and its lack of population. It is one of the south-central counties, and the area within its borders comprises the greater part of the region known as "Central Idaho's Mineral Empire."

It is principally a mining county and always ranks as one of the principal mineral-producing counties of the State. It is also noted for its agricultural and stockraising industries, particularly sheep, as it is one of the largest sheep raising sections in the State.

The county is served by the Blackfoot-Mackay branch of the O. S. L. Railroad, by the Sawtooth Park and the Lost River State highways and by well-maintained county and Forest Service roads, which extend into all the various mining districts. The roads are kept in good repair and are open to travel during the larger part of the year. Mackay, the terminus of the railroad, is the largest town and the supply point for most of the mines. Challis, which is 60 miles northwest of Mackay, is the county seat and oldest settlement.

The principal mineral resources are lead, silver, copper, gold—placer and lode, zinc, antimony, molybdenum, tungsten, graphite, bentonite, and garnet. The deposits are widely distributed throughout the county, and many of them offer exceptionally favorable opportunities to prospectors and development companies. Excepting the flat land and river bottoms, which are suitable to dredging and which fully justify investigation, practically all the

placer mines are exhausted. The diversity of mineralization and the favorable geological conditions are attracting some of the largest organizations in the United States to this county, and many resulting new discoveries fully prove the possibilities that are in store for those who possess a little courage.

1930 Activities

The principal operation in this county was that of the Mackay Metals at the Empire Copper mine. Production, mine development, and the shipping of crude ore and concentrate, on behalf of both the company and the lessees, were maintained without interruption until August. The company then suspended its operations, but the lessees continued without interruption, although they stored all ore. The Seafoam Mines Corporation, in the Seafoam district, did a substantial amount of development during the summer months and operated its mill intermittently. A small amount of bullion and concentrate was produced and marketed. The Aztec Mining & Milling Co., in the Stanley district, constructed a new boarding house, completed the installation of a small Gibson mill, and did a small amount of mine development work during the summer months. The Mackay Leasing Co., a new organization, which obtained a lease in the Cossack tunnel of the Empire mine, extended a crosscut in the tunnel 300 feet during the year. Lessees at the Ramshorn mine, in the Bayhorse district, produced and marketed a small tonnnage of high-grade crude ore. The Pigtail Placer, Inc., whose property is located in the Stanley district, installed a small amount of hydraulic equipment and did a little prospecting during the summer months.

One of the principal geological publications issued during the year by the U. S. Geological Survey, in cooperation with the Idaho Bureau of Mines and Geology, was Bulletin 814, "Geology and Ore Deposits of the Wood River Region, Idaho," by J. B. Umpleby, L. G. Westgate, C. P. Ross, and D. F. Hewett. This bulletin completely describes the Wood River district in Blaine County and the Alto district in Custer County. It is profusely illustrated with pictures and geological maps. The findings and conclusions expressed in this publication are favorable for the return of these districts as substantial producers of lead-silver ore.

AETNA MINING & INVESTMENT CO., LTD.

Office: 321 Felt Bldg., Salt Lake City, Utah. **Officers:** O. J. Salisbury, Pres., Salt Lake City, Utah. **Inc.:** Feb. 6, 1900. **Capital:** 10,000 shares; par value $5; all shares issued. **Remarks:** Failed to file the reports required by law.

AZTEC MINING & MILLING CO.

Office: 839 W. Lander St., Pocatello. **Officers:** D. C. Ray, Pres.; Ben F. Anderson, Sec., both of Pocatello; T. W. Galigher, Mgr., Boise. **Inc.:** May 26, 1917. Capital stock increased Feb. 2, 1925. **Capital:** 50,000 shares; par value $1; 42,077 shares issued. **Property:** Kingfisher group; 3 unpatented claims, Stanley dist.; Stanley. **Development:** Inclined shaft 650 ft. long. Total development, approximately 1750 ft. **Plant:** MINE: 25-h. p. steam-driven hoist. MILL: Gibson mill and amalgamation plates. **Ore:** Gold. **Men employed:** Average, 4. **Remarks:** During the summer months a new boarding house was constructed, work was completed on installing the mill, and a small amount of mine labor was performed. A stock assessment of 10c was levied on June 28.

BURNS MINING & MILLING CO.

Office: Meridian. **Officers:** Jack Evan, Sec., R. D. 2, Meridian; J. B. Vermillion, Mgr., Boise. **Inc.:** May 3, 1911. **Capital:** 500,000 shares; par value $1; 332,819 shares issued. **Property:** Burns group; 7 unpatented claims, Seafoam dist.; Stanley. **Development:** Approximately 750 ft. of workings. **Ore:** Lead-silver, gold. **Remarks:** Annual labor only.

CRATER MINES, INC.

Office: Rigby. **Officers:** Harry S. Thayer, Pres.-Mgr., New York City; Geo. E. Hill, Sec., Rigby. **Inc.:** Aug. 30, 1927. **Capital:** 1,000,000 shares; par value $1; 875,000 shares issued. **Property:** Crater group; 39 unpatented claims at the head of Slate Creek, Boulder dist.; Mackay; held under

lease and option. **Development:** Principally by 1 tunnel 700 ft. long, and an inclined shaft 150 ft. long. **Plant:** Small gas-driven compressor; complete mining equipment and camp. **Ore:** Lead-antimony-silver. **Remarks:** Annual labor only.

EAST STAR MINING CO.

Office: Downey. **Officers:** Albert Christsen, Pres.; Geo. T. Hyde, Sec., both of Downey; Lars W. Johnson, Mgr., Driggs. **Inc.:** April 16, 1924. **Capital:** 1,000,000 shares; par value 25c; 800,000 shares issued. **Property:** 4 unpatented claims; Alder Creek dist.; Mackay. **Development:** 1 short tunnel and an inclined shaft. **Ore:** Copper. **Remarks:** Annual labor only.

ESTES MOUNTAIN GOLD, INC.

Office: Mackay. **Officers:** J. L. Bills, Pres.-Mgr.; Mabel Patterson, Sec., both of Mackay. **Inc.:** July 17, 1929. **Capital:** 1,000,000 shares; par value $1. **Remarks:** Failed to file the reports required by law.



MINE CAMP: FORD MOTOR CO.

FORD MOTOR CO.

Office: Highland Park, Mich. **Officers:** Edsel B. Ford, Pres.; B. J. Craig, Sec., both of Highland Park, Mich. **Inc.:** Filed in Idaho, Jan. 6, 1925. **Capital:** 1,000,000 shares; par value $100. **Property:** Red Bird and Silver Rule groups; 44 patented claims and 6 millsites, Bay Horse dist.; Clayton; R. R. Mackay, 70 miles. **Development:** Principal development on Red Bird group consists of 4 tunnels: No. 1, 500 ft. long; No. 2, 1300 ft. long; No. 4, 510 ft. long; No. 9, 2127 ft. long, giving a total depth of 900 ft. on the vein; total development approximately 23,000 ft. **Plant:** 2 I-R semi-Diesel engines, type POC-2, direct connected to compressors; complete mining equipment including 2 diamond drills; shops and mining camp consisting of 11 buildings. **Ore:** Lead-silver. **Men employed:** 1 watchman. **Remarks:** Idle.

GREYHOUND MINING & MILLING CO., LTD.

Office: Gem Bldg., Boise. **Officers:** Edward Smith, Sec., Boise. **Inc.:** Sept. 2, 1902. **Capital:** 1,500,000 shares; par value $1; 1,483,299 shares issued. **Property:** Greyhound group; 7 patented claims, Seafoam dist.; Stanley. **Plant:** Stamp mill, 10 1050-lb. stamps; crusher; 2 Dorr classifiers; 4 vanners and a small circular blast furnace. **Remarks:** Idle.

HORSE SHOE COPPER CO., LTD.

Office: Mackay. **Officers:** L. A. Hansen, Pres.; Geo. L. Morgan, Sec., both of Mackay. **Inc.:** Dec. 10, 1903. **Capital:** 1,000,000 shares; par value $1; 916,150 shares issued. **Property:** Horse Shoe group; 17 unpatented claims, Alder Creek dist.; Mackay. **Development:** This mine is developed principally by 3 tunnels and 1 vertical shaft, 350 feet deep, and a large amount of crosscuts, drifts and raises, totalling over 2000 ft. **Plant:** MINE: Electrically-driven 2-drill compressor and hoist. Complete mine camp. **Ore:** Lead-zinc-silver, copper-silver. **Remarks:** A small amount of work by lessees during the year.

IDAHO DREDGING CO.

Office: 639 Peyton Bldg., Spokane, Wash. **Officers:** W. J. Delaney, Pres.-Mgr., Spokane, Wash. **Inc.:** Oct. 10, 1929. **Capital:** 500,000 shares; par value $1; shares issued, unknown. **Property:** Valley Creek placers; 7 unpatented claims, held under lease and option from Stanley-Five Bar Mining Co., Stanley dist.; Stanley. **Remarks:** Idle. (See Clearwater County.)

IDAHO HERMIT MINES, INC.

Office: 11 West 42nd St., New York City. **Officers:** Kirby Thomas, Pres.; George Hoy, Sec., both of New York City. **Inc.:** May 16, 1927. Charter forfeited Nov. 30, 1930. **Capital:** 3,000,000 shares; par value $1; 692,500 shares issued. **Property:** Hermit group; 19 unpatented claims, Boulder dist.; Mackay, 65 miles. **Development:** By 2 tunnels: No. 1, 600 ft. long; No. 2, 200 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

IDAHO SILVER & LEAD MINES, INC.

Office: 188 W. Randolph St., Chicago, Ill. **Officers:** James R. Howe, Pres.; R. H. Van Meter, Sec., both of Chicago; Antonio Carprilli, Mgr., Obsidian. **Inc.:** May 10, 1928. **Capital:** 2,000,000 shares; par value $1; all shares issued. **Property:** Vulture group; 13 unpatented claims, Stanley dist.; Obsidian. **Development:** By 2 tunnels: No. 1, 250 ft. long; No. 2, 100 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

IVANHOE MINING CO.

Office: 485 California St., San Francisco, Cal. **Officers:** Harry L. Tevis, Pres.; William Letson, Sec., Both of San Francisco, Cal. **Inc.:** Filed in Idaho, July 28, 1909. **Capital:** 2500 shares; par value $1; all shares issued. **Property:** Badger group; 6 patented claims, Yankee Fork dist.; Clayton. **Remarks:** Idle for many years.

LIVINGSTON MINES CORPORATION

Office: 67 Wall St., New York. **Officers:** A. W. Walker, Pres.-Mgr., Mackay; L. M. Turner, Sec., New York. **Inc.:** July 23, 1923. **Capital:** 2,000,000 shares; par value $1. Capitalization increased on Sept. 21, 1926, to 3,000,000 shares; par value $1; 2,922,012 shares issued. **Property:** Livingston group; 7 patented, 16 unpatented claims, Boulder dist.; Mackay, 62 miles. **Development:** Principally by 7 tunnels, averaging from 200 to 2400 ft. in length; No. 2, or Livingston, tunnel is 2000 ft. long, in which are 3000 ft. of crosscuts and drifts. Total development on Livingston lode, approximately 24,000 ft. **Plant:** MINE: 3 electrically-driven compressors, a 12x14 Sullivan, a 10x10 I-R, and a 12x16 I-R; storage-battery locomotive haulage; complete mining equipment and mine camp; 3-mile aerial tramway connecting Livingston No. 2 tunnel with the mill. MILL: 300-ton concentrator, including flotation, Blake crusher, Symonds disc-crusher, Davis rolls, 2 6-ft. Hardinge ball mills, 6 Wilfley tables, Callow flotation, complete mill camp. POWER PLANT: 380-h. p. hydroelectric power plant, supplemented with a 250-h. p. I-R vertical Diesel engine; 8-mile electric transmission and telephone lines connecting power plant, mill and mine. **Ore:** Lead-silver. **Remarks:** Failed to file the reports required by law. Company in receivership; Frank Oster, Receiver, Mackay, Idaho.

LOON CREEK HYDRAULIC PLACER MINING CO., LTD.
Office: Judge Bldg., Salt Lake City, Utah. **Officers:** J. Frank Judge, Pres., John J. Harvey, Sec., both of Salt Lake City; John P. Boyle, Mgr., Stanley. **Inc.:** May 17, 1905. **Capital:** 300,000 shares; par value $1; all shares issued. **Property:** 4 unpatented placer claims, Loon Creek dist.; Stanley. **Plant:** 4000 ft. timber flume, 5 ft. wide and 3 ft. high; two-thirds of a mile of ditch; sawmill, and complete mine camp. **Remarks:** This company owns a large tract of placer ground suitable for hydraulic mining. Annual labor only.

MACKAY LEASING CO., LTD.
Officers: Con Hurst, Pres.; D. V. Archbold, Sec., both of Mackay. **Inc.:** May 2, 1930. **Capital:** 25,000 shares; par value $1; 4,200 shares issued. **Property:** Lease in Cossack tunnel of Mackay Metals. Three hundred feet of development work was performed during the year.

MACKAY METALS
Office: Mackay. **Officers:** Chase A. Clark, Pres.; W. E. Narkaus, Sec.-Mgr., both of Mackay. **Inc.:** June 4, 1928. **Capital:** 1,500,000 shares; par value $1. Increased Apr. 13, 1929, to 2,000,000 shares; par value $1; 1,000,000 shares issued. **Property:** Empire Copper group; 19 patented, 20 unpatented claims, Alder Creek dist.; Mackay. **Development:** Over 21 miles of underground workings, the principal entries being the Cossack and Alberta tunnels; the Cossack is 1000 ft. below the Alberta tunnel; the principal shaft, which is in the Alberta tunnel, extends 350 ft. vertically to the 1000-ft. level. **Plant:** MINE: Air-driven hoist; 1500-cu.-ft. Laidlaw-Dunn-Gordon and 1200-cu.-ft. Nordberg compressor, both steam-driven; and an aerial tramway 16,300 ft. long connecting mine with railroad. MILL: 250-ton concentrator, consisting of fine grinding and flotation. **Ore:** Copper-silver-gold. **Men employed:** Average, 75. **Remarks:** Mine development work, production, and shipping of crude ore and concentrate, both on company account and by lessees, were maintained without interruption until August, after which time all company activities were suspended, but the lessees continued without interruption.

MONTE CRISTO GOLD MINES CO.
Office: Pocatello. **Officers:** C. A. Garrett, Pres.-Mgr.; E. W. Larsen, Sec., both of Pocatello. **Inc.:** March 19, 1917. **Capital:** 1,000,000 shares; par value $1; 723,289 shares issued. **Property:** Monte Cristo group; 8 unpatented claims, Loon Creek dist.; Clayton. **Development:** By 2 tunnels: No. 1, 340 ft. long; No. 2, 780 ft. long. **Ore:** Gold. **Remarks:** Annual labor only.

MULE SHOE MINING CO.
Office: Chilly. **Officers:** R. W. Johnson, Pres., Chilly; R. L. Johnson, Sec., Salt Lake City. **Inc.:** June 6, 1927. **Capital:** 1,000,000 shares; par value 10c; 200,000 shares issued. **Property:** Mule Shoe group; 7 unpatented claims, Bayhorse dist.; Clayton. **Development:** 3 short tunnels. **Ore:** Lead-silver. **Remarks:** Annual labor only.

PHEMSPACE MINES CO.
Officers: P. A. Wagner, Sec., Rochelle, Ill. **Inc.:** Jan. 3, 1906. **Capital:** 1,000,000 shares; par value $1. **Remarks:** Failed to file the reports required by law.

PIG TAIL PLACER, INC.
Office: Twin Falls. **Officers:** Geo. R. Easley, Pres.-Mgr., Battle Mountain, Nevada; E. M. Sweeley, Sec., Twin Falls. **Inc.:** Mar. 30, 1928. **Capital:** 25 shares; no par value; 23 shares issued. **Property:** Pig Tail Placer group; 7 unpatented claims, Stanley dist.; Obsidian. **Ore:** Placer gold. **Men employed:** Average, 3. **Remarks:** A small amount of prospecting work during the summer months.

RAMSHORN MINES CO.
Office: 321 Felt Bldg., Salt Lake City, Utah. **Officers:** O. J. Salisbury, Pres.-Mgr., Salt Lake City, Utah. **Inc.:** July 14, 1919. **Capital:** 150,000 shares; par value $10; all shares issued. **Property:** Ramshorn and Beardsley groups; 14 patented, Bay Horse dist.; Bay Horse. **Development:** Approximately 6½ miles of underground workings with 10 intermediate

levels. **Plant:** MINE: Laidlaw-Dunn-Gordon duplex 13x8x10 compressor, electrically driven; complete mine equipment and camp. MILL: 60-ton fine grinding flotation, gyratory crusher; primary and secondary rolls; ball mill; Dorr classifier; Fagergren and Janney flotation cells; American vacuum filter; dryer. Entire mill electrically driven. **Ore:** Silver-copper, lead. **Remarks:** Property operated throughout the year by lessees, who produced and marketed a small tonnage of ore.

SALMON RIVER MINING CO.

Office: c|o Terre Haute Nat'l Bank & Trust Co., Terre Haute, Ind. **Officers:** John T. Beasley, Pres.; William K. Hamilton, Sec., both of Terre Haute, Ind. **Inc.:** July 6, 1910. **Capital:** 500,000 shares; par value $1; 400,000 shares issued. **Property:** Pacific group; 12 patented claims, Bay Horse dist.; Bay Horse. **Remarks:** Idle for 14 years.

SEAFOAM MINES CORPORATION

Office: 265 Fortieth St., Pittsburgh, Pa. **Officers:** J. C. Hungerman, Pres.; George L. Lafbury, Sec., both of Pittsburgh, Pa. **Inc.:** Oct. 17, 1923. **Capital:** 500,000 shares; no par value; 350,000 shares issued. **Property:** 16 patented, 1 unpatented claim, Seafoam dist.; Stanley. R. R. Ketchum, 104 miles. **Development:** Total development approximately 2300 ft., the principal part of which is confined to the Silver King claim, where it opens the vein 200 ft. in depth. **Plant:** MINE: Electrically-driven 8x10 I-R compressor; steel sharpener; complete mining equipment; steam-driven saw-mill; mine camp consisting of a large boarding house, 2 two-story bunkhouses, and 10 residences. MILL: 50-ton amalgamation, including fine grinding and table concentration. POWER PLANT: 230-h. p. hydroelectric power plant, operating under a 270-ft. head through a 3400-ft. flume; 4-mile transmission line. **Ore:** Gold-silver-lead. **Men employed:** Average, 9. **Remarks:** Small amount of development work during the summer months. The mill was operated for a short period, and a small amount of bullion and concentrate was marketed.

STANLEY-FIVE BARS MINING CO.

Office: P. O. Box 1368, Boise. **Officers:** O. O. Haga, Pres.; H. M. Jeffrey, Sec., both of Boise. **Inc.:** Sept. 8, 1925. **Capital:** 25,000 shares; par value $1; 20,000 shares issued. **Property:** Gold Dust group; 6 unpatented placer claims; Stanley. **Ore:** Gold. **Remarks:** Annual labor only.

STANLEY LAKE MINING & DEVELOPMENT CO.

Officers: W. A. Brodhead, Hailey. **Inc.:** Nov. 12, 1930. **Capital:** 500,000 shares; par value $1. **Remarks:** Failed to file the reports required by law.

TWIN APEX MINES CO.

Office: 423 Ness Bldg., Salt Lake City. **Officers:** G. F. McGonagle, Pres.; C. J. Ullrich, Sec.; A. G. Gutheil, Mgr., all of Salt Lake City. **Inc.:** Sept. 19, 1925. **Capital:** 1,000,000 shares; par value 5c; 800,000 shares issued. **Property:** Twin Apex group; 4 patented, 11 unpatented claims, on Squaw Creek, Bay Horse dist.; Clayton. **Development:** Principally by 2 tunnels; No. 2, 550 ft. long; No. 3, or crosscut, 2000 ft. long. **Plant:** Gas-driven 8x9 Sullivan compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Remarks:** Annual labor only.

WHITE KNOB MINING CO.

Office: Newhouse Bldg., Salt Lake City, Utah. **Officers:** D. D. Muir, Jr., Pres.; W. W. Rager, Sec., both of Salt Lake City, Utah. **Inc.:** Aug. 23, 1919. **Capital:** 500,000 shares; par value $1; 127,510 shares issued. **Property:** White Knob group; 3 unpatented claims, Alder Creek dist.; Mackay. **Development:** Principally by 2 tunnels and 1 vertical shaft 250 feet deep. **Plant:** 40-h. p. gas-driven hoist. **Ore:** Lead-silver. **Remarks:** Operated by lessees who made a number of shipments during the year.

YANKEE FORK PLACER CO., LTD.

Office: 605 Eastman Bldg., Boise. **Officers:** James H. Hawley, Jr., Mgr., Boise. **Inc.:** Apr. 7, 1906. **Capital:** 400,000 shares; par value $1; all shares issued. **Property:** Bonanza group; 5 patented placer claims, 320 acres on Yankee Fork Creek, Yankee Fork dist.; Clayton. **Remarks:** Idle.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
American et al.	Bay Horse	Ivie Bros.	Mackay
Alto Coppers	Alto	Hannah Donahue	Mackay
Andromeda et al.	Alder Creek	J. S. Taylor	Mackay
Annex et al.	Boulder	A. W. Walker	Mackay
Antler et al.	East Fork	Geo. Z. Blackmon	Clayton
Apex No. 2	Alto	N. B. Bauguess	Mackay
Arcade et al.	Yankee Fork	A. J. Franklin et al.	Stanley
Badger	Stanley	Henry Duffy	Stanley
Baldwin Placer	Yankee Fork	W. P. Fowler	Hailey
Barney Google et al.	Stanley	J. D. Smith	Twin Falls
Basin Creek Placer	Stanley Basin	W. K. Lynch	Stanley
Bellevue	Bay Horse	A. D. Sargent	Challis
Big Ben et al.	Alder Creek	John Bradshaw	Mackay
Big Chief	Alto	J. C. Martin	Mackay
Big Liz	Alder Creek	John Turner	Mackay
Birdie Girl	Seafoam	P. H. Rasche	Stanley
Bisbee et al.	Alder Creek	L. B. Laird	Mackay
Black Daisy	Alder Creek	Geo. R. Morgan	Mackay
Blossom Placer	Yankee Fork	Peter Burch	Bonanza
Blue Bird	Bay Horse	J. D. Sullivan	Clayton
Blue Bird	Alder Creek	W. Darlington, Agt.	Mackay
Blue Jay	Alder Creek	K. E. Barton	Mackay
Bob Cat	Bay Horse	Ralph Gianoli	Clayton
Boise et al.	Bay Horse	J. W. Calvin	Challis
Bristle et al.	Seafoam	E. M. Sweeley	Twin Falls
Broadway Gr.	Boulder	Ed. Hinze	Challis
B. R. S.	Seafoam	F. P. Richards	Mackay
Buckhorn et al.	East Fork	John R. Creist	Clayton
Buckskin	Alder Creek	H. P. Hunter	Mackay
Camp Bird et al.	Bay Horse	Jean E. Clark	Mackay
Camp Bird et al.	Alder Creek	Clyde Fishel et al.	Mackay
Carbonate	Alder Creek	Wm. Stevenson Est.	Mackay
Cash Box	Loon Creek	Geo. Bowden	Bonanza
Cave	Bay Horse	Chris Peterson	Bay Horse
Centennial et al.	Bay Horse	N. J. Churchill	Mackay
Chas. Dickens	Yankee Fork	Chase Clark	Mackay
Clemenson et al.	Alder Creek	H. B. Curtis	Mackay
Cold Spgs. et al.	Stanley	T. R. Green	Stanley
Columbia Standard	Alder Creek	George Manwaring	Salt Lake City, Utah
Consolidated	Alto	Hannah Donahue	Mackay
Copper Basin	Alder Creek	F. A. Stacy	Mackay
Copper Cut	Alto	E. W. Hovey	Mackay
Copper King et al.	Alder Creek	M. B. Jensen	Mackay
Copperopolis	Alder Creek	H. P. Hunter	Mackay
Corn Gressor	Copper Basin	S. W. Anderson	Mackay
Corral et al.	Alder Creek	S. W. Anderson	Mackay
Crescent et al.	Alder Creek	Brown & Nolan	Mackay
Crown Point	Boulder	Antonio Yacomello	Clayton
Daisy et al.	Stanley	John R. Love	Stanley
Deer Trail	East Fork	Geo. Blackman	Clayton
Democrat et al.	Bay Horse	Mrs. Lee Watson	Challis
Dewey	East Fork	Andrew Nielson	Obsidian
Dixie Louise et al.	Alder Creek	E. C. Sims	Mackay
Dougherty	Bay Horse	E. A. Dougherty	Challis
Douglas et al.	East Fork	Evelyn R. Clark	Challis
Dryden	Bay Horse	E. D. Williams	Challis
Dry Hollow	Bay Horse	W. B. Swigert	Challis
East Boulder	Boulder	Ed Hinze et al.	Challis
East Butte	Bay Horse	Moses Le Fever	Clayton
East Star et al.	Alder Creek	Lars W. Johnson	Seafoam

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Ella B. Gr.	Seafoam	A. R. Smith	Stanley
Enterprise	Yankee Fork	I. U. Hager	Mackay
Eureka	Bay Horse	A. M. Wilson	Challis
Flag Staff	Alder Creek	H. E. Gilbert	Mackay
Florence	Stanley	Henry Lund et al.	Stanley
Forest Bell	Yankee Fork	Chase A. Clark	Clayton
Forest Rose	Bay Horse	Pietro Pedrini	Challis
Golden Glow	Stanley	J. E. Smith	Stanley
Gold King	Alder Creek	Ed. Maelzer	Mackay
Gold Star et al.	Yankee Fork	B. W. Clark	Idaho Falls
Golden Gate	Yankee Fork	A. E. Eddy	Salt Lake, Utah
Good Enough	Bay Horse	Campbell & Strom	Clayton
Good Friend et al.	Bay Horse	John Ernst	Clayton
Greenhorn et al.	Seafoam	Chas. H. Smith	Stanley
Grey Copper	Bay Horse	John McConnell	Clayton
Grey Eagle	Yankee Fork	C. L. Kirtley	Challis
Head Light et al.	Bay Horse	Bob Campbell	Clayton
Hidden Treasure	Yankee Fork	J. A. Franklin, Agt.	Custer
Hillside	Bay Horse	Roy Huffman	Challis
Hohmann Placer	Stanley Basin	Walter K. Lynch	Stanley
Home Stake et al.	Bay Horse	Robt. E. Muir	N. Hollywood, Cal.
Horse Shoe	Alder Creek	Chas. Nolan, Adm.	Mackay
Howardy et al.	Boulder	Hitchcock & Bohlin	Clayton
Hummer	Yankee Fork	Chase A. Clark	Clayton
H-Y-U et al.	Alto	F. D. Sherry et al.	Mackay
Idaho Girl	Stanley	Robt. McAllister	Stanley
Idaho Gr.	Seafoam	Wm. Chevier	Stanley
Ideal et al.	Bay Horse	Clyde A. Torrey	Clayton
Independence et al.	Alder Creek	J. R. Kearns et al.	Mackay
International	Alder Creek	Hannah Donahue	Mackay
Iron Bog et al.	Alder Creek	C. H. Atha	Mackay
Joe Gulch	Yankee Fork	F. Georgetta	Clayton
Joe's Gulch Placer	Stanley Basin	W. W. Smith	Stanley
Joker et al.	Alder Creek	Eli & Dan Jonesch	Boise
Josephus Lake	Seafoam	E. H. Hasbrouck	Boise
Josie et al.	Bay Horse	Jack Ferguson	Challis
Katherine	Bay Horse	C. A. Torrey	Clayton
Kelly Gulch Placer	Stanley Basin	Henry Sturkey	Stanley
Keystone	Bay Horse	Wilson & Fox	Challis
Kingfisher et al.	Yankee Fork	Frank G. Fisher	Obsidian
Lake View et al.	Alder Creek	W. H. Warren	Mackay
Last Chance et al.	Bay Horse	L. A. Verbeck	Rupert
Last Resort	East Fork	Rosa V. Carman	Clayton
Left Wing	Bay Horse	E. J. Michael, Agt.	Challis
Little Johnny	Alder Creek	F. A. Stacy	Mackay
Lodge Pole	Alder Creek	J. L. Bell	Mackay
Lone Cabin et al.	Alder Creek	John Pritchett	Mackay
Long Chance	Alder Creek	A. W. Jacobson	Mackay
Lookout	Bay Horse	W. E. Sullivan	Clayton
Lost Eagle	Loon Creek	Carl Malm	Challis
Lost Packer	Loon Creek	Henry Welsh	724 E. 2d St., Salt Lake City
Lucky Boy	Yankee Fork	W. S. McCornick	Salt Lake City, U.
Lucky Strike	Stanley	Henry Jones	Stanley
May Flower	East Fork	D. B. Fisher	Clayton
Monte Carlo	Yankee Fork	Ed Soloman	Challis
Morning Star	Alder Creek	Andrew Park	Mackay
Mountain Girl	Stanley Basin	J. H. Thompson	Stanley
Mt. Sullivan No. 1	Alder Creek	G. W. Stewart	Mackay
Nameless	Bay Horse	J. W. David	Livingston
Niagara	Seafoam	F. P. Richards	Mackay

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Only One	Bay Horse	J. H. Baxter	Mackay
Orelena	Loon Creek	Juanitta Eddy	Salt Lake City, U.
Outlaw et al.	Boulder	R. M. Black	Clayton
Pandora et al.	Alder Creek	D. H. Horton	Mackay
Peerless	Alder Creek	J. E. Campbell	Mackay
Pinion Gr.	Sheep Mountain	J. A. May	Boise
Pilot House	Alder Creek	M. S. Vaught	Mackay
Port Arthur	Bay Horse	Fidele Giampedraglia	Clayton
River Queen	Bay Horse	Phillip Gossi	Clayton
Rob Roy	Bay Horse	Caesar Maraffio	Clayton
Rosemont	Stanley	Henry Lund	Stanley
Rough Creek	Yankee Fork	G. W. Friend	Clayton
Ruby Silver et al.	Bay Horse	Moses Le Fever	Clayton
Rusty Saw et al.	Stanley	P. H. Rasche	Stanley
Sheep Mountain	Seafoam	C. M. Rankin	Salt Lake, Utah
Silver	Yankee Fork	A. J. Franklin	Stanley
Silver Bell	Alder Creek	Johnson & Haney	Mackay
Silver Bell	Bay Horse	Jas. H. Marker	Challis
Singer Gr.	Sheep Mountain	W. H. Brose	Boise
Snowdrift	Yankee Fork	Frank Casto	Challis
Snow Storm et al.	.....	Homer Granger	Centerville
Solon Jr.	Alto	Martin & Clark	Mackay
South Butte	Bay Horse	William McClure	Mackay
Speculator	Alder Creek	H. P. Hunter	Mackay
Square Deal	Bay Horse	M. E. Crawford	Clayton
Sun Rise	Alder Creek	F. A. Stacy	Mackay
Sunrise et al.	Loon Creek	J. T. Metcalf	Clayton
Syrup Can et al.	Alder Creek	S. W. Anderson	Mackay
Taylor Gr.	Alder Creek	Taylor & Munson	Mackay
Tip Top	Alder Creek	Gus Munson	Mackay
Tracy et al.	Seafoam	A. R. Smith	Challis
Turtle	Bay Horse	N. S. Churchill	Mackay
Uncle Ben et al.	East Fork	C. S. Ellis	Challis
Vulture et al.	East Fork	R. H. Van Meter	Challis
Waxahachia	Alder Creek	S. W. Anderson	Mackay
Wedge Fr.	Boulder	A. W. Walker	Mackay
White Elephant	Alder Creek	Daniel Clark	Mackay
Whynot	Yankee Fork	Amos Franklin	Clayton
Woodstick	Bay Horse	Geo. E. Keyser	Challis
Yellow Jacket	Stanley	Ed. Martin	Stanley
Zodiac	Bay Horse	A. D. Sargent	Challis

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

The volcanic tuffs of Challis, Idaho, by A. A. Julian: New York Acad. Sci. Trans., vol. 1, pp. 49-53, **1882.**§

A geological reconnaissance across Idaho, by G. H. Eldridge: U. S. Geol. Survey Sixteenth Ann. Rept., pt. 2, pp. 217-276, **1895.***

Central Idaho gold field, by Don Maguire: Mines and Minerals, vol. 19, pp. 289-291, February, **1899.***

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey Twentieth Ann. Rept., pt. 3, pp. 75-256, **1900.***

The deepest mine in Idaho, the Ramshorn at Bay Horse, by R. N. Bell: Mines and Minerals, vol. 21, pp. 174-176, November, **1900.***

An outline of Idaho geology and of the principal ore deposits of Lemhi and Custer counties, by R. N. Bell: Proc. Int. Min. Cong. 4th sess., pp. 64-80, **1901.**§

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Thunder Mountain and Mackay, Idaho, by R. N. Bell: Min. and Sci. Press, vol. 84, p. 62, Feb. 1, **1902.***
An extinct glacier of the Salmon River Range, by G. H. Stone: Am. Geology, vol. 11, pp. 406-409, **1903.***
The Lost Packer copper-gold lode, by E. P. Jennings: Canadian Min. Inst. Jour., vol. 9, pp. 54-57, **1906**; Min. and Sci. Press, vol. 92, pp. 435-436, June 30, **1906**; Salt Lake Min. Review, Mar. 30, **1906.***
The White Knob copper deposits, Mackay, Idaho, by J. F. Kemp and G. G. Gunther: Am. Inst. Min. Eng. Trans., vol. 38, pp. 269-296, **1907.**§
Resources of Custer and Lemhi counties, Idaho: Salt Lake Min. Review, vol. 12, pp. 17-19, Mar. 15, **1911.**§
A preliminary account of the ore deposits of the Loon Creek district, Idaho, by J. B. Umpleby: U. S. Geol. Survey Bull. 530, pp. 66-74, **1911.***
Some ore deposits in northwestern Custer County, Idaho, by J. B. Umpleby: U. S. Geol. Survey Bull. 539, **1913.**‡
The genesis of the Mackay copper deposits, by J. B. Umpleby: Econ. Geology, vol. 9, pp. 307-358, June, **1914.**§
Ore deposits in the Sawtooth quadrangle, Blaine and Custer counties, Idaho, by J. B. Umpleby: U. S. Geol. Survey Bull. 580, pp. 221-249, **1915.**‡
The occurrence of ore on the limestone side of garnet zones, by J. B. Umpleby: University of California publications, Bull. Dept. of Geology, vol. 10, No. 3, pp. 25-37, Oct. 14, **1916.****
Geology and ore deposits of the Mackay region, Idaho, by J. B. Umpleby: U. S. Geol. Survey Prof. Paper 97, **1917.**‡
A reconnaissance of south central Idaho, embracing Thunder Mountain, Big Creek, Stanley Basin, Sheep Mountain, and Seafoam districts, by J. B. Umpleby and D. C. Livingston: Idaho Bureau of Mines and Geology Bull. 3, pp. 13-22, **1920.****
Brannerite, a new uranium mineral (Stanley Basin, central Idaho), by F. L. Hess: Franklin Inst. Jour., vol. 189, No. 2, pp. 225-237, February, **1920**; No. 6, pp. 779-780, June, **1920.****
Ground water in Pahsimeroi Valley, Idaho, by O. E. Meinzer: Idaho Bureau of Mines and Geology Pamphlet 9, **1924.****
The Livingston mine, Custer County, Idaho, by J. B. Stewart: Mining and Metallurgy, vol. 7, No. 233, pp. 223-224, May, **1926.**§
A geologic reconnaissance of Clark and Jefferson, and parts of Butte, Custer, Fremont, Lemhi and Madison counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 19, **1927.***
Ore deposits in Tertiary lava in the Salmon River Mountains, Idaho, by C. P. Ross: Idaho Bureau of Mines and Geology Pamphlet 25, **1927.****
Early Pleistocene glaciation in Idaho, by C. P. Ross: U. S. Geol. Survey Prof. Paper 158, pp. 123-128, **1929.****
Tertiary volcanic tuffs and sandstones used as building stones in the upper Salmon River valley, Idaho, by C. H. Behre, Jr.: U. S. Geol. Survey Bull. 811, pp. 237-252, **1929.****
Geology and ore deposits of the Wood River region, Idaho, by J. B. Umpleby, L. G. Westgate, C. P. Ross, and D. F. Hewett: U. S. Geol. Survey Bull. 814, **1930.****
Geology and ore deposits of the Seafoam, Alder Creek, Little Smoky and Willow Creek districts, Custer and Camas counties, Idaho, by C. P. Ross: Idaho Bureau of Mines and Geology Pamphlet 33, **1930.****

ELMORE COUNTY

Elmore is one of the southwestern counties, being bounded on the south by Owyhee, on the west by Ada, on the north by Boise, and on the east by Blaine, Camas, and Gooding counties. A large part of the drainage basin of the Boise River is included within its 2,808 square miles, which was accredited with a population of 4,491 in the 1930 census. The chief industries are stockraising—principally sheep—farming, and mining.

The southern part of the county is served by the main line of the O. S. L. Railroad and the principal east-west State highway, the Old Oregon Trail; a well built and maintained system of county roads extends into all the various mining districts and sections. Mountain Home is the largest town and county seat.

The principal mineral resources are gold, silver, copper, lead, zinc, arsenic, molybdenum, diatomaceous earth, and potassium nitrate.

In past years this county was a noted producer of high-grade gold-silver ores and placer gold, particularly when the mines in the Atlanta and Rocky Bar districts were being worked. The placer ground which could be hydraulicked has long been exhausted, and the quartz mines have been dormant for years, having been closed down either through litigation, lack of power, or finances. These districts offer many opportunities to development companies and, since power is within easy reach from Featherville, there appears to be no reason why the mines are not receiving more attention.

1930 Activities

The Rocky Bar district witnessed no improvement over that of the previous year in the starting of new enterprises, and no work of any importance was performed.

One of the most important enterprises which started in 1929 was the commencement of operations at the Boise-Rochester mine near Atlanta by the St. Joseph Lead Co. This company acquired the Boise-Rochester in 1917, but, other than necessary repairs to the buildings and principal tunnels, nothing was done with it. In the latter part of 1929 the Monarch group, which is adjacent to the Boise-Rochester, was acquired, and the development of both properties was commenced. This work, which consisted of extending No. 6 tunnel of the Boise-Rochester group to the intersection of the vertical shaft of the Monarch group, was conducted without interruption until July, 1930, at which time all operations were temporarily suspended. The Consolidated Mines Syndicate, at the Revenue group, in the Volcano district, near Hill City, installed a small gas-driven compressor and commenced driving a long tunnel. This work was continued until October, when all operations were suspended. Preliminary plans for the development of the placer deposits on Feather River were completed during the latter part of the year. A small amount of development work was done on the Deckard property at Pine during the summer months.

APEX GOLD MINING CO.

Office: Box 165, Nampa. **Officers:** Dr. J. C. Lay, Pres., M. A. Cook, Sec., both of Nampa. **Inc.:** Oct. 15, 1926. **Capital:** 400,000 shares; par value $1. **Remarks:** Failed to file the reports required by law.

BLACKSTONE MINING CO., LTD.

Officers: Charles W. Mack, Sec., Boise. **Inc.:** Dec. 26, 1899. **Capital:** 1,000,000 shares; par value 10c; shares issued, unknown. **Property:** 5 patented claims, Blackstone dist.; Hill City.

BLACK WARRIOR MINES, INC.

Office: 6 Delkin Bldg., Las Vegas, Nev. **Officers:** Peter Buol, Pres.; W. H. O'Neil, Sec., both of Los Angeles, Calif. **Inc.:** Filed in Idaho Jan. 30, 1929. **Capital:** 2,500,000 shares; par value $1; 1,007,588 shares issued. **Property:** Black Warrior group; 12 unpatented claims, held under lease and option; Black Warrior dist.; Atlanta. **Plant:** Sawmill, hydraulicking equipment, and camp. **Ore:** Placer gold. **Men employed:** Average, 3. **Remarks:** This company is a reorganization of the La Trinidad Mining Co. Annual labor only.

CONSOLIDATED MINES SYNDICATE

Office: 623 First Nat'l Bank Bldg., Boise. **Officers:** Frank E. Johnesse, Pres.-Mgr.; Paul L. Oakes, Sec., both of Boise. **Inc.:** May 6, 1924. **Capital:** 10,000 shares; no par value. On Aug. 15, 1924, the capitalization was changed to 10,000,000 shares, $2.50 par value; and on May 2, 1925, capitalization was decreased to 10,000,000 shares, par value $1; 2,810,865 shares issued. **Property:** Revenue group; 11 unpatented claims, Volcano dist.; Hill City. **Development:** By 1 tunnel 835 ft. long. **Plant:** Gas-driven

compressor; complete mining equipment and camp. **Ore:** Copper-silver. **Men employed:** Average, 7. **Remarks:** Mine plant installed during the early part of the year and work on driving the principal tunnel continued until October, at which time all operations were suspended.

FEATHER RIVER GOLD PLACER CO.

Office: 610 Eastman Bldg., Boise. **Officers:** Rupert Winters, Pres.-Mgr., Featherville; James H. Hawley, Jr., Sec., Boise. **Inc.:** June 5, 1929. **Capital:** 750,000 shares; par value 20c; 395,800 shares issued. **Property:** 7 unpatented placer claims, Bear Creek dist.; Featherville. **Ore:** Placer gold.

FRANKLIN CONSOLIDATED GOLD MINES CO.

Office: Box 1262, Boise. **Officers:** John J. Stanford, Pres., Spokane, Wash.; Fred T. Kelly, Sec.-Mgr., Boise. **Inc.:** Dec. 22, 1925. **Capital:** 1,250,000 shares; par value $1; 634,400 shares issued. **Property:** Franklin group; 2 patented, 4 unpatented claims, held under lease and option, Pine Grove dist.; Pine. **Development:** Approximately 3000 ft. of underground workings, the principal of which is No. 3 tunnel, 860 ft. in length. **Plant:** An old 10-stamp mill including cyanide equipment. **Ore:** Gold. **Men employed:** Average, 2. **Remarks:** Owing to litigation, only the necessary annual labor was performed.

GAS DOME OIL CO.

Office: 420 First Nat'l Bk. Bldg., Boise. **Officers:** A. Beverly Howard, Pres.-Mgr., Caldwell; J. W. Robinson, Sec., Boise. **Inc.:** June 20, 1927. **Capital:** 500,000 shares; par value $1; 153,125 shares issued. **Property:** Oil and gas leases on patented farm lands near Hammett. **Mineral sought:** Oil and gas.

GEORGE F. ROTH CO.

Office: P. O. Box 147, Rochester, N. Y. **Officers:** Walter J. Duffy, Sec., Rochester, N. Y. **Inc.:** June 17, 1909. **Capital:** 2500 shares; par value $100; 2102 shares issued. **Property:** Homestake group; 7 patented, 3 unpatented claims, Neal dist.; c|o Mayfield Stage, Boise. **Ore:** Gold. **Remarks:** Idle.

IDAHO MINES INC.

Office: 510 Tacoma Bldg., Tacoma, Wash. **Officers:** J. S. Davies, Pres.; F. W. Lane, Sec., both of Tacoma. **Inc.:** Unknown. **Capital:** 600,000 shares; no par value; 314,867 shares issued. **Property:** Quill Pig group; 4 unpatented claims, held under lease and option from Elmer C. Towne, Bear Creek dist.; Rocky Bar. **Development:** 3 short tunnels. **Ore:** Gold. **Remarks:** Annual labor only.

LITTLE QUEEN GROUP

Owner: E. F. Money, 937 N. 34th St., Seattle, Wash. **Inc.:** Not incorporated. **Property:** 4 unpatented claims, Middle Boise dist.; Atlanta. **Development:** Principally by 1 tunnel 100 ft. long. **Plant:** 7-ton Ellis mill and amalgamation. **Ore:** Gold. **Remarks:** Small amount of work during the summer months.

MARSH CREEK MINING CO.

Officers: Roy Y. Bogard, Pres.-Mgr., Burns, Ore.; Curtis F. Pike, Sec., 1317 Idaho St., Boise. **Inc.:** July 9, 1921. **Capital:** 1,000,000 shares; par value $1; 39,985 shares issued. **Property:** 2 unpatented claims on Marsh Creek, Bear Creek dist.; Featherville. **Remarks:** Annual labor only.

MINERVA MINING & MILLING CO., LTD.

Officers: Henry A. Jones, Sec., 730 Bakewell Bldg., Pittsburgh, Pa. **Inc.:** Aug. 1, 1908. **Capital:** 250,000 shares; par value $1. **Remarks:** Failed to file the reports required by law. Property sold under attachment to Frank May, Atlanta.

NORTHWESTERN DEVELOPMENT CO.

Office: P. O. Box 941, Boise. **Officers:** William Williams, Pres.-Mgr.; Geo. L. Fleharty, Sec., both of Boise. **Inc.:** April 30, 1927. **Capital:** 1,500,000 shares; par value $1; 1,055,850 shares issued. **Property:** 5 groups of unpatented placer claims on Boise River, 1820 acres, unorganized dist. **Ore:** Placer gold. **Remarks:** Three men were employed on annual labor for a period of 6 months.

ST. JOSEPH LEAD CO.

Office: 250 Park Ave., New York City. **Officers:** Clinton H. Crane, Pres.; Leonidas H. Besson, Sec., both of New York City. **Inc.:** Filed in Idaho Apr. 3, 1929. **Capital:** 2,000,000 shares; par value $10; 1,950,509 shares issued. **Property:** Boise-Rochester group, 5 patented, 11 unpatented claims, owned by company; Monarch group, 11 patented, 6 unpatented claims, held under lease and option; Atlanta. **Ore:** Gold. **Men employed:** Average, 23. **Remarks:** In 1917 this company purchased the Boise-Rochester group and, other than necessary repairs to the buildings and principal tunnel, the property remained idle. In the latter part of 1929 the Monarch group was secured under lease and option; provisions and supplies were installed, development work was started and continued without interruption until July, 1930. This work consisted of extending No. 6 tunnel of the Boise-Rochester group to an intersection with the vertical shaft of the Monarch group.

SOUTH PARK DREDGING CO.

Office: 351 California St., San Francisco, Cal. **Officers:** W. P. Hammon, Pres.; A. L. Dahl, Sec., both of San Francisco, Cal. **Inc.:** Sept. 12, 1921. **Capital:** 50,000 shares; no par value; all shares issued. **Property:** 1100 acres of dredging land on Feather River, Featherville dist.; Featherville. **Remarks:** Operations permanently suspended in 1928.

STANLEY-FIVE BARS MINING CO.

Office: P. O. Box 1368, Boise. **Officers:** O. O. Haga, Pres.; H. M. Jeffrey, Sec., both of Boise. **Inc.:** Sept. 8, 1925. **Capital:** 25,000 shares; par value $1; 20,000 shares issued. **Property:** Five Bars group; 4 unpatented placer claims, Middle Boise dist.; Atlanta. **Remarks:** Annual labor only.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Ada Elmore Gr.	Bear Creek	Grant McCargo	Pittsburgh, Pa.
Alice et al.	Bear Creek	R. Y. Bogard	Burns, Ore.
Alma Placer Gr.	Bear Creek	R. A. Peck	Rocky Bar
April Fool	Middle Boise	J. C. Birdwell	Atlanta
Avis et al.	Pine Grove	Ray J. Allison	Pine
Badger No. 1	Neal	Chas. Fell	R. D. 5, Boise
Badger et al.	Neal	John T. Hammack	R. D. 5, Boise
Baltimore et al.	Middle Boise	Robt. B. Browne	Atlanta
Bear Gr. et al.	Bear Creek	F. M. Dodge	Rocky Bar
Ben Hur	Bear Creek	E. W. Lothrop	Mountain Home
Benton Gr.	Middle Boise	G. L. Bixby	Atlanta
Big Five et al.	Bear Creek	Frank Bayhouse	Boise
Big Four et al.	Bear Creek	Rupert Winters	Featherville
Big Lode	Middle Boise	Frank T. Wyman	Boise
Bird Gr.	Pine Grove	Mrs. Alice M. Reecy	Mountain Home
Black Diamond	Bear Creek	Clara R. Brassch	Mountain Home
Black Ribbon	Bear Creek	E. C. Helfrich	Mountain Home
Black Warrior	Bear Creek	C. H. Allison	Beverly Hills, Cal.
Bobolink et al.	Bear Creek	Walter Walsh	Rocky Bar
Boise Bar	Middle Boise	Thomas Walker	Atlanta
Bonanza et al.	Bear Creek	Chas. Wyatt	Rocky Bar
Bonaparte Gr.	Bear Creek	Rupert Winters	Featherville
Bonnie Annie Gr.	Pine Grove	B. F. Skelton	Pine
Bowerman	Volcano	M. R. Wood	606 Marion St., Seattle, Wash.
Brooklyn et al.	Bear Creek	Louise A. S. Allen	Rocky Bar
Cabin Claim	Middle Boise	Chester W. Rose	Glenns Ferry
Capital et al.	Middle Boise	John Bell	Atlanta
Cock Robin et al.	Bear Creek	Walter Walsh	Rocky Bar
Colorado et al.	Bear Creek	Francis M. Nixon	Rocky Bar
Cornucopia et al.	Neal	John Hermo	427 Thatcher St., Boise
Debs Gr.	Bear Creek	J. C. Edwards	Rocky Bar
Doolittle Gr.	Bear Creek	Elmer C. Towne	Rocky Bar
Edna et al.	Bear Creek	E. C. Helfrich	Mountain Home

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Eureka	Twin Springs	W. L. West	Twin Springs
Evelyn	Bear Creek	Marion House	Mountain Home
Flagstaff et al.	Bear Creek	Francis M. Nixon	Rocky Bar
Forest King et al.	Bear Creek	Mrs. E. Tregonning	Box 893, Boise
Fourth of July	Middle Boise	Grant Wilson	Atlanta
Gold Bug et al.	Bear Creek	Chas. Wyatt	Rocky Bar
Gold Eagle	Neal	C. C. Anderson	Boise
Gold Gate No. 2	Bear Creek	Irving Brooks	Rocky Bar
Gold Key	Bear Creek	Ah Sing	Rocky Bar
Gold King Gr.	Middle Boise	Harry Teskey	Atlanta
Granby et al.	Middle Boise	G. L. Bixby	Atlanta
Gray Warrior et al.	Middle Boise	P. M. Swan	Atlanta
Greenback	Middle Boise	H. D. Gracey	Atlanta
Gunny Sack Gr.	Middle Boise	John Timmons	Atlanta
Hazel Queen	Middle Boise	L. N. Franke	Atlanta
Humming Bird	Middle Boise	Jas. A. Comer	Atlanta
Jericho Gr.	Middle Boise	Fritz Scholl	Atlanta
Kierman Gr.	Bear Creek	Dan Kirby	Boise
Keystone et al.	Featherville	E. N. Stone	Featherville
Kitty Hicks	Neal	J. F. Wilson	Mayfield
Last Chance	Pine Grove	Chas. V. Price	Pine
Last Chance	Twin Springs	Cyrus H. Pickens	Twin Springs
Little Joker Pl.	Middle Boise	A. W. Stevens	Boise
Middle Boise et al.	Black Warrior	Max Mayfield	Boise
Middle Boise Lode	Middle Boise	Thomas Walker	Atlanta
Midnight Pl.	Snake River	H. S. Olson	Glenns Ferry
Minnehaha Pl.	Bear Creek	Frank Galbraith	Rocky Bar
Monarch	Middle Boise	Dan Kirby	913 Hays St., Boise
Montezuma Pl.	Middle Boise	Dick Miller	Atlanta
Mountain View	Featherville	E. N. Stone	Featherville
Mountain View	Pine Grove	Fred Skelton	Pine
New Century	Middle Boise	Henry Button	Atlanta
Northwestern	Bear Creek	W. N. Nixon	Rocky Bar
Old Oliver Diggins	Middle Boise	A. S. Longwill	Atlanta
Ontario	Bear Creek	Mary A. Lison	Boise
Ophir	Bear Creek	Elmer C. Towne	Rocky Bar
Overland et al.	Bear Creek	S. Howard	Pine
Owens Gr.	Pine Grove	Thos. Potter	Pine
Piney Gr.	Middle Boise	J. C. Birdwell	Atlanta
Pittsburgh Gr.	Bear Creek	Mrs. Emily Frew	Pittsburgh, Pa.
Queen River Pl.	Middle Boise	Fred Felix	Atlanta
Red Warrior	Bear Creek	Frank Pon	Rocky Bar
Rosetta Gr.	Bear Creek	Barnsdale Corp.	Rocky Bar
Silver Horde	Middle Boise	W. T. Burnett	Atlanta
Silver Star Gr.	Pine Grove	May Larson	Pine
Sunrise	Twin Springs	John Vaughn	Twin Springs
Sunrise Gr.	Bear Creek	Wm. H. Stowell	Spokane, Wash.
Sunshine et al.	Bear Creek	E. C. Helfrich	Mountain Home
Sunny Side	Pine Grove	Monroe E. Shraft	Pine
Tahoma No. 3	Middle Boise	W. P. Richards.	Boise
Tekla et al.	Featherville	Paul V. Lambrix	Featherville
Trinity Gr.	Featherville	M. E. Rineback	Featherville
Tumble Bug	Bear Creek	Walter Walsh	Rocky Bar
Uncle Ben	Bear Creek	B. J. Nordyke	Featherville
Uncle Sam Gr.	Pine Grove	May Larson	Pine
Verdun Gr.	Pine Grove	W. R. Deckard	Pine
Vibrator Gr.	Bear Creek	Elmer C. Towne	Rocky Bar
White Bird et al.	Bear Creek	Otis Howard	Rocky Bar
Wide West	Bear Creek	John J. Allen	109 Montague St., Brooklyn, N. Y.
Wonder	Pine Grove	Lou Roberts	Pine
Yuba Gold Chest	Middle Boise	C. W. Joy	Emmett

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

Atlanta district, by J. E. Clayton: Am. Inst. Min. Eng. Trans., vol. 5, pp. 468-473, February, **1887.**§

A geological reconnaissance across Idaho, by G. H. Eldridge: U. S. Geol. Survey Sixteenth Ann. Rept., pt. 2, pp. 217-276, **1895.***

The Atlanta lode, Idaho, by J. B. Hastings: Eng. and Min. Jour., vol. 59, p. 128, Feb. 9, **1895.**§

Mining districts of the Idaho Basin and the Boise Ridge, Idaho, by Waldemar Lindgren: U. S. Geol. Survey Eighteenth Ann. Rept., pt. 3, pp. 625-736, **1898.***

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey Twentieth Ann. Rept., pt. 3, pp. 75-256, **1900.***

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Geology of southwestern Idaho, and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Bull. 217, **1903.***

Atlanta gold district, by R. N. Bell: Eng. and Min. Jour., vol. 86, pp. 176-177, July 25, **1908.**§

Rich gold ore found in Idaho, by R. N. Bell: Eng. and Min. Jour., vol. 102, pp. 783-785, Oct. 28, **1916.**§

Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 60, art. 3, pp. 1-33, **1921.**‡

A preliminary reconnaissance of the gas and oil possibilities of southwestern and south-central Idaho, by J. P. Buwalda: Idaho Bureau of Mines and Geology Pamphlet 5, **1923.***

Molybdenite in the Rocky Bar district, Idaho, by F. C. Schrader: U. S. Geol. Survey Bull. 750, pp. 87-99, **1924.**‡

Ground water for irrigation on Camas Prairie, Camas and Elmore counties, Idaho, by A. M. Piper: Idaho Bureau of Mines and Geology Pamphlet 15, **1926.****

Geology and ore deposits of the Rocky Bar quadrangle, by S. M. Ballard: Idaho Bureau of Mines and Geology Pamphlet 26, **1928.****

FREMONT COUNTY

Coal, phosphate rock, oil shale, and asbestos occur in different sections of this county. The occurrence of coal in commercial quantities in the northeastern corner of the county has been reported, but these deposits are too far removed from transportation to be available. The other deposits have never been sufficiently developed to prove their extent.

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

Fifth, Sixth and Eleventh Ann. Repts., U. S. Geol. and Geog. Survey of the Territories, by F. V. Hayden, **1871, 1873,** and **1879.***

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Guidebook of the western United States, by W. T. Lee and others: U. S. Geol. Survey Bull. 612, pp. 114-147, **1915.**‡

Coal in eastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 716, pp. 123-153, **1920.**‡

Oil shale in western Montana, southeastern Idaho and adjacent parts of Wyoming and Utah, by D. D. Condit: U. S. Geol. Survey Bull. 711, pp. 15-40, **1920.**‡

Geology and water resources of the Mud Lake basin, Idaho, by H. T. Stearns and L. L. Bryan: U. S. Geol. Survey Water-Supply Paper 560, pp. 85-134, 1925.‡

A geologic reconnaissance of Clark and Jefferson, and parts of Butte, Custer, Fremont, Lemhi and Madison counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 19, 1927.*

GEM COUNTY

Gem is one of the smallest counties in area in the State, but one of the largest in population per square mile. Its area is 567 square miles, and the 1930 census credited it with a population of 7,419 or 13.1 persons per square mile. The chief industries are fruit growing, farming, and livestock. It is particularly noted for its fruit farming, which is confined to the valley of the Payette River, which flows westerly through the southern end of the county.

It is one of the southwestern counties, being bounded by Ada, Canyon, Payette, Washington, Adams, Valley, and Boise counties. The drainage basin of Squaw Creek and twenty-five miles of the Payette River valley make up the larger part of its area. Emmett, the county seat and only settlement of importance, is near the center of the southern part of the county.

The county is served by a good system of locally maintained roads and by the Nampa-McCall and Payette-Emmett branches of the O. S. L. Railroad.

The Pearl district, once a famous gold-producing camp, and a few undeveloped sections where a small amount of prospecting has been done, are the only mineralized areas in the county. The principal minerals occurring in these districts are gold, silver, lead, zinc, copper, and arsenic. Gold predominates, and occurs in a free-milling quartz and combined with the sulphides of lead, zinc, and iron. The deposits containing the complex sulphide ore are of commercial importance and have not been mined, as transportation and the metallurgical methods in use at the time the Pearl district was active prevented profitable operations. The sulphide ores are amenable to modern flotation methods, and, as there is a large tonnage in many of the old mines that are lying dormant, they will again become profitable operations when properly equipped, financed, and managed.

1930 Activities

The only active operation during 1930 was that of the American Mines Development Co. at the old Liberty mine, near Sweet. The tunnel was extended approximately 1,000 feet under contract.

AMERICAN MINES DEVELOPMENT CO. (See Boise County)
Office: 325 Idaho Bldg., Boise. **Officers:** L. S. Honstead, Pres.; C. R. Hanan, Sec., both of Boise. **Inc.:** Mar. 15, 1928. **Capital:** 1,000,000 shares; par value $1; 269,882 shares issued. **Property:** Old Liberty group; 4 patented claims, Squaw Creek dist.; Sweet. Held under lease and option. **Development:** By 1 tunnel 1,000 ft. long. **Plant:** Gas-driven G-D compressor; complete mining equipment and camp. **Ore:** Copper-silver. **Remarks:** The tunnel was extended to a distance of approximately 1,000 ft. during the year.

COOPERATIVE OIL EXPLORATION FUND
Office: Boise. **Officers:** Paul G. Savic, Trustee, Boise. **Inc.:** Trust agreement. **Property:** Oil and gas leases on approximately 5000 acres of patented land near Letha. **Mineral sought:** Oil and gas. **Remarks:** Idle.

FELIX MINING CO.
Office: Boise. **Officers:** T. J. Jones, Pres.-Mgr., Boise. **Inc.:** July 25, 1917. **Capital:** 500 shares; par value $10; all shares issued. **Property:** Felix group; 5 patented claims, West View dist.; Pearl.

GRANITE STATE CONSOLIDATED MINES CO.
Office: 242 Water St., Augusta, Maine. **Officers:** G. R. Chadbourne, Pres., Augusta, Maine. **Inc.:** June 23, 1914. **Capital:** 3,000,000 shares; par value $1; 2,113,664 shares issued. **Property:** Granite State group; 20

patented, 16 unpatented claims, West View dist.; Pearl. **Development:** Principally by 1 tunnel 2300 ft. long. **Remarks:** Annual labor only on unpatented claims.

HECLA-CHECKMATE MINING & MILLING CO., LTD.
Office: Emmett. **Officers:** H. A. Partridge, Pres., Nampa; E. K. Hayes, Sec., Emmett. **Inc.:** May 7, 1907. **Capital:** 1,2500,000 shares; par value $1; 971,645 shares issued. **Property:** Hecla-Checkmate group; 3 patented claims, West View dist.; Pearl.

JOHNSON MINING CO., LTD.
Office: 1220 N. 11th St., Boise. **Officers:** J. C. Johnson, Pres., Boise, **Inc.:** Dec. 27, 1905. **Capital:** 300,000 shares; par value $1; all shares issued. **Property:** 2 patented claims, West View dist.; Pearl.

LINCOLN MINE OPERATING CO.
Officers: Wm. I. Phillips, Pres.; M. W. Hallam, Sec., both of Miami, Fla. **Inc.:** May 20, 1926. **Capital:** 1,000,000 shares; par value 25c. **Remarks:** Idle throughout the year. Failed to file the reports required by law.

NEW LIBERTY MINING CO.
Office: Box 1368, Boise. **Officers:** E. Sweet, Pres., Sweet. **Inc.:** Jan. 14, 1926. **Capital:** 450,000 shares common, par value $1; 50,000 shares preferred, par value $1; 450,000 shares issued. **Property:** Old Liberty group; 4 patented claims, Squaw Creek dist.; Sweet. **Remarks:** Property under option to American Mines Development Co.

OLD LIBERTY MINING CO.
Office: Box 1368, Boise. **Officers:** E. Sweet, Pres., Sweet. **Inc.:** Sept. 6, 1911. **Capital:** 250,000 shares common, par value $1; 300 shares preferred, par value $100; all shares issued. **Property:** Old Liberty group; 4 patented claims, Squaw Creek dist.; Sweet. **Remarks:** Property under option to American Mines Development Co.

YELLOW GOLD PLACER CO.
Office: Mountain Home. **Officers:** Ernest Tacha, Pres.; Hetta M. Tacha, Sec.; Edward N. Crawford, Mgr., all of Mountain Home. **Inc.:** May 16, 1927. **Capital:** 500,000 shares, par value $1; 281,000 shares issued. **Property:** Owns 320 acres and lease on 320 acres of farm land, West View dist.; Pearl. **Remarks:** Active stock-selling campaign throughout the year. This enterprise is based on high values in rare metals, the presence of which was determined by assayers whose methods have been questioned by the U. S. Bureau of Mines.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Apache	West View	Jas. H. Hawley	Boise
Black Jack	West Mountain	Edgar McFadden	Nampa
Black Pearl	West View	H. W. Dorman Est.	Meridian
Burton Bell	West View	John Ackley	Boise
Checkmate	West View	E. K. Hayes	Emmett
Dark Horse	West View	Ed. H. Peasley	Boise
Dewey	West View	E. H. Dewey	Nampa
Gem	West View	H. W. Dorman Est.	Meridian
Golden Age	West View	Lot Feltham	Emmett
I X L	West View	H. W. Dorman Est.	Meridian
Kentuck	West View	H. W. Dorman Est.	Meridian
King Gr.	West View	H. J. C. Graveley	Boise
King Tut Gr.	West View	Warren L. Mace	Boise
McCarty	West View	Scott Anderson	Boise
Middleman	West View	J. C. Johnson	Boise
Morning Glory	West View	E. J. Thorpe	Pearl
Oxford	West View	J. C. Dunbar	Pearl
Silver Wreath	West View	Fremont Wood	Boise
Virginia Mines	West View	G. L. Loope	Seattle, Wash.
White Sapphire Gr.	West Mountain	Geo. H. Storm	Van Nuys, Calif.
Wolverine	West View	H. B. Williams	Portland, Ore.

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

Description of the Boise quadrangle, by Waldemar Lindgren: U. S. Geol. Survey Geol. Atlas, Folio No. 45, **1898.***

Mining districts of the Idaho Basin and the Boise Ridge, Idaho, by Waldemar Lindgren: U. S. Geol. Survey Eighteenth Ann. Rept., pt. 3, pp. 625-736, **1898.***

The gold and silver veins of Silver City, De Lamar and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey Twentieth Ann. Rept., pt. 3, pp. 75-256, **1900.***

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Description of the Nampa quadrangle, by Waldemar Lindgren and N. F. Drake: U. S. Geol. Survey Geol. Atlas, Folio No. 103, **1914.***

A preliminary reconnaissance of the gas and oil possibilities of southwestern and south-central Idaho, by J. P. Buwalda: Idaho Bureau of Mines and Geology Pamphlet 5, **1923.***

GOODING COUNTY

Placer gold, which is found in the gravel bars and sand along the Snake River, constitutes the only mineral resource of this county. These deposits are worked in a limited manner, and generally return the operator a fair profit on his labor.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Big Body Placer	Snake River	John Criswell	Clear Lake
Black Butte Placer	Snake River	A. S. Madalena	Clear Lake
Boulder Hill Placer	Snake River	Charles N. Ingersoll	Bliss
Brown Placer	Snake River	C. E. Jenkins	Hagerman
.....Pl.	Snake River	H. C. Bryant	Hagerman
.....Pl.	Snake River	Hand & Seburn	Hagerman
Zeolite Gr.	Unorganized	Geo. H. Chaffin	Gooding

BIBLIOGRAPHY

See Snake River Gold under General Bibliography.

IDAHO COUNTY

This county occupies a vast region about midway between the northern and southern boundaries of the State, extending from Montana, on the east, to Oregon, on the west. It is bounded on the north by Nez Perce, Lewis, and Clearwater counties, on the east by the State of Montana, on the south by Lemhi, Valley, and Adams counties, and on the west by the State of Oregon. It contains 8,539 square miles, or an area which is larger than the combined areas of the States of Rhode Island, Delaware, and Connecticut. The 1930 census accredited it with a population of 10,107, or 1.2 persons to the square mile. The larger part of the population is located on Camas Prairie, a table-land of about 400 square miles. The chief industries are farming, principally wheat, for which Camas Prairie is famous; stockraising, and mining.

The western part of the county is served by the North and South State Highway, which extends from the southern to the northern boundary, and by the Elk City and Lewis & Clark highways, which are partly constructed. Its railroads are the Lewiston-Stites branch of the Northern Pacific Railroad, and the Lewiston-Grangeville branch, which is owned jointly by the Union Pacific and Northern Pacific railroads. Both these railroads serve Camas Prairie, or the northwestern part of the county. Grangeville is the largest town and county seat.

Idaho County is the largest in the State in area, and one of the greatest in diversity of mineral resources and mining opportunities. The principal metals and minerals which occur in sufficient extent to be of commercial importance are gold—placer and lode—silver, copper, lead, zinc, antimony, tungsten, asbestos, molybdenum, talc, and mica.

During the early days of Idaho this county was one of the largest gold-producing districts in the United States, and at the present time it offers more possibilities for profitable gold mining than any other section. Many of the millions produced during those days were won from placer deposits which occur in practically all the 17 mining districts within the county. Excepting the flat land and river bottoms, which are suitable for dredging, and which fully justify investigation, practically all the placer mines are exhausted.

The greatest handicap which the county is compelled to undergo is the lack of transportation, and under present road conditions only the highest grade free-milling ores can be successfully handled. Railroads into the various mining districts are a far removed possibility; however, a good automobile or motor truck road would serve to open many of the districts which are now dormant.

Much of the ore is a free-milling gold, and if not, a high-grade concentrate can be made which will permit a long haul. The latter statement applies particularly to the ores of the Ten Mile, Orogrande, Elk City, Buffalo Hump, and Dixie districts. The highway from Grangeville to Elk City up the South Fork of the Clearwater River will make all these districts accessible by a water grade road, and their development will soon follow. This highway is one of the most meritorious projects in the State, and everyone interested in mining in these districts is looking forward to its early completion. In July, 1926, the prospectors and companies holding unpatented claims in the Elk City, Orogrande, Dixie, and Buffalo Hump districts voted to do their annual labor on this road. As a result of their faith in these districts, over six miles of road and a bridge crossing the Red River were constructed on the Elk City end. The lower end of the road was extended a distance of six miles during 1929 to the intersection of the old road between Newsome and Golden at Huston. The completion of the road to this point permitted the discontinuance of the road between Stites, Harpster, and Newsome, and the elimination of that portion over Mt. Baldy, one of the highest divides in the State of Idaho to be crossed by a road. On November 16, 1929, the starting point of the mail route to Elk City was changed from Stites to Grangeville, and now all traffic into Elk City and environs is using this road from Grangeville to Huston and then the old road from Huston to Elk City. This change has added over two months to the period during which the Elk City region is accessible to motor vehicles, and has greatly reduced the time required for transporting the mail.

1930 Activities

One of the most important events was the continuation of the construction of the Elk City highway from Huston toward Elk City for a distance of six miles. The inception of the new work gave assurance that this highway would be completed to Elk City at an early date, and it greatly stimulated interest in the Elk City, Dixie, Orogrande, and Buffalo Hump districts. These districts, particularly Elk City, witnessed the incoming of the largest number of prospectors, mining engineers and geologists representing responsible companies and the starting of more new enterprises than at any time during the past 15 years. These activities stimulated the rebuilding of Elk City, a large part of which was destroyed by a disastrous fire in March. A new hotel and community hall were constructed and plans were completed for the erection of new business buildings.

The principal activities in the Elk City district were those of the Cal-Idaho Mining Co. and the Day Development Co. The former company, which acquired the Gold Hill placer, rehabilitated the eight-mile ditch, installed complete hydraulic equipment, and constructed new camp buildings. This operation was one of the largest new hydraulic placer mine enterprises in the

State. The Day Development Co., of Shoshone County, which acquired the Center Star group in October, constructed four miles of trail, installed a gas-driven compressor and complete mining equipment, and started sinking a 100-foot inclined shaft. This property has an excellent showing of ore and its development is of particular importance to this part of the State. The Moose Creek Placers Co. continued work on its ditch and flume line, repaired its hydraulic equipment, and constructed new camp buildings to replace those which were destroyed by fire early in the year. A discovery of high-grade gold ore, which appears to be of importance, was made by John Larson, a prospector, on Elk Mountain. A large number of prospects and old properties were investigated by prominent mining companies. Many of these investigations were satisfactory, and late in the year arrangements were being completed for the acquisition and development of the properties. Press stories were to the effect that the Elco Gold Mining Co. was actively engaged in the reopening of the tunnels of the French Creek Gold Mining & Milling Co.

The Orogrande district witnessed more activity in 1930 than in 1929, particularly at the Homestake group of the Homestake Gold Mining Co., which was operated throughout the year by lessees. A large mining organization was active during the closing months of the year in reopening the old mine workings and sampling one of the "dike" deposits.

The Golden or Ten Mile district was one of the most active sections throughout 1930. F. O. Miller and son, at the Lone Pine group, maintained development work without interruption, operated their mill for a short period during the early part of the year, and installed a 30-horsepower semi-Diesel engine, belted to an electric generator, as supplemental power for the mill. The development work greatly increased the known ore resources. This mine was one of the largest gold-producers in the county. The Buffalo-Idaho Mining Co. maintained development work throughout a large part of the year and operated its mill for a short period. The Sentinel Mines Corporation and E. J. Dailey, new entries into this district, were active in the development of their properties. Two concerns, whose form of organization is unknown, gave themselves considerable publicity in the press.

The Unity Gold Mines Co., in the Warren district, maintained active operations and produced a substantial amount of bullion during the early part of the year. The Warren Meadows placer deposits were acquired under lease and option by eastern operators and were actively prospected throughout the summer months. This district also witnessed a large amount of investigation by those seeking new gold mining enterprises.

From the standpoints of men employed, production, new construction, development work, and investigations by prospectors and companies seeking new gold mines, the Marshall Lake district was the most active section of the county throughout the year. The Sherman Howe Mining Co. constructed additional new camp buildings, greatly enlarged its mine plant, expended a substantial sum on road building, and maintained development work without interruption. This company's production was one of the largest in the county. One of the most important disclosures of new ore made in the State during the year was that of the Golden Anchor Mining Co. at the Holte mine. In February this company's 1600-foot lower tunnel intersected the ore at a distance of approximately 300 feet below the bottom of the upper workings; drifts and a raise which were run on the ore proved the importance of this disclosure. The Long Tom Mining Co., at the Cuban and West Goodenough groups, commenced active development work at both groups during the latter part of the year. The new highway, which the Forest Service is constructing between Burgdorf and this district, was extended over five miles. This road is of great assistance to the companies now operating and is an encouragement to the development of the district.

Press reports were to the effect that the War Eagle group in the Dixie district was operated through the year under lease and option by the Central Idaho Mining & Milling Co., and that this company constructed a considerable distance of trail and installed a small power plant and sawmill. The placer deposits in this district received some attention. There was a small increase

in the amount of the annual labor and development over that of the previous year.

The Bunker Hill & Sullivan Mining & Concentrating Co. and allied interests, which entered the Green Mountain section in 1929, maintained active development work until November. The property held by this company is a copper-silver deposit. Its development has been a material factor in stimulating interest in this district and its environs, particularly Elk City.

Other than annual labor, the principal activity in the Harpster district was that of F. W. Watson at the Dewey group. A substantial amount of development work was performed, and a small tonnage was produced and shipped for experimental purposes.

The alleged presence of rare metals in the black graphitic lime shales in the Salmon River or Simpson district in the vicinity of Lucile continued to be used as a lure for the sale of stock and "units." No work of any consequence was done by those promoting these rare metal enterprises.

ABBA CORPORATION

Office: 31 Nassau St., New York City. **Officers:** Henry W. Allen, Pres.; Charles H. Suhl, Sec., both of New York City. **Inc.:** Mar. 6, 1926. **Capital:** 50,000 shares; par value $1; 45,750 shares issued. **Property:** 4 patented claims, Warren dist.; Warren. **Ore:** Silver.

ACME GOLD MINES, INC.

Office: Yakima, Wash. **Officers:** D. O. Robinson, 23 Chicago St., Yakima, Wash. **Inc.:** May 31, 1930. **Capital:** 3,000,000 shares; par value 5c. **Remarks:** Failed to file the reports required by law.

ALTA-IDAHO GOLD & COPPER MINING CO.

Officers: M. C. Hetler, Pres., Berwick, Pa.; Mrs. Rachel E. Fine, Sec., Cassadaga, Fla.; Geo. M. Snyder, Mgr., Pardee. **Inc.:** Filed in Idaho June 17, 1903. **Capital:** 1,000,000 shares; par value $1; 745,000 shares issued. **Property:** Empire group; 11 unpatented claims, on South Fork of Clearwater River, Lolo dist.; Pardee. **Development:** Approximately 450 ft. of underground workings, the principal of which is 1 tunnel 250 ft. long. **Ore:** Gold-silver-copper. **Men employed:** 1 watchman.

BLACKTAIL MINING CO.

Office: 1517 E. 9th Ave., Spokane, Wash. **Officers:** R. E. Wakeley, Pres.-Mgr.; N. L. Wakeley, Sec., both of Spokane. **Inc.:** Dec. 3, 1914. **Capital:** 200,000 shares; par value $1; 121,920 shares issued. **Property:** 10 unpatented claims, Harpster dist.; Harpster. **Development:** By 2 tunnels: No. 1, 370 ft. long; No. 2, 70 ft. long. **Ore:** Gold. **Remarks:** Annual labor only.

B. R. & R. MINING CO., INC.

Office: Lewiston. **Officers:** Peter Reid, Pres., Empire State Bldg., Spokane, Wash.; R. S. Kalbfleisch, Sec., Lewiston; M. A. Robinson, Mgr., Lucile. **Inc.:** June 25, 1930. **Capital:** 100,000 shares; par value $1; 50,000 shares issued. **Property:** 2 unpatented claims, Simpson dist.; Lucile. **Ore:** Gold, platinum, "iradium." **Remarks:** This enterprise is based on the recovery of gold and rare metals from graphitic lime shales by secret and questionable methods. A substantial amount of stock was sold at $1 per share.

BUFFALO-IDAHO MINING CO.

Office: 822 Humboldt Parkway, Buffalo, N. Y. **Officers:** Geo. J. Becker, Pres., Buffalo, N. Y.; Ray R. Becker, Sec., Williamsville, N. Y.; Joseph A. Fields, Mgr., Golden. **Inc.:** Nov. 7, 1927. **Capital:** 250,000 shares; par value $1; 191,095 shares issued. **Property:** Mackey group; 11 unpatented claims held under lease and option, Ten Mile dist.; Golden. **Development:** Principally by 1 tunnel 1100 ft. long, in which is a 40-ft. inclined shaft. **Plant:** MINE: Small gas-driven compressor; complete mining equipment and camp. MILL: Steam-driven 4-stamp mill. **Ore:** Gold. **Men employed:** Average, 4. **Remarks:** The mill was operated for 50 days, and a small amount of mine development work was done.

CAL-IDAHO MINING CO.
Office: Elk City. **Officers:** Edward H. Cookingham, Pres., Lindsay, Calif.; McClellan G. Jones, Sec., Huntington Beach, Calif.; Thomas Berry, Mgr., Elk City. **Inc.:** Not filed in Idaho. **Capital:** 250,000 shares; par value $1; 31,800 shares issued. **Property:** Gold Hill placer; 8 patented, 9 unpatented claims, held under lease and option, Elk City dist.; Elk City. **Plant:** 8-mile ditch, complete hydraulic equipment, and mine camp. **Ore:** Placer gold. **Men employed:** Average, 60. **Remarks:** The ditch, in which is a large amount of flume, was completely reconstructed, and hydraulic equipment and mine camp were installed during the year. This operation is one of the largest new hydraulic placer mine enterprises in the State.

CENTRAL IDAHO GOLD MINES, INC.
Office: 601 Hutton Bldg., Spokane, Wash. **Officers:** Henry Merritt, Pres., Rosalia, Wash.; Chas. H. Ennis, Sec., Spokane, Wash. **Inc.:** July 20, 1928. **Capital:** 100,000 shares; par value $1; 61,020 shares issued. **Property:** New York and Anaconda groups; 29 unpatented claims held under lease and option, Ten Mile dist.; Golden. **Development:** By 10 tunnels, the principal one of which is 1200 ft. long. **Plant:** Water-driven 10-stamp mill, constructed in 1916; complete hand-mining equipment and camp. **Ore:** Gold. **Men employed:** Average, 2. **Remarks:** Annual labor and ordinary repairs.

CENTRAL IDAHO MINING & MILLING CO.
Office: Seattle, Wash. **Officers:** S. F. Chadwick, Sec., Seattle; W. F. Newton, Dixie. **Inc.:** Nov. 12, 1929. **Capital:** 1,000,000 shares; par value $1. **Remarks:** Refused to file the reports required by law. Newspaper stories were to the effect that this company operated the War Eagle group, which is located southeast of Dixie, and that a small power plant and sawmill were installed and that a considerable distance of trail was constructed.

COMMODORE GOLD MINING CO.
Office: Lewiston. **Officers:** Wm. C. McNutt, Pres.-Mgr.; E. H. Springer, Asst. Sec., both of Lewiston. **Inc.:** Mar. 28, 1921. **Capital:** 1,000,000 shares; par value $1; 432,315 shares issued. **Property:** Commodore group; 38 unpatented claims, at junction of Crooked River and South Fork of Clearwater River, Orogrande dist.; Elk City. **Development:** By 10 short tunnels, totaling approximately 500 ft., and 253 discovery pits. **Ore:** Gold. **Remarks:** Annual labor only.

CONSOLIDATED MINES SYNDICATE **(See Camas County)**
Property: Blue Jacket group; 7 patented claims, Crooks Corral dist.; Lucile. **Remarks:** Idle.

COPPER QUEEN MINING CO.
Office: Burke. **Officers:** Daniel Laverty, Pres.-Mgr., Pardee; F. H. Rehberg, Sec., Kamiah. **Inc.:** Oct. 29, 1929. **Capital:** 1,000,000 shares; par value $1; 26,000 shares issued. **Property:** 9 unpatented claims, Lolo dist.; Pardee. **Development:** 2 short tunnels. **Ore:** Copper, gold and silver. **Men employed:** Average, 2. **Remarks:** Annual labor only.

CROOKS CORRAL MINES, LTD.
Office: Grangeville. **Officers:** Frank McGrane, Pres., Grangeville. **Inc.:** Sept. 13, 1897. **Capital:** 1,000,000 shares; par value $1; 990,000 shares issued. **Property:** 8 patented placer claims, Crooks Corral dist.; Lucile.

DAVIS MINING CO.
Office: 320 Railway Exchange Bldg., Seattle, Wash. **Officers:** Geo. Allen, Pres.; C. H. Steffen, Sec., both of Seattle, Wash. **Inc.:** Not filed in Idaho. **Capital:** 100,000 shares; par value 5c; 50,000 shares issued. **Property:** 25 unpatented claims, Burgdorf. **Ore:** Placer gold. **Remarks:** A small amount of prospecting during the summer months.

DAY DEVELOPMENT CO.

Office: Wallace. **Officers:** Harry L. Day, Pres.; W. B. Heitfield, Sec., both of Wallace. **Inc.:** Nov. 27, 1928, as Hercules Exploration Co.; name changed Nov. 25, 1930. **Capital:** 10,000 shares; par value $1,000; 9,900 shares issued. **Property:** Center Star group, Enk City dist.; Elk City. Held under lease and option. **Plant:** Gas-driven compressor; complete mining equipment and camp. **Ore:** Gold. **Men employed:** Average, 10. **Remarks:** Property acquired in October, after which 4 miles of trail were constructed, a gas-driven compressor and mining equipment were installed, and active work was started in sinking a 150-ft. inclined shaft. This property has an excellent showing of ore and its development by this company is one of the principal new mining enterprises to start in the State during the year.

DIATOM PRODUCTS CO.

Office: Lewiston. **Officers:** Ben L. Schultz, Lewiston. **Inc.:** May 3, 1930. **Capital:** 50,000 shares; par value $1. **Remarks:** Failed to file the reports required by law.

DYKE GOLD MINING & MILLING CO.

Office: 174 S. Howard St., Spokane, Wash. **Officers:** S. A. Wells, Pres.-Mgr.; Robert A. Koontz, Sec., both of Spokane, Wash. **Inc.:** June 24, 1929. **Capital:** 2,500,000 shares; par value 10c. **Remarks:** Failed to file the reports required by law.

ELCO GOLD MINING CO.

Office: 415 Hyde Bldg., Spokane, Wash. **Officers:** G. A. Foster, Sec., Spokane, Wash. **Inc.:** Sept. 6, 1930. **Capital:** 4,000,000 shares common, par value 10c; 100,000 shares common, par value $1. **Remarks:** Refused to file the reports required by law. According to press stories this company is supposed to have a lease and option on the property owned by the French Creek Gold Mining & Milling Co. near Elk City. An active stock-selling campaign was conducted throughout the year. Press stories were to the effect also that C. B. Collier and J. B. Ellis, both of Spokane, are connected with this company. The newspapers stated that mining operations were conducted during the latter part of the year, and that these resulted in exposing a good showing of commercial ore. The reasons for failing to file the necessary reports are probably best known to the officers of this company.

EMPIRE METALS CO.

Office: 174 S. Howard St., Spokane, Wash. **Officers:** Wm. Hogan, Pres.-Mgr.; Robert A. Koontz, Sec., both of Spokane, Wash. **Inc.:** Jan. 20, 1927. **Capital:** 999,000 shares; par value 50c. Increased Mar. 26, 1928, to 5,000,000 shares; par value $1; 2,000,000 shares issued. **Property:** 113 unpatented claims, Elk City and Orogrande dists.; Elk City and Orogrande. **Development:** By a large number of short tunnels and open cuts. **Ore:** Gold. **Remarks:** Annual labor only.

ESPERANZA GOLD DIKES MINING CORPORATION

Office: 802 Failing Bldg., Portland, Ore. **Officers:** Edward M. Griffith, Pres., Lewiston; C. W. Twining, Sec., Portland, Ore. **Inc.:** Sept. 14, 1925. **Capital:** 1,000,000 shares; par value 25c; all shares issued. **Property:** Champion group; 18 patented claims, Orogrande dist.; Orogrande. **Development:** Approximately 4000 ft. of old workings. **Ore:** Gold. **Remarks:** Idle throughout the year.

GARNER ELECTRIC RANGE CO.

Officers: Oliver W. Garner, Vice Pres., Volk Apts., Tacoma, Wash. **Inc.:** An association. **Capital:** 1,000,000 shares; par value $1; 452,255 shares issued. **Property:** 80 acres patented farm land near Pollock, held under lease and option; Riggins. **Development:** 1 tunnel 100 ft. long. **Mineral sought:** Talc.

GOLDEN ANCHOR MINING CO.

Office: Boise. **Officers:** J. A. Czizek, Pres.-Mgr.; J. F. Koelsch, Sec., both of Boise. **Inc.:** Apr. 14, 1928. **Capital:** 1,000,000 shares; par value $1; 500,000 shares issued. **Property:** Holte group; 22 unpatented claims,

Marshall Lake dist.; Burgdorf. **Development:** Approximately 3200 ft. of underground workings, the principal of which are 4 tunnels: No. 1, 400 ft. long; No. 2, 1860 ft. long; No. 3, 600 ft. long; No. 4, 1600 ft. long; 1 vertical shaft 150 ft. deep. **Plant:** MINE: Electrically-driven compressor, complete mining equipment, sawmill, assay office and complete camp. MILL: 50-ton steam-driven Lane Chilean mill; cyanide plant. POWER: Small hydroelectric power plant; 3-mile transmission line. **Ore:** Gold. **Men employed:** Average, 8. **Remarks:** In February No. 4 tunnel intersected the ore at a distance of approximately 300 ft. below the bottom of the shaft in No. 3 tunnel. Drifts were then run on the ore, after which a vertical raise 200 ft. high was driven to an interesection with the vein. The ore disclosed by this work was one of the most important new ore disclosures in the State during the year. Operations were suspended in October.

GOLDEN MINES, LTD., INC.

Office: Lewiston. **Officers:** C. L. Emmons, Kalispell, Mont.; R. Hubbard, Sec., Lewiston. **Inc.:** Jan. 17, 1930. **Capital:** 250,000 shares; par value $1; 146,239 shares issued. **Property:** 5 unpatented claims, Ten Mile dist.; Golden. **Development:** 4 short tunnels. **Plant:** Gas-driven compressor, complete mining equipment and camp. **Ore:** Gold and silver.

GOLD ZONE MINING & MILLING CO., LTD.

Office: Grangeville. **Officers:** W. W. Brown, Pres.; M. R. Hattabaugh, Sec., both of Grangeville; J. J. Schoner, Mgr., Elk City. **Inc.:** Sept. 9, 1919. **Capital:** 1,000,000 shares; par value 5c; all shares issued. **Property:** Gold Zone group; 3 unpatented claims, Elk City dist.; Elk City. **Development:** By 1 tunnel 500 ft. long. **Ore:** Gold. **Men employed:** Average, 2. **Remarks:** Annual labor only.

GOODENOUGH UNITED MINING & MILLING CO., LTD.

Office: Payette. **Officers:** L. I. Purcell, Pres.-Mgr., Payette. **Inc.:** Nov. 1, 1905. **Capital:** 1,000,000 shares, par value 25c; 535,564 shares issued. **Property:** Goodenough group; 10 patented claims, Marshall Lake dist.; Burgdorf. **Remarks:** Idle for many years.

HOMESTAKE GOLD MINING CO.

Office: 345 Peyton Bldg., Spokane, Wash. **Officers:** Markus Lies, Pres., Cottonwood; W. H. Jones, Sec., Spokane, Wash.; A. W. Boyd, Mgr., Elk City. **Inc.:** Filed in Idaho Jan. 7, 1919. **Capital:** 250,000 shares; par value $1; all shares issued. **Property:** American Eagle and Fish Hawk groups; 26 patented, 10 unpatented claims, Elk City dist.; Elk City; Homestake group; Orogrande. **Remarks:** Failed to file the reports required by law.

HOMESTAKE PLACER MINE

Owner: M. Kleiner, Portland, Ore. **Property:** 8 unpatented placer claims, Ten Mile dist.; Golden. **Ore:** Placer gold. **Remarks:** Under lease and option to Russell Webb of Lapwai, who performed a small amount of work during the summer months, consisting principally of installation of hydraulicking equipment.

IDAHO GOLDFIELDS, INC.

Office: 533 Exchange Nat. Bank Bldg., Spokane, Wash. **Officers:** H. B. Davis, Spokane, Wash. **Inc.:** May 10, 1930. **Capital:** 500,000 shares; par value 10c. **Remarks:** Refused to file the reports required by law, although twice notified to do so. Letters of inquiry relative to this company addressed to the inspector of mines indicate that this enterprise is based on the recovery of rare metals from the graphitic lime shales, which are located near Lucile, by secret methods known only to the company.

IDAHO MOTHER LODE GOLD MINES CO.

Officers: W. G. Tanner, Seattle, Wash. **Inc.:** Not filed in Idaho. **Remarks:** Failed to file the reports required by law, although notified to do so. Press stories, which evidently were issued by the company, were to the effect that the company controlled 70 claims in the Ten Mile district, Golden.

IDAHO & NEVADA MINING CO.
Office: 1410 Alameda Drive, Portland, Ore. **Officers:** Richard Becker, Pres.; G. A. Johnson, Sec., both of Portland, Ore. **Inc.:** June 9, 1924; charter forfeited Nov. 30, 1929. **Capital:** 5,000,000 shares; par value 5c; 2,308,833 shares issued. **Property:** 8 unpatented claims, Elk City dist.; Elk City. **Development:** 1 short tunnel. **Plant:** MINE: Steam-driven hoist. MILL: 10 stamps, steam-driven. **Ore:** Gold. **Men employed:** Average, 2. **Remarks:** Annual labor only.

JUMBO MINING & MILLING CO., LTD.
Office: Lewiston. **Officers:** J. C. Jansen, Pres.; Mrs. Alice R. Lydon, Asst. Sec., both of Lewiston. **Inc.:** Aug. 13, 1902. **Property:** Jumbo group; 6 patented claims, Robins dist.; Orogrande. **Remarks:** Idle.

LIBERTY MINING CO.
Office: Tacoma, Wash. **Inc.:** Not filed in Idaho. **Remarks:** Name gleaned from the press. Supposed to have an option on property near Grangeville.

LONE PINE GROUP
Owner: F. O. Miiller, 735 Riverview Blvd., Clarkston, Wash.; S. O. Miiller, Supt., Lewiston. **Property:** Lone Pine group; 4 patented, 10 unpatented claims, Ten Mile dist.; Golden. **Development:** By 6 tunnels, totaling over 2100 ft. **Plant:** 2-stamp mill, 1250-lb. stamps, water-driven. **Ore:** Gold. **Men employed:** Average, 8. **Remarks:** This property is one of the principal gold-producing mines in Idaho County. During the high-water season a substantial tonnage was produced and milled. Active development work was maintained throughout the year. This work resulted in exposing an unknown vein and a large tonnage of high-grade ore. A 30-h. p. C-P semi-Deisel engine, belted to a 20-k. w. generator, was installed as supplementary power for the mill.

LONG TOM MINING CO.
Office: Weiser. **Officers:** Chas. Black, Pres., Boise; Milo Phillibeo, Sec., Weiser. **Inc.:** Aug. 12, 1930. **Capital:** 500,000 shares; par value $1; 125,-000 shares issued. **Property:** Cuban and West Goodenough groups; 6 unpatented claims, held under lease and option, Marshall Lake dist.; Burgdorf. **Ore:** Gold. **Men employed:** Average, 5. **Remarks:** During the latter part of the year work was started under contract on both properties and continued without interruption.

LUCKY FIVE MINING CO.
Office: P. O. Box 1182, Spokane, Wash. **Officers:** J. F. Hocking, Pres.; C. Clinkenbeard, Sec.-Mgr., both of Spokane. **Inc.:** Never filed in Idaho; form of organization unknown. **Capital:** 1,499,990 shares; par value 10c. **Remarks:** Failed to file the reports required by law.

McKINLEY GOLD MINING CO.
Office: Kellogg. **Officers:** P. P. Weber, Pres.; Geo. D. Lamielle, Sec., both of Kellogg. **Inc.:** Dec. 29, 1899. **Capital:** 1,500,000 shares; par value $1; 923,313 shares issued. **Property:** McKinley group; 4 patented, 2 unpatented claims, Simpson dist.; Lucile. **Development:** 4 tunnels: No. 1, 145 ft. long; No. 2, 1020 ft. long. Total development, approximately 1300 ft. **Ore:** Gold. **Remarks:** Annual labor only.

MAC B MINING & MILLING CO.
Office: Kooskia. **Officers:** Ole Bush, Pres., Madison, Kan.; W. A. McMurray, Sec., Kooskia. **Inc.:** Not incorporated. **Property:** 6 unpatented claims, Lowell dist.; Kooskia. **Development:** 1 short tunnel. **Ore:** Gold-silver-lead.

MAMMOTH MINE CORPORATION
Office: Lewiston. **Officers:** R. S. Erb, Pres.; R. G. Bailey, Sec., both of Lewiston. **Inc.:** Feb. 25, 1925. **Capital:** 500,000 shares; par value $1; 290,508 shares issued. **Property:** Mammoth group; 6 unpatented claims, Dixie dist.; Dixie. **Development:** By 14 open cuts and 2 short tunnels. **Ore:** Gold. **Remarks:** Property under option to Mammoth Mining & Development Co.

MAMMOTH MINING CO.
Officers: J. F. Leonard, Grangeville. **Remarks:** Property supposed to be located near Grangeville; name obtained from the press.

MAMMOTH MINING & DEVELOPMENT CO.
Office: Dixie. **Officers:** G. W. Miller, Pres., Milton, Ore.; H. R. Flaiz, Sec., College Place, Wash. **Inc.:** Apr. 29, 1929. **Capital:** 600,000 shares; par value $1; all shares issued. **Property:** Lease and option on property of Mammoth Mine Corporation. **Remarks:** Active stock-selling campaign in the State of Washington throughout the year.

MONTE CRISTO MINING CO.
Office: Lewiston Bank Bldg., Lewiston. **Officers:** Fred Johnson, Pres.-Mgr., Troy; A. P. Hagglund, Sec., Lewiston. **Inc.:** Oct. 22, 1927. **Capital:** 200,000 shares; par value $1; 80,000 shares issued. **Property:** Monte Cristo group; 2 unpatented claims, Robins dist.; Waverly; 1 patented claim, Florence dist.

MOOSE CREEK PLACERS CO.
Office: Kellogg. **Officers:** D. Williams, Pres., Lewiston; Max R. Crosby, Sec.-Mgr., Golden. **Inc.:** Nov. 22, 1927. **Capital:** 2,500,000 shares; par value 10c; 1,153,375 shares issued. **Property:** Moose Creek placers; 20 unpatented claims, 395 acres, Newsome dist.; Newsome. **Ore:** Placer gold. **Men employed:** Average, 8. **Remarks:** During the summer months ditch and flume lines and hydraulicking equipment repaired and rehabilitated. Mine camp buildings which were destroyed by fire early in the year were rebuilt.

NORTH HILL MINING CO.
Office: 617 Hutton Bldg., Spokane. **Officers:** J. M. McLean, Pres.; Ralston McCaig, Sec., both of Spokane. **Inc.:** Apr. 18, 1925. **Capital:** 1,500,000 shares; par value 1c; 793,964 shares issued. **Property:** Summit Flat group; 5 unpatented claims, Orogrande dist.; Orogrande. **Development:** Principally by 1 tunnel, 1150 ft. long. **Plant:** Steam-driven Gardner-Ricks compressor and hoist; camp; complete mining equipment. **Ore:** Gold. **Men employed:** Average, 2. **Remarks:** Annual labor only.

OROGRANDE GOLD MINING CO.
Office: 602 Columbia Bldg., Spokane, Wash. **Officers:** J. N. Pickrell, Pres., Colfax, Wash.; J. E. Pickrell, Sec., Spokane, Wash. **Inc.:** March 14, 1919. **Capital:** 3,500,000 shares; par value $1; 1,833,480 shares issued. **Property:** Orogrande group; 5 patented, 29 unpatented claims, Orogrande dist.; Orogrande. **Development:** Approximately 6000 ft. of underground workings and 4000 ft. of surface cuts on all claims. **Plant:** Stamp mill with partly completed cyanide plant; water-driven. **Ore:** Gold. **Remarks:** Idle. In receivership. Receiver, F. J. Cunningham, Spokane, Wash.

PULLMAN MINING & MILLING CO.
Office: Pullman, Wash. **Officers:** A. C. Baker, Pres.; D. C. Dow, Sec., both of Pullman, Wash. **Inc.:** Dec. 26, 1911. **Capital:** 2,000,000 shares; par value $1. **Remarks:** This company has not filed the reports required by law since 1923. Newspaper reports are to the effect that it is active each year.

RAPID RIVER MINING & MILLING CO., LTD.
Office: Genesee. **Officers:** D. Scharnhorst, Pres.-Mgr.; J. G. Meyer, Sec., both of Genesee. **Inc.:** July 14, 1910. **Capital:** 1,500,000 shares; par value $1; 305,139 shares issued. **Property:** 8 unpatented claims, Rapid River; Pollock.

REVENUE MINING & MILLING CO.
Office: 511 Kuhn Blk., Spokane, Wash. **Officers:** J. E. McCormack, Pres.; Walter Guthridge, Sec.-Treas., both of 511 Kuhn Blk., Spokane, Wash. **Inc.:** April 10, 1912. **Capital:** 500,000 shares; par value $1; 391,693 shares issued. **Property:** Revenue group; 8 patented claims, Elk City dist.; Elk City. **Development:** 2 tunnels: No. 1, 700 ft. long; No. 2, 100 ft. long. **Remarks:** Idle.

SALMON RIVER MINERS, INC.
Office: P. O. Box 207, Lewiston. **Officers:** C. C. Byers, Pres.-Mgr.; C. B. Cole, Sec., both of Lewiston. **Inc.:** Mar. 26, 1928. **Capital:** 100 shares; par value $100; 60 shares issued. **Property:** 1 unpatented placer claim, Camp Howard dist.; Whitebird. **Ore:** Placer gold. **Remarks:** Small amount of work performed during the summer months by the officers of the company.

SECESH DREDGING SYNDICATE
Office: 311 Hyde Bldg., Spokane, Wash. **Officers:** J. N. Rice, Pres.; S. S. Bassett, Sec., both of Spokane, Wash. **Inc.:** Not filed in Idaho. Common law trust. **Capital:** 1,000 shares; par value $100; all shares issued. **Property:** 22 unpatented claims, Warren dist.; Burgdorf. **Ore:** Placer gold. **Remarks:** Other than an active attempt to sell stock, the activities of this organization are unknown.

SELWAY MINING CO.
Office: Unknown. **Inc.:** Not filed in Idaho. **Remarks:** Name gleaned from the press. The property is supposed to be located northeast of Kooskia.

SENTINEL MINES CORPORATION
Office: Lewiston. **Officers:** D. E. Steiner, Pres., Golden; J. C. Tyler, Sec., Clarkston, Wash. **Inc.:** March 14, 1930. **Capital:** 50,000 shares; par value $1; 10,000 shares issued. **Property:** 4 claims, Ten Mile dist.; Golden. **Development:** 1 short tunnel. **Ore:** Gold. **Men employed:** Average, 6. **Remarks:** The tunnel was extended a short distance during the year.

SHERMAN HOWE MINING CO.
Office: Burgdorf. **Officers:** A. W. Walker, Pres., Burgdorf; J. W. David, Sec.; V. W. Bailey, Mgr., all of Burgdorf. **Inc.:** Mar. 19, 1929. **Capital:** 250,000 shares; par value $1; all shares issued. **Property:** Walker-Wilcox group; 45 unpatented claims, Marshall Lake dist.; Burgdorf. **Development:** Principally by 3 tunnels: No. 1, 850 ft.; No. 2, 2200 ft.; total development approximately 5600 ft. **Plant:** MINE: I-R compressor; complete mining equipment and camp. MILL: 150-ton, fine-grinding amalgamation and flotation. POWER: 250-h. p. Diesel engine, direct connected to electric generator; 3-mile transmission line. **Ore:** Gold. **Men employed:** Average, 34. **Remarks:** This company's property adjoins that of the Golden Anchor Mining Co. and covers the western extension of the Holte vein system. This was one of the principal new enterprises to start in the State during 1929, and continued without interruption throughout 1930. Its expenditures were among the largest in the State. Additional new camp buildings were constructed and the mill was completed and operated throughout a large part of the year. A substantial sum was expended on road building. See page 47 for description of the mill.

SLATE CREEK GOLD MINING CO.
Office: Whitebird. **Officers:** G. A. Thomson, Pres.; W. W. White, Sec., both of Whitebird. **Inc.:** Sept. 21, 1925. **Capital:** 600,000 shares; par value 50c. **Remarks:** Failed to file the reports required by law.

SPHINX GOLD MINING CO.
Office: 1200 Old National Bank Bldg., Spokane, Wash. **Officers:** Sam A. McCoy, Pres.-Mgr.; E. J. Johnson, Sec., both of Spokane, Wash. **Inc.:** May 3, 1923. **Capital:** 500,000 shares; par value $1; all shares issued. **Property:** Sphinx group; 5 unpatented claims, Ten Mile dist.; Newsome. **Ore:** Gold. **Remarks:** Annual labor only.

SPRING BARR PLACER CO.
Office: E. 2417 Fifth St., Spokane, Wash. **Officers:** N. L. Wakeley, Pres.-Mgr.; Geo. W. McCallum, Sec., both of Spokane, Wash. **Inc.:** May 14, 1927. **Capital:** 25,000 shares; par value $1; 20,063 shares issued. **Property:** Spring Barr group; 3 unpatented placer claims, Simpson dist.; Lucile. **Ore:** Placer gold. **Remarks:** Annual labor only.

STATE MINING CO.
Office: 616 Hutton Bldg., Spokane, Wash. **Officers:** J. M. McLean, Pres.; Ralston McCaig, Sec., both of Spokane, Wash. **Inc.:** Feb. 25, 1930. **Capital:** 1,500,000 shares; par value 2c; 375,000 shares issued. **Property:** 1 unpatented claim, Orogrande dist.; Orogrande. **Development:** 2 tunnels. **Ore:** Gold.

STOWELL GOLD MINING CO.
Office: 421 Sprague Ave., Spokane, Wash. **Officers:** Wm. H. Stowell, Pres.; Robert A. Koontz, Sec., both of Spokane. **Inc.:** Dec. 4, 1926. **Capital:** 5,000,000 shares; par value 15c. **Remarks:** Failed to file the reports required by law.

SYLVANITE GOLD-COPPER CO.
Office: 504 Mohawk Bldg., Spokane, Wash. **Officers:** Wesley L. Wakeley, Pres.-Mgr., Lucile; G. E. Lovell, Sec., Spokane, Wash. **Inc.:** Aug. 20, 1919. Charter forfeited Nov. 30, 1929. **Capital:** 100 shares; par value $100; all shares issued. **Property:** Maud Randall group; 5 unpatented claims, 2 of which are held under lease and bond from Joseph Himmelspack of Grangeville; Harpster dist.; Harpster. **Development:** By 2 tunnels: No. 1, 825 ft. long; No. 2, 120 ft. long. **Plant:** Gas-driven Gardner-Ricks 6x6 compressor; complete mining equipment. **Ore:** Copper. **Remarks:** Annual labor only.

THREE STAR MINES CORPORATION
Office: 201 N. Naches Ave., Yakima, Wash. **Officers:** L. L. Iles, Pres.; W. T. Carpenter, Sec., both of Yakima, Wash. **Inc.:** Oct. 23, 1929. **Capital:** 3,000,000 shares; par value 1c; 664,442 shares issued. **Property:** 17 unpatented claims, Ten Mile dist.; Golden. **Ore:** Gold. **Men employed:** Average, 2. **Remarks:** Active for about 6 months. This company is supposed to have changed its name to Clearwater Mining Co., although such a name has not been officially filed.

TRI METALLIC MINING CO., LTD.
Office: Pardee, Idaho. **Officers:** Miss Frieda M. Bethmann, Pres.; Miner Bethmann, Mgr., both of Pardee. **Inc.:** Sept. 26, 1917. **Capital:** 250,000 shares; par value $1; 146,866 shares issued. **Property:** Tri Metallic group; 4 unpatented claims, Lolo dist.; Pardee. **Development:** By 3 tunnels: No. 1, 520 ft.; No. 2, 185 ft.; No. 3, 950 ft. **Ore:** Gold-silver-copper. **Remarks:** Annual labor only.

UNA MINE CO.
Office: 617 Hutton Bldg., Spokane, Wash. **Officers:** J. M. McLean, Pres.; Ralston McCaig, Sec.-Mgr., both of Spokane. **Inc.:** Feb. 6, 1925. **Capital:** 1,250,000 shares; par value 1c; 1,098,600 shares issued. **Property:** Una group; 4 unpatented claims, Orogrande dist.; Orogrande. **Development:** By 1 tunnel 1155 ft. long. **Ore:** Gold. **Men employed:** Average, 2. **Remarks:** Annual labor only.

UNITY GOLD MINES CO.
Office: 120 Broadway, New York City. **Officers:** Lorren M. Hart, Pres.; J. B. Neumuller, Sec., both of New York City; Granville T. Eyman, Mgr., Warren. **Inc.:** May 25, 1916. **Capital:** 500,000 shares; par value $5; all shares issued. **Property:** Little Giant and Rescue groups; 10 patented, 14 unpatented claims, Warren dist.; Warren. **Development:** Over 10,000 ft. of underground workings, the principal of which is the Unity or main crosscut tunnel, which is 5400 ft. in length. **Plant:** MINE: Storage-battery locomotive haulage; one 300-cu.-ft. and one 700-cu.-ft. electrically driven compressor; complete mining equipment. MILL: 10-stamp mill, 1000-lb. stamps, simple amalgamation. POWER PLANTS: A 50-h. p. hydroelectric plant on Warren Creek and a 600-h. p. hydroelectric plant on Elk Creek, the latter consisting of 2 units driven by Pelton impulse water wheel operating under a vertical head of 415 ft.; 9½-mile transmission line connecting power plant and mine. **Ore:** Gold. **Men employed:** 15. **Remarks:** Active operations and a substantial production during the early part of the year, after which all operations were suspended.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Ada Brown et al.	Ten Mile	J. H. Lamb	Ephrata, Wash.
Ajax No. 2 Gr.	Robins	H. M. Glidden Est.	Spokane, Wash.
Alberta	Elk City	H. T. Thompson	Elk City
Alhambra Gr.	Robins	Old Nat. Bank	Spokane, Wash.
Alligator Gr.	Robins	Buffalo Hump L. L. M. Co.	A. B. Chapman, 1309 Summit Ave., Seattle, Wash.
American Bar Pl.	Unorganized	Lula M. Unzicker	Cottonwood
American Flag	Elk City	Pat Brennan	Elk City
American Gr.	Robins	Am. Gold M. Co.	714 W. 14th Ave., Lewiston
Americanus	Marshall Lake	Ed Luzadder	Burgdorf
Americus	Cottonwood Buttes	J. W. Bartlett	Greencreek
Anaconda	Unorganized	J. Himmelspak	Grangeville
Annie Laurie et al.	Florence	S. A. Deflong	Grangeville
Apex	Florence	Anderson & Seaberg	Florence
Argonne Gr.	Orogrande	A. C. Spengler	Lewiston
Arles	Warren	Kelley & Patterson	Warren
Atlas Gr.	Robins	E. P. Adkison	Lewiston
Baby	Robins	R. J. McConnell	Grangeville
Baner Gr.	Elk City	Frank Baner	Elk City
Bengal	Elk City	Perry Bros.	Elk City
Bevier Pl.	Florence	Wm. D. Bevier	Elk City
Big Buffalo Gr.	Robins	Sweeney Inv. Co.	Portland, Ore.
Big Four	Warren	Patterson Bros.	Warren
Black Bear	Cottonwood Buttes	L. J. Anderson	Woodland
Black Bear	Robins	H. J. High	Lewiston
Blanco	Unorganized	J. W. Van Tine	Grangeville
Bluebird	Warren	Walter B. Martin	Warren
Blue Bird Gr.	Ten Mile	John P. Kee	Grangeville
Blue Ribbon	Elk City	J. E. Brown	Elk City
B & M Mine	Elk City	John Montgomery	Elk City
Bolinski Gr.	Elk City	Len Bolinski	Elk City
Bonanza Pl.	Elk City	Frederick Gribi	1546 Toberman St., Los Angeles, Cal.
Broadwater Gr.	Robins	Mrs. M. N. Parker	Grangeville
Brown Gr.	Warren	Frank H. Brown	Warren
Buck Diggins Pl.	Warren	John Becker	Warren
Buckeye Pl. et al.	Unorganized	Henry Meyer	Grangeville
Buck Meadows Pl.	Unorganized	George Davis	Grangeville
Buffalo Chief	Robins	Mrs. I. F. DeVinney	2202 Champline St., Wheeling, W. Va.
Burrel	Ten Mile	J. J. Kowalski	Prosser, Wash.
Buster et al.	Dixie	Oscar Waller	Warren
Buttercup Gr.	Florence	Samuel Dunn	Grangeville
Cape Horn	Camp Howard	C. H. Lyons	Whitebird
Capt. Clark Gr.	Robins	Sylvia Koch	1228 Oak Ave., Evanston, Ill.
Carson Pl.	Warren	Frank Carson	Warren
Carter Gr.	Elk City	Geo. M. Carter	Jackson, Mich.
Center Star	Elk City	Herman Brown	Elk City
Chicago et al.	Elk City	R. Greckwell	Elk City
China Garden	Camp Howard	B. V. Lyons	Grangeville
Cleveland	Elk City	S. W. Smith	Palo Alto, Cal.
Clyde Gr.	Robins	Sweeney Inv. Co.	Portland, Ore.
Coeur d'Alene	Ten Mile	Peter Proulix	Golden
Colonel Gr.	Robins	Wilbert H. Parks	Hampton, Iowa

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Columbia	Elk City	John Massam	Elk City
Concord Gr.	Robins	Mrs. Carrie M. Stone	75 Federal St., Boston, Mass.
Congress	Elk City	S. W. Smith	Palo Alto, Cal.
Copper King Gr.	Lolo	Daniel Laverty	Pardee
Cornucopia et al.	Simpson	D. A. Hardin et al.	Whitebird
Cove Placers	Clearwater	M. B. Geary	Grangeville
Crackerjack Gr.	Robins	J. H. Howard	Elks Club, Long Beach, Cal.
Crescent Pl.	Orogrande	Geo. P. Kelley	Newsome
Cristel Lake	Robins	Arthur D. Jones	Spokane, Wash.
Crooked River Pl.	Elk City	George Brown	Orogrande
Cuban	Marshall Lake	G. E. Hyatt	Burgdorf
Dandy Pl.	Simpson	E. W. Butcher	Lucile
Davis Gr.	Ten Mile	J. G. Kowalski	Newsome
Deadwood Pl. Gr.	Elk City	Chas. Forman	Los Angeles, Cal.
Dewey Gr.	Harpster	F. W. Watson	Portland, Ore.
Diamond Hitch	Orogrande	Orin Lamb Est.	Orogrande
Dice Gr.	Robins	E. M. Griffith	Lewiston
Discovery	Maggie Creek	W. E. Smith	Los Angeles, Cal.
Eagle	Warren	Gus Kupper	Warren
El Toro Gr.	Newsome	L. A. Strong	Fontana, Cal.
Eureka	Unorganized	Geo. A. Cowgill	Grangeville
Eureka	Robins	Pete Klinkhammer	Orogrande
Evergreen Gr.	Clearwater	Carolyn Wagner	Portland, Ore.
Fall Cr. Pl.	Marshall Lake	H. H. Hackett	Burgdorf
Florence	Florence	A. R. Smith	Spokane, Wash.
Foss Gr.	Elk City	R. E. Foss	Elk City
Fourth of July	Dixie	Thomas Pritchard	Dixie
Franklin	Ten Mile	A. S. Johnson	Golden
Franklin et al.	Robins	Mrs. Louise Pelikan	Spokane, Wash.
Free Gold	Dixie	Geo. L. Esh Est.	Dixie
Frisco Gr.	Elk City	E. J. Comley	Elk City
Gilt Edge	Ten Mile	Frank Osgood	Seattle, Wash.
Glen Pl. Gr.	Robins	E. P. Adkison	Lewiston
Gold Crown Gr.	Robins	Chas. Schultz	----------
Gold Dollar	Warren	M. W. Hubbard	New Meadows
Gold Dove	Elk City	Pat Brennan	Elk City
Gold Drop	Elk City	Geo. W. Widemeyer	Elk City
Gold Hill	Ten Mile	Ed. Bailey	Prosser, Wash.
Gold King	Orogrande	Geo. Peterson	Newsome
Gold Nugget Pl.	Unorganized	A. M. Anderson	Cripple Creek, Colo
Golden Brown	Crooks Corral	Revillo Johnson	Lucile
Golden Placer	Ten Mile	Edward Timm	Golden
Golden Rule	Maggie Creek	O. W. Montgomery	Kooskia
Golden Rule Pl.	Elk City	Chas. Tiedeman	Elk City
Golden Rule Pl.	Maggie Creek	A. E. Davis	Kooskia
Golden Rule Pl.	Warren	A. L. Freehafer	Payette
Grangeville	Elk City	Joe Schoner	Elk City
Great Western Gr.	Crooks Corral	James McCalla	Lucile
Grey Pallor	Warren	W. T. Copenhaver	Warren
Grubstake	Robins	Geo. M. Utterback	Seattle, Wash.
Gunboat Pl.	Dixie	R. Burke	Dixie
Haig & Haig	Orogrande	R. McGregor	Elk City
Hawkeye	Warren	J. T. Murphy	Warren
Headlight	Newsome	J. E. Davis	Newsome
Hecla	Elk City	C. E. Skoglar	Elk City
Hercules	Elk City	Alex Hendrie	125 Kent St., Hamilton, Ont.
Hidden Treasure	Unorganized	Peter Solem	Grangeville
Hi-Yu	Florence	Odle Paul	Whitebird

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Homestake Gr.	Orogrande	A. W. Boyd	Elk City
Hope Gr.	Elk City	Schuyler Simmons	Elk City
Iola	Orogrande	James H. Colgrave	Spokane, Wash.
Jackson Gr.	Lolo	Othilie C. Jack	Pardee
James Moore	Dixie	James Moore	Dixie
Jim Crow Pl.	Simpson	Jacob Cassett	Lucile
Jumbo	Robins	A. F. Schultz	Lewiston
Jumbo Ext.	Robins	R. J. McConnell	Grangeville
Jupiter Gr.	Marshall Lake	Chris Arnold et al.	Burgdorf
Keystone	Warren	Anthony Mohr	Warren
Keystone Gr.	Orogrande	Edw. Hansen	Orogrande
Kimberley & Jewel	Marshall Lake	D. L. Roy	Burgdorf
Klondyke	Camp Howard	George J. Burgund	Cottonwood
Knott & Delaware	Warren	James Long	Warren
Lajulla Pl. et al	Camp Howard	R. W. Wyatt	Whitebird
Last Chance	Elk City	James P. Larson	Elk City
Last Chance	Florence	John Lamont	Grangeville
Laughing Water Gr.	Warren	Roy A. Briggs	Council
Laurel Hill	Elk City	P. S. Prichard	Elk City
Liberty	Elk City	Wm. A. Copland	Elk City
Liberty et al.	Florence	J. G. Irvin	Grangeville
Liberty Bell et al.	Robins	E. M. Griffith	Lewiston
Lick Creek Pl.	Elk City	Wm. Finley	Elk City
Lime Point	Simpson	Marion Kramer	Lucile
Little Johnnie et al.	Marshall Lake	E. Koontz et al.	Mesa
Little Leggat	Orogrande	Simpson & Overman	Newsome
L. & L.	Dixie	Louis Larson	Dixie
Local Option	Ten Mile	Frank McGrane	Grangeville
Lolo	Dixie	Don A. Burpee	Dixie
Loper	Marshall Lake	George Loper	Burgdorf
Lost Lake	Robins	R. McGregor	Elk City
Lost Lake Fr.	Robins	Chas. V. Wadham	Spokane, Wash.
Lost Meadows	Florence	W. A. Paul	Grangeville
Lot Lake et al.	Florence	Claud Flint	Florence
Lucky Ben	Warren	Jay A. Czizek	Warren
Lucky Strike	Warren	Grindle & Curtis	Warren
Mackay & Lamb	Ten Mile	W. A. Harvey	Newsome
Madre d'Or	Elk City	S. W. Litchfield	Elk City
Malone Pl.	Simpson	Frank G. Hatke	Kuterville
Mammoth	Newsome	W. H. Baldwin	Stites
Mammoth Gr.	Dixie	C. A. Carpenter	Dixie
Mascot et al.	Elk City	John Massam	Elk City
Mayflower	Warren	Patterson, Morris & Blake	Warren
Mermack	Robins	W. H. Stowell	Spokane, Wash.
Miller Creek Pl.	Florence	S. A. Moon	Florence
Mineral Zone et al.	Elk City	G. L. Baskett	Elk City
Minnehaha	Warren	Dr. G. M. Waterhouse	Weiser
Modoc	Marshall Lake	L. W. Wilcox	Burgdorf
Monadnock	Dixie	George O. Trader	Dixie
Monarch	Simpson	C. H. Prescott	Dixie
Monmouth	Dixie	J. L. Hayes	Dixie
Mother Lode	Elk City	Geo. Brown	Orogrande
Mount Eureka	Warren	W. G. Cadby	Warren
Mount Marshall Gr.	Marshall Lake	G. A. Green	Grangeville
New Jersey	Elk City	Condit Bros.	Elk City
Newsome Pl.	Newsome	James Surridge	Harpster
New York	Ten Mile	Wm. Huntley	Spokane, Wash.
Nugget Pl.	Orogrande	Geo. Brown	Elk City

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Occidental Gr.	Orogrande	Frank A. Baner	Elk City
Ohio Placer	Orogrande	Geo. Overfield Est.	Orogrande
Old Arrastra	Orogrande	Chas. Hofstetter	Elk City
Old Channel Pl.	Simpson	Currier Bros.	Riggins
Old Kentuck	Marshall Lake	Peterson & Spencer	Burgdorf
Olivia Gulch	Dixie	Henry S. Hazlitt	Dixie
Ore Bend et al.	Marshall Lake	A. J. Callis	Coeur d'Alene
Pacific Gr.	Elk City	Alec Leggett	Butte, Mont.
Paymaster	Ramey Ridge	Chas. Mahan	Edwardsburg
Pioneer Hill	Ten Mile	Timm & Braig	Newsome
Poorman	Dixie	Oscar Eakin	Dixie
Quaker Gr.	Robins	Geo. T. Crane Est.	Spokane, Wash.
Queen Gr.	Elk City	Grant Litchfield	Elk City
Rainier Gr.	Warren	Gus Sindt	Warren
Rapid Creek	Warren	Frank Mitchell	Warren
Red Cloud et al.	Marshall Lake	S. E. Gerber et al.	Payette
Red Deer Pl.	Robins	J. W. Bringolf	----------
Red Horse Pl.	Elk City	Schuyler Simmons	Elk City
Red Warrior	Orogrande	Frank Peck	Orogrande
Reservation	Cottonwood Buttes	Mrs. J. L. Eckert	Cottonwood
Rigdon Placer	Warren	Geo. G. Rigdon	Meadows
San Francisco	Robins	Felix A. Raney	Modesto, Cal.
Saturday Pl.	Robins	Wm. Allen	Elk City
Shamrock et al.	Marshall Lake	H. H. Hackett et al.	Burgdorf
Shissler Creek Pl.	Warren	H. Cook	Warren
Shorty Pl. et al.	Camp Howard	Gus Schilling	Grangeville
Silver King	Warren	Sigo Myers	Savannah, Ga.
Skylark	Warren	Warren D. Smith	Warren
South Fork	Elk City	Martin Heckman	Elk City
Spike Quartz	Elk City	James Hubbs	Elk City
Spokane Pl. et al.	Simpson	Nettie Deasy	Whitebird
Star	Florence	W. A. Nicodemus	Spokane, Wash.
Stephenson Gr.	Elk City	Lu Stephenson	Elk City
St. Louis	Robins	Mrs. Carrie M. Stone	75 Federal St., Boston, Mass.
Subway Gr.	Orogrande	H. W. Harris	Elk City
Sunflower Pl.	Dixie	Monroe Hancock	Shoup
Surprise Gr.	Dixie	J. R. Painter	Dixie
Syringa	Maggie Creek	J. M. Wisdom	Culdesac
Syringa	Orogrande	James Montgomery	Orogrande
Tacoma Pl.	Camp Howard	Chas. Lyons	Whitebird
Tennessee	Robins	Tryphena Taylor	Lewiston
Thompson Pl.	Warren	Ah Sam	Warren
Three Mile Pl.	Marshall Lake	Jensen Bros.	Burgdorf
Thunder Mt. Gr.	Elk City	E. M. Griffith	Clarkston, Wash.
Tippie Placer	Ten Mile	C. H. Whinery	Clarkston, Wash.
Tivola	Elk City	George Braig	Elk City
Trout Gr.	Elk City	Geo. Trout	Elk City
Twin Butte et al.	Orogrande	Frank M. Peck	Orogrande
Two B Bar Pl.	Camp Howard	C. C. Byers	Lewiston
Uncle Sam	Elk City	J. E. Brown	Elk City
Umatilla Gr.	Orogrande	Orin Lamb Est.	Orogrande
Union Gr.	Orogrande	Robert Pulz	Orogrande
University et al.	Marshall Lake	W. L. Lyon	Grangeville
Venture Gr.	Robins	A. F. Schultz	Orogrande
Wander Gr.	Ten Mile	G. W. Bassett Est.	Grangeville
War Eagle	Robins	Geo. J. Bancroft	220 Broadway, Denver, Colo.
Wild Rose	Elk City	Denzil Robinett	Kooskia

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Wild Rose Pl.	Dixie	J. R. Cunningham	Shoup
Wilson	Newsome	A. E. Carpenter	Newsome
Winslow	Robins	Ed Heightsman	Ontario, Ore.
Wise Boy	Robins	E. N. Oliver Est.	Grangeville
Wizzard Gr.	Robins	Jack Cameron	Orogrande
Yale	Robins	J. M. Shissler	Grangeville
Yankee Girl	----------	P. Klinkhammer	Orogrande

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

A geological reconnaissance across Idaho, by G. H. Eldridge: U. S. Geol. Survey Sixteenth Ann. Rept., pt. 2, pp. 217-276, **1895.***

The Deadwood placer claims, Idaho, by W. H. Hill: Eng. and Min. Jour., vol. 60, pp. 225-226, Sept., **1895.**§

The Little Giant mine, Warren, Idaho, by W. H. Hill: Eng. and Min. Jour., vol. 62, p. 417, **1896.**§

Mining districts of Idaho Basin and the Boise Ridge, Idaho, by Waldemar Lindgren: U. S. Geol. Survey Eighteenth Ann. Rept., pt. 3, pp. 625-716, **1898.***

Central Idaho gold field, by Don Maguire: Mines and Minerals, vol. 19, pp. 289-291, February, **1899.***

The Buffalo Hump mining camp, Idaho, by C. H. Whittle: Eng. and Min. Jour., vol. 68, pp. 215-216, Aug. 19, **1899.**§

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey Twentieth Ann. Rept., pt. 3, pp. 75-256, **1900.***

Buffalo Hump, Idaho, by D. G. Doubleday: Mines and Minerals, vol. 21, pp. 296-298, February, **1901.***

Geology and water resources of Nez Perce County, Idaho, by I. C. Russell: U. S. Geol. Survey Water-Supply Papers 53 and 54, **1901.**‡*

Mineral deposits of the Bitterroot Range and Clearwater Mountains, Montana, by Waldemar Lindgren: U. S. Geol. Survey Bull. 213, pp. 66-70, **1903.***

Thunder Mountain, by W. E. L'Hame: Mines and Minerals, vol. 24, pp. 207-209, December, **1903.***

A geological reconnaissance across the Bitterroot Range and Clearwater Mountains in Montana and Idaho, by Waldemar Lindgren: U. S. Geol. Survey Prof. Paper 27, **1904.***

Central Idaho gold district, by S. P. Jellum: Northwest Min. News, vol. 3, pp. 83-91, 107-114, 134-139, **1908**; vol. 4, pp. 2-6, 31-37, 66-73, **1909.***

Asbestos of Kamiah, Idaho, by J. S. Diller: Asbestos in the United States, U. S. Geol. Survey Bull. 470, pp. 519-520, **1910.***

Development of the Elk City district, Idaho, by B. K. Welch: Min. World, vol. 32, pp. 65-66, Jan. 8, **1910.***

Mining and milling in Elk City district, by B. K. Welch: Min. and Eng. World, vol. 37, pp. 391-392, Aug. 31, **1912.***

Buffalo Hump mining district, by A. L. Flagg: Min. and Eng. World, vol. 38, pp. 813-814, **1913.***

The Elk City mining district, Idaho County, Idaho, by A. L. Flagg: Am. Inst. Min. Eng. Trans., vol. 45, pp. 113-122, **1913.**§

Geology and ore deposits of the Dixie mining district, Idaho, by D. C. Livingston and C. A. Stewart: Univ. of Idaho School of Mines Bull. 2, vol. 9, **1914.***

The Orofino coal field, Clearwater, Lewis and Idaho counties, Idaho, by C. T. Lupton: U. S. Geol. Survey Bull. 621, pp. 99-108, **1915.***

Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****

A preliminary report on the clays of Idaho, by F. H. Skeels: Idaho Bureau of Mines and Geology Bull. 2, p. 59, **1920.***

The copper deposits of the Seven Devils and adjacent districts, by D. C. Livingston and F. B. Laney: Idaho Bureau of Mines and Geology Bull. 1, **1920.***

Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 60, art. 3, pp. 1-33, 1921.‡
Central Idaho—A rugged mining region, by G. J. Bancroft: Eng. and Min. Jour., vol. 113, pp. 438-441, Mar. 18, 1922.§
Geology and gold resources of north-central Idaho, by F. A. Thomson and S. M. Ballard: Idaho Bureau of Mines and Geology Bull. 7, 1924.**
Gold veins of sundry areas in the Idaho batholith, by F. A. Thomson: Eng. and Min. Jour.-Press, vol. 118, pp. 533-540, Oct. 4, 1924.§
Gold veins of central Idaho, by H. M. Roberts: Eng. and Min. Jour.-Press, vol. 118, no. 19, pp. 741-742, Nov. 8, 1924.
Quartz veins of the Buffalo Hump, by R. H. Beckwith: Pan-Am. Geologist, vol. 46, No. 2, pp. 111-120, Sept. 1926.§
Geological setting of Idaho batholith, by R. H. Beckwith: Pan-Am. Geologist, vol. 45, no. 5, pp. 359-376, June, 1926.
One deposition at Buffalo Hump (Idaho), by R. H. Beckwith: Pan-Am. Geologist, vol. 48, no. 3, pp. 191-194, October, 1927.
The geology and ore deposits of the Buffalo Hump district, by R. H. Beckwith: New York Acad. Sci. Annals vol. 30, pp. 263-296, Oct. 17, 1928.

KOOTENAI COUNTY

Kootenai is one of the northern counties and constitutes an important part of the Idaho Panhandle. It is bounded on the west by the State of Washington, on the north by Bonner County, on the east by Shoshone County, and on the south by Benewah County. It contains an area of 1,253 square miles and was accredited with a population of 19,469 in the 1930 census. The principal industries are lumbering, dairying, and farming. Its lumbering industry is the most important and the largest in the State.

The county is exceptionally fortunate with respect to transportation facilities. It is served by three State highways, one of which is completed, and the other two partly so; by six railroads, which include main lines or their branches; and by lake boats on Lakes Pend d'Oreille and Coeur d'Alene. Coeur d'Alene is the largest town and county seat.

The principal mining districts are the Little North Fork of the Coeur d'Alene River, Hayden Lake, and isolated sections bordering on Lake Coeur d'Alene, throughout which zinc, lead, silver, copper, gold, arsenic, and high-grade clays occur. A limited amount of development work has been done on some of the veins, with encouraging results, and many others are worthy of further attention.

1930 Activities

The county witnessed more development work, prospecting, and new construction than during the previous year. Much of this was confined to the Beauty Bay section, where the Coeur d'Alene Beauty Bay Mining & Milling Co., a custom milling enterprise based on milling the ore from all of the mines in this section, purchased the milling plant of the Caribou Mining Co., Ltd., enlarged the building, and installed new power and milling equipment, consisting of gas-driven engines and a fine-grinding flotation concentrator of 50 tons capacity. All work was completed, and the mill was adjusted to commence operations in December. The Royal Mining Co., Silver Tip Mining Association, Caribou Mining Co., Ltd., Coeur d'Alene Mountain Mining Co., and the Blue Bird Mining Co., whose properties are located in this section of the county, were active throughout the greater part of the year.

The Burnt Cabin Mining Co. and the Great Western Copper Co., in the Hayden Lake district, were active during the summer months.

Two new organizations in the Harrison Lake section did a small amount of work during the summer months, and press reports were to the effect that one of them encountered an excellent showing of high-grade lead-silver ore.

BEAUTY BAY MINING CO.
Office: Coeur d'Alene. **Officers:** John Marshall, Pres.-Mgr.; E. V. Boughton, Sec., both of Coeur d'Alene. **Inc.:** Mar. 31, 1923. **Capital:** 1,000,000 shares; par value 5c. **Remarks:** Failed to file the reports required by law.

BLUE BIRD MINING CO.
Office: Coeur d'Alene. **Officers:** Harry Phillips, Pres.-Mgr.; Wm. McFarland, Sec., both of Coeur d'Alene. **Inc.:** Sept. 2, 1924. **Capital:** 1,000,000 shares; par value 10c; 379,500 shares issued. **Property:** Blue Bird group; 9 unpatented claims, Beauty Bay and Wolf Lodge districts; Coeur d'Alene. **Development:** About 300 ft. of workings. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** A small amount of work during the year.

BURNT CABIN MINING CO.
Office: Coeur d'Alene. **Officers:** E. L. Overjorde, Pres.; Geo. M. Servick, Sec., both of Coeur d'Alene. **Inc.:** Apr. 28, 1926. **Capital:** 1,500,000 shares; par value 10c; 654,282 shares issued. **Property:** 15 unpatented claims, Hayden Lake dist.; Garwood. **Development:** 3 short tunnels. **Plant:** Steam-driven hoist and compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 5. **Remarks:** Active development work throughout the summer months, the funds for which were derived from stock assessments.

CARIBOU MINING CO., LTD.
Office: Coeur d'Alene. **Officers:** F. W. Reed, Pres.; C. O. Sowder, Sec., both of Coeur d'Alene. **Inc.:** July 15, 1918. **Capital:** 1,500,000 shares; par value 10c; 1,397,802 shares issued. **Property:** Caribou group; 10 unpatented claims, Wolf Lodge dist.; Coeur d'Alene. **Development:** Total development approximately 1425 ft.; consisting principally of No. 2 tunnel, 475 ft. long, and No. 3 tunnel, 755 ft. long. **Plant:** Gas-driven Gardner-Rix compressor; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** Active development work during the summer months.

COEUR D'ALENE-BEAUTY BAY MINING & MILLING CO.
Office: Coeur d'Alene. **Officers:** Dr. B. A. Loveless, Pres.; C. O. Sowder, Sec., both of Coeur d'Alene. **Inc.:** July 31, 1929. **Capital:** 25,000 shares preferred, par value $10; 10,000 shares common, no par value; 240 shares preferred, 138 shares common issued. **Property:** MILL: 50-ton gas-driven flotation concentrator. **Remarks:** During the year the mill was purchased from the Caribou Mining Co., Ltd.; the building was completely remodeled and new equipment was installed. This enterprise was organized to conduct a custom milling business based on treating the ores from all of the mining companies operating in the Beauty Bay section.

COEUR D'ALENE CLAY CO., LTD.
Office: 216 Sherman Ave., Coeur d'Alene. **Officers:** Oscar Nelson, Pres.; H. H. Barton, Sec.-Treas., both of Coeur d'Alene. **Inc.:** Apr. 6, 1912. **Capital:** 100,000 shares; par value $1; 18,882 shares issued. **Property:** 40 acres patented land near Coeur d'Alene. **Plant:** 1 incomplete brick-making machine, 20,000-brick capacity.

COEUR D'ALENE MOUNTAIN MINING CO.
Office: Coeur d'Alene. **Officers:** James E. McDonnell, Pres.; H. H. Barton, Sec., both of Coeur d'Alene. **Inc.:** May 29, 1929; charter forfeited Nov. 30, 1930. **Capital:** 500,000 shares; par value 10c; 212,000 shares issued. **Property:** 7 unpatented claims, Wolf Lodge dist.; Coeur d'Alene. **Development:** 1 short tunnel. **Plant:** Gas-driven compressor. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Tunnel was driven 250 ft. during the year.

COEUR D'ALENE OIL & DEVELOPMENT CO.
Office: Coeur d'Alene. **Officers:** L. T. Severson, Pres.; Alex Barclay, Sec.-Mgr., both of Coeur d'Alene. **Inc.:** Nov. 19, 1927. **Capital:** 100,000 shares; par value $1; 92,760 shares issued. **Property:** 6000 acres patented farm land in the vicinity of Hayden Lake; held under oil and gas leases. **Development:** 2000-ft. well. **Plant:** Armstrong gas-driven rig and drilling equipment. **Remarks:** Idle.

COEUR D'ALENE-SPOKANE MINING CO.
Officers: C. A. Spaulding, Pres.; Bessie Bryte, Sec., both of Helena, Mont. **Inc.:** Sept. 6, 1918. **Capital:** 1,000,000 shares; par value $1; 500,000 shares issued. **Property:** Strobel group; 3 unpatented claims, unorganized dist.; Lane. **Ore:** Lead-silver. **Remarks:** Annual labor only.

COMMONWEALTH METALS CO.
Office: Coeur d'Alene. **Officers:** Chas. Killian, Pres.; F. W. Reed, Sec., both of Coeur d'Alene. **Inc.:** Mar. 19, 1924. **Capital:** 2,500,000 shares; par value $1; 391,469 shares issued. **Property:** Commonwealth group; 7 unpatented claims, Hayden Lake dist.; Hayden Lake. **Development:** By 3 tunnels: No. 1, 600 ft.; No. 2, 40 ft.; No. 3, 100 ft.; a vertical shaft 325 ft. deep; and 2 inclined shafts, 150 and 225 ft. deep. **Plant:** Steam-driven I-R compressor; gas-driven hoist; complete mining equipment and camp. **Ore:** Lead-silver-copper. **Remarks:** Annual labor only.

CONNIE MINING & MILLING CO.
Office: 307 Ziegler Bldg., Spokane, Wash. **Officers:** E. C. Gralappe, Pres.; E. F. Gerkensmeyer, Sec., both of Spokane. **Inc.:** July 11, 1927. **Capital:** 4,000,000 shares; par value 10c; all shares issued. **Property:** Chilco group; 11 unpatented claims, Hayden Lake dist.; Hayden Lake. **Development:** By 1 tunnel 725 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** This company is a reorganization of the Chilco Mining & Milling Co.

EAGLE AND BLUEBELL MINING CO.
Office: Plummer. **Officers:** Guy A. Clark, Pres.-Mgr., Worley; George J. McFadden, Sec., Plummer. **Inc.:** May 29, 1930. **Capital:** 1,500,000 shares; par value 5 cents; 324,675 shares issued. **Property:** Lease and option on mining rights on 139 acres of patented land; unorganized dist. **Ore:** Lead-silver.

ESTELLA METALLURGICAL CO.
Office: Route 5, Coeur d'Alene. **Officers:** W. C. Brower, Pres.-Mgr., Coeur d'Alene. **Inc.:** Feb. 13, 1923. **Capital:** 5,000,000 shares; par value unknown; 3,000,000 shares issued. **Property:** 15 unpatented claims, Wolf Lodge dist.; Coeur d'Alene. **Development:** By 600 ft. of tunnels. **Ore:** Gold-silver-copper. **Remarks:** Annual labor only.

GRAY WOLF MINING CO.
Office: Coeur d'Alene. **Officers:** Paul Schroder, Pres.-Mgr.; E. T. Knudson, Sec., both of Coeur d'Alene. **Inc.:** May 18, 1917. **Capital:** 1,500,000 shares; par value 10c. **Remarks:** Failed to file the reports required by law.

GREAT WESTERN COPPER CO., INC.
Office: Coeur d'Alene. **Officers:** Jackson C. Hill, Pres.-Mgr., Coeur d'Alene; George Lee, Sec., Richmond, Calif. **Inc.:** Not filed in Idaho. **Capital:** 200,000 shares; par value $1; 7,400 shares issued. **Property:** 4 unpatented claims, Hayden Lake dist.; Hayden Lake. **Development:** 1 short tunnel. **Ore:** Copper, gold, silver and lead. **Men employed:** Average, 2. **Remarks:** A 335-ft. tunnel and a 60-ft. shaft, at the bottom of which is a 70-ft. drift, were driven during the year. The principal tunnel was extended a short distance.

HAMBURG AMERICAN COPPER MINING & MILLING CO.
Office: Kellogg. **Inc.:** Nov. 30, 1908. **Capital:** 1,500,000 shares; par value $1. **Remarks:** Has failed to file the reports required by law since 1928.

HAYDEN LAKE MINING & MILLING CO.
Office: Rathdrum. **Officers:** Fred H. Bradbury, Pres.; Chas. E. Gillespie, Sec., both of Rathdrum. **Inc.:** May 8, 1917. **Capital:** 1,000,000 shares; par value 5c; 900,743 shares issued. **Property:** Bradbury group; 16 unpatented claims, Hayden Lake dist.; Garwood. **Development:** By 2 tunnels: No. 1, 1600 ft.; No. 2, 800 ft. **Plant:** Small gas-driven compressor; complete mining equipment. **Ore:** Lead-silver, copper. **Remarks:** Annual labor only.

LITTLE NORTH FORK COPPER MINING & MILLING CO., LTD.
Officers: T. R. Mason, Pres., Kellogg. **Inc.:** Sept. 29, 1903. **Capital:** 1,500,000 shares; par value $1; 1,250,000 shares issued. **Property:** Hand Spike group; 3 patented claims, Little North Fork dist.; Linfor. **Development:** 2 tunnels: No. 1, 1700 ft. long; No. 2, 500 ft. long. **Ore:** Copper.

MASON BUTTE MINING CO.
Office: Worley. **Officers:** Guy A. Clark, Pres.; M. L. Kight, Sec., both of Worley. **Inc.:** Apr. 4, 1930. **Capital:** 50,000 shares; par value $1; 29,272 shares issued. **Development:** 1 short tunnel. **Property:** Mining rights on 40 acres of patented land, unorganized dist.; Worley. **Men employed:** Average, 2. **Remarks:** A small amount of work during the early part of the year.

PALISADE MINING & MILLING CO.
Office: Coeur d'Alene. **Officers:** T. W. Schmidt, Pres.-Mgr., Coeur d'Alene; A. K. Rogers, Sec., E. 1301 Providence Ave., Spokane, Wash. **Inc.:** Jan. 31, 1912. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Palisade group; 16 unpatented claims, unorganized dist.; Kellogg. **Development:** Approximately 1250 ft. of tunnels, the principal of which is No. 2, 1130 ft. long. **Ore:** Silver-lead. **Remarks:** Annual labor only.

RADIO MINING CO.
Office: 811 Riverside, Coeur d'Alene. **Officers:** W. P. Brennan, Pres.-Mgr.; G. M. Palmerton, Sec., both of Coeur d'Alene. **Inc.:** Dec. 13, 1928. **Capital:** 1,500,000 shares; par value 10c; 984,500 shares issued. **Property:** 5 unpatented claims, Wolf Lodge dist.; Coeur d'Alene. **Development:** By 3 short tunnels. **Ore:** Lead-silver. **Remarks:** Annual labor only.

RIVERSIDE COPPER MINING CO., LTD.
Office: Kellogg. **Officers:** T. R. Mason, Pres.-Sec., Kellogg. **Inc.:** Sept. 17, 1906. **Capital:** 1,000,000 shares; par value $1; 900,000 shares issued. **Property:** 5 patented claims, Little North Fork dist.; Linfor. **Development:** 1 tunnel, 530 ft. long. **Ore:** Lead-silver.

ROYAL MINING CO.
Office: Coeur d'Alene. **Officers:** A. H. Moe, Pres.-Mgr.; Soren Simonson, Sec., both of Coeur d'Alene. **Inc.:** Dec. 24, 1910. **Capital:** 1,500,000 shares; par value $1; 591,520 shares issued. **Property:** 9 unpatented claims, Wolf Lodge dist.; Coeur d'Alene. **Development:** By 2 tunnels: No. 1, 58 ft.; No. 2, 350 ft. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** The principal tunnel was extended about 100 ft. during the year. The funds for this work were derived from stock assessments.

SHAMROCK MINE
Officers: J. G. Sullivan, Mgr., R. R. 1, Hayden Lake. **Inc.:** An association. **Capital:** 3,200 units; unit value $1; all units issued. **Property:** Shamrock group; 2 unpatented claims, Hayden Lake dist.; Hayden Lake. **Development:** Principally by 1 tunnel 650 ft. long. **Ore:** Copper, lead, silver. **Men employed:** Average, 2. **Remarks:** Active throughout the year.

SILVER TIP MINING ASSOCIATION
Office: Coeur d'Alene. **Officers:** J. V. Hawkins, Pres.; F. W. Reed, Sec., both of Coeur d'Alene. **Inc.:** An association. **Capital:** 1,536 shares; no par value; 1,029 shares issued. **Property:** Silvertip group; 16 unpatented claims, Wolf Lodge dist.; Coeur d'Alene. **Development:** By 2 tunnels, each 400 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** Active throughout the year. Its funds were derived from monthly unit assessments.

TWIN GULCH MINING CO.
Office: 721 Harrison Ave., Coeur d'Alene. **Officers:** J. O. Holman, Pres.-Mgr.; G. W. Sonnichren, Sec., both of Coeur d'Alene. **Inc.:** Feb. 2, 1924. **Capital:** 1,000,000 shares; par value 10c; 348,000 shares issued. **Property:** Twin Gulch group; unorganized dist.; Coeur d'Alene. **Development:** By 2 short tunnels. **Ore:** Lead-silver.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Commander et al.	Medimont	Albert T. Allen	Medimont
Elizabeth	Unorganized	H. C. Cullom et al	Coeur d'Alene
Fortune	Medimont	Anna M. Blessing	Medimont
Island Quartz	Killarney L.	Max R. Crosby	Kellogg
Joe et al.	Wolf Lodge	Soren Simonson	Coeur d'Alene
Kaiser William et al.	Unorganized	Frank Costin	Coeur d'Alene
Keinwood	Unorganized	R. L. Keinholz	Corbin
Pine et al.	Medimont	W. D. Tuck	Lane
Porcupine et al.	Hayden Lake	Arthur Jacobson	Enaville
Quebeck	Medimont	Achille Fortier	Medimont
Ridge et al.	Burnt Cabin	Adolf V. Johnson	Coeur d'Alene
Ruby	Unorganized	A. Benjamin	Athol
Seven Stubbs et al.	Medimont	R. W. Metler et al.	Rose Lake
Spokane Valley Zinc	Unorganized	H. J. Neely et al.	Spokane, Wash.
Sunset Gr.	Unorganized	G. C. Staggs et al	Athol

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

A geological reconnaissance in northern Idaho and northwestern Montana, by F. C. Calkins, with notes on the economic geology, by D. F. MacDonald: U. S. Geol. Survey Bull. 384, **1909.***

Guidebook of the western United States, by M. R. Campbell and others: U. S. Geol. Survey Bull. 611, pp. 150-156, 160, **1915.**‡

The mining districts of northern Idaho, by E. K. Soper: Min. and Sci. Press, vol. 116, p. 125, **1918.***

Preliminary report on the clays of Idaho, by F. H. Skeels: Idaho Bureau of Mines and Geology Bull. 2, **1920.***

Coeur d'Alene Lake, Idaho, and the overflow lands, by R. W. Davenport: U. S. Geol. Survey Water-Supply Paper 500, **1921.***

Geology of the Latah formation in relation to the lavas of the Columbia plateau near Spokane, Washington, by J. T. Pardee and Kirk Bryan: U. S. Geol. Survey Prof. Paper 140, pp. 1-16, **1926.**‡

Some Miocene and Pleistocene drainage changes in northern Idaho, by A. L. Anderson: Idaho Bureau of Mines and Geology Pamphlet 18, **1927.***

LATAH COUNTY

Latah County is bounded on the north by Benewah, on the south by Nez Perce, on the west by the State of Washington, and on the east by Shoshone and Clearwater counties. It has an area of 1,071 square miles, and was accredited with a population of 17,798 in the 1930 census. Moscow is the largest town and county seat, as well as the location of the University of Idaho and the Idaho Bureau of Mines and Geology. The county is recognized primarily as an agricultural community, particularly for wheat raising.

The principal mineral resources are copper, gold, silver, opals, mica, feldspar, beryl, and high-grade fire clay. The clay occurs near the town of Troy and two companies are engaged in manufacturing it into brick and refractory products. The principal company is the Idaho Fire Brick Co. and its output is in great demand throughout the entire northwest. The copper, gold, silver, beryl, and mica occur in the northern part of the county, north of the towns of Harvard and Vassar, in the Gold Hill, or Blackfoot, Hoodoo, and Avon districts. These districts are served by the Washington, Idaho and Montana Railroad, which connects with the Northern Pacific and the Spokane and Eastern railroads at Palouse, Washington, and the St. Maries-Elk River branch of the Chicago, Milwaukee and St. Paul Railroad at Boville.

The mica mines have produced a large tonnage of high-grade mica. The resources of the old ones have not been exhausted, many of the prospects justify further development, and there are still many possibilities for the

discovery of new veins. As there are many chances for the development of profitable enterprises, these deposits are worthy of more attention than they have been receiving in the past few years.

1930 Activities

The presence of beryl in the mica deposits near Avon was reported during the year, and one enterprise was active in attempting to extract and market it. The result of their efforts is unknown.

The Idaho Fire Brick & Clay Co. maintained operations throughout the year. The success with which this company is meeting and the grade of its product are attracting attention to the ceramic clays of this county.

ACE MINING CO.
Office: R. F. D. 5, Spokane, Wash. **Officers:** Chas. G. Taylor, Pres.-Mgr., Spokane, Wash.; W. F. Clausen, Sec., Los Angeles, Calif. **Inc.:** Oct. 29, 1926. **Capital:** 1,500,000 shares; par value 10c. **Remarks:** Failed to file the reports required by law.

CASSIDY GOLD MINING & MILLING CO., LTD.
Officers: N. J. Stockbridge, Sec., Wallace. **Inc.:** Mar. 12, 1899. **Capital:** 600,000 shares; par value 5c; 437,000 shares issued. **Property:** Cassidy; 1 patented claim, Blackfoot dist. **Ore:** Gold.

COPPER CHIEF MINING & MILLING CO., LTD.
Office: Troy. **Officers:** Robert Olson, Pres., Troy; Alex Johanson, Sec., Lewiston. **Inc.:** July 27, 1914. **Capital:** 1,000,000 shares; par value $1; 461,987 shares issued. **Property:** Copper Chief group; 1 patented and 2 unpatented claims, unorganized dist.; Troy. **Development:** By 3 tunnels: No. 1, 300 ft. long; No. 2, 500 ft. long; No. 3, 550 ft. long. **Ore:** Copper. **Remarks:** Annual labor only.

COPPER MOUNTAIN MINING CO.
Office: Palouse, Wash. **Officers:** R. A. Belvail, Pres., Palouse, Wash.; J. C. Northrup, Sec., Olympia, Wash. **Inc.:** Oct. 29, 1925. **Capital:** 3,750,000 shares; par value 1c; 1,768,705 shares issued. **Property:** Mizpah group; 19 unpatented claims, Hoodoo dist.; Harvard. **Development:** Total development approximately 2600 ft. **Plant:** A 12x14 gas-driven compressor; complete mining equipment, and camp. **Ore:** Copper. **Remarks:** Property under option to Spokane-Idaho Copper Co.

GOLD CREEK METALS CO.
Office: Palouse, Wash. **Officers:** Paul Bockmeir, Pres.-Mgr., Palouse, Wash.; Charles Brown, Sec., Spokane, Wash. **Inc.:** Oct. 30, 1929. **Capital:** 1,500,000 shares; par value $1; no shares issued. **Property:** Mother Lode group; 30 unpatented claims, Gold Creek dist.; Potlatch. **Development:** By 5 tunnels: No. 1, 560 ft.; No. 2, 343 ft.; No. 3, 182 ft.; No. 4, 535 ft.; No. 5, 300 ft. **Ore:** Gold. **Remarks:** Annual labor only.

GOLD HILL MINING & MILLING CO.
Office: Harvard. **Officers:** K. F. Pinnell, Pres.-Mgr.; May Pinnell, Sec., both of Harvard. **Inc.:** Nov. 6, 1922. **Capital:** 1,000,000 shares; par value 25c; 612,959 shares issued. **Property:** Gold Bug group; 4 patented claims, 65 acres; held under lease and bond from the Garfield Mining & Milling Co., of Garfield, Wash.; Blackfoot dist.; Harvard. **Development:** Approximately 1200 ft. of tunnels and drifts, and 1 vertical shaft 300 ft. deep. **Plant:** Steam-driven hoist and compressor. **Ore:** Gold, silver, copper.

IDAHO CERAMIC MATERIALS CO.
Office: 418 Fernwell Bldg., Spokane, Wash. **Officers:** Carl R. Suksdorf, Pres.-Mgr., Troy; L. P. Mills, Sec., Kellogg. **Inc.:** Sept. 17, 1927. **Capital:** 275,000 shares; par value $1. Increased on Oct. 14, 1929, to 500,000 shares; par value $1; 288,758 shares issued. **Property:** 288 acres of patented farm land near Troy; held under lease and option. **Mineral sought:** Kaolin, silica, mica. **Remarks:** A small amount of development work.

IDAHO FIRE BRICK & CLAY CO.

Office: Troy. **Officers:** J. F. McCarthy, Pres.; Ellis L. Hale, Sec., both of Wallace. **Inc.:** May 31, 1928. **Capital:** 1,000 shares; par value $100; all shares issued. **Property:** 77 acres of patented land, held under a 99-year lease. **Plant:** Electrically driven drag-line hoist. MILL: Steam-driven puddling and molding equipment furnaces. **Mineral sought:** Fire clay. **Men employed:** Average, 19. **Remarks:** This company is the largest manufacturer of fire clay and refractory products in the State. Its output is in great demand throughout the Northwest, smelters and railroads being the principal consumers. A large part of the fire clay is obtained on a royalty basis from property other than that which the company controls.

MUSCOVITE MICA CO.

Office: Box 166, Lewiston. **Officers:** Homer Lipps, Pres., Kooskia; W. E. Parry, Sec., Lewiston. **Inc.:** Feb. 7, 1927. **Capital:** 5000 shares; par value $100. **Remarks:** Refused to file the reports required by law. Newspaper stories were to the effect that beryl occurs in the property owned by this company.

PRIMUS PLACER GOLD CO.

Officers: W. H. Latta, Wilbur, Wash. **Inc.:** Unknown. **Remarks:** Name gleaned from the press. Supposed to control a placer property in the Hoodoo district.

SPOKANE-IDAHO COPPER CO.

Office: 1103 Paulsen Bldg., Spokane, Wash. **Officers:** Paul H. Graves, Pres.; Will H. Hoppe, Sec., both of Spokane, Wash.; D. C. Livingston, Mgr., Harvard. **Inc.:** Nov. 27, 1929. **Capital:** 3,000,000 shares; par value 25c. **Remarks:** Failed to file the reports required by law. Press reports were to the effect that the company constructed new boarding and bunk houses and approximately 4 miles of road during the year.

TROY GOLD & COPPER MINING CO., LTD.

Office: Troy. **Officers:** E. J. Gemmill, Pres.-Mgr.; T. H. Christie, Sec., both of Troy. **Inc.:** May 26, 1909. **Capital:** 1,000,000 shares; par value $1; 510,100 shares issued. **Property:** 20 acres patented farm land, unorganized dist.; Troy. **Ore:** Copper. **Remarks:** Idle.

TROY MICA CO.

Office: Troy. **Officers:** Nels Sundquist, Pres., Troy; Russell Webb, Sec., Lapwai. **Inc.:** Aug. 10, 1926. **Capital:** 150,000 shares; par value $1. **Remarks:** Failed to file the reports required by law.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Anny Gr.	Hoodoo	P. Doffner	Harvard
Avon	Hoodoo	J. H. Nesbit	Deary
Blake Gr.	Hoodoo	M. W. Nelson	Spokane, Wash.
Bonanza Gold Pl.	Gold Creek	Wm. J. Schmidt	Potlatch
Carrico Pl.	Gold Creek	Paul Bockmier	Paulsen Bldg., Spokane, Wash.
Clara Lester Gr.	Gold Creek	James C. Throop	Palouse
Eureka Gr.	Gold Creek	Edwin N. Carrico	Potlatch
Excelsior	Gold Creek	Arthur P. Gilliam	Potlatch
Gold Bug	Gold Creek	Arthur P. Gilliam	Potlatch
Idaho	Hoodoo	G. E. Arrasmith	Harvard
Knapp Bros.	Hoodoo	Harry Knapp	Harvard
Midas	Hoodoo	H. N. Gray	Potlatch
Monday	Hoodoo	V. P. Wiesenthal	Palouse, Wash.

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

Geology and water resources of Nez Perce County, Idaho, by I. C. Russell: U. S. Geol. Survey Water-Supply Papers 53 and 54, **1901.**‡*

A geological reconnaissance across the Bitterroot Range and Clearwater Mountains in Montana and Idaho, by Waldemar Lindgren: U. S. Geol. Survey Prof. Paper 27, **1904.***

Mica in Idaho, New Mexico, and Colorado, by D. B. Sterrett: U. S. Geol. Survey Bull. 530, pp. 375-390, **1911.***

A preliminary report of the clays of Idaho, by F. H. Skeels: Idaho Bureau of Mines and Geology Bull. 2, **1920.***

The copper deposits of the Seven Devils and adjacent districts, by D. C. Livingston and F. B. Laney: Idaho Bureau of Mines and Geology Bull. 1, **1920.***

Mica deposits of the United States, by D. B. Sterrett: U. S. Geol. Survey Bull. 740, **1923.**‡

Mica deposits of Latah County, Idaho, by A. L. Anderson: Idaho Bureau of Mines and Geology Pamphlet 14, **1925.****

Ground water for municipal supply at Potlatch, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 23, **1927.****

LEMHI COUNTY

Lemhi County is situated in central-eastern Idaho, bounded on the north and east by the State of Montana, on the west by Idaho and Valley counties, and on the south by Custer, Butte, and Clark counties. It has an area of 4,597 square miles, which is about equal to the State of Connecticut, and was accredited with a population of 4,643 in the 1930 census, or 1.0 person to the square mile. A provisional county government was organized in July, 1867, and in January, 1869, the Territorial Legislature permanently established the county with Salmon City as the county seat, an honor which it has always retained. The larger part of the population is located in the Lemhi River and Pahsimeroi River valleys, and is engaged in the pursuits of agriculture and stockraising.

It is one of the principal mining counties of the State, and always ranks as one of the largest producers. The extensive and varied mineral resources; the many veins that have been discovered, yet not developed; the many undiscovered veins; the excellent mining conditions; the many producing mines and prospects; and its location, both geographically and geologically, place this county within the area known as Central Idaho's Mineral Empire.

The county is served by the Pittsburg & Gilmore Railroad, which plies between Armstead, Montana, and Salmon, with a branch line from Leadore to Gilmore; by the Sawtooth Park State highway from Challis to Salmon, which follows the Salmon River and which is fully completed; and by a system of county roads which lead into all the outlying settlements and mining districts.

The principal mineral resources are lead, copper, silver, gold, zinc, tungsten, manganese, molybdenum, nickel, cobalt, gypsum, tin, and lignite. The formations in which the various mineral deposits occur range from early sedimentary rocks to late igneous rocks and include all those which are favorable to the deposition of ore in commercial quantities. The deposits are widely distributed throughout the vast mountainous areas which comprise a large part of the county. The wide distribution of the deposits, the diversity of mineralization, the favorable geological conditions, and the many opportunities for the development of profitable enterprises, make this county an exceptionally favorable field for prospectors and development companies.

1930 Activities

In point of production and number of men employed Gilmore for many years has been one of the largest lead-producing sections in the State outside of the Coeur d'Alene district. The Pittsburg-Idaho mine, of the United Idaho Mining Co., a subsidiary of the U. S. Smelting, Refining & Mining Co., the Latest Out, and the Allie are the largest mines in this district. In 1929 one of the large Diesel engines in the power plant of the United Idaho Mining Co. exploded and was completely wrecked, and operations were suspended until additional power could be obtained. As the principal owners were unable to arrive at an agreement on the installation of a new power plant, the mine

has been idle since then. A large number of lessees at the Allie and Latest Out mines produced and marketed a substantial tonnage of high-grade lead-silver ore. Funds to cover the cost of the development work done by some of these lessees were advanced by one of the large smelting companies. These operations increased the activities and the number of men employed in this camp over those of 1929.

The Nicholia district was more active than during any year since production was suspended. Lessees at the old Viola mine did a large amount of development and produced and marketed a substantial tonnage of lead-silver ore. The Lead Mountain Mining Co., which entered this district in 1929, maintained one of the largest development campaigns in the county at the Nicholia group. This company completed a vertical shaft to a depth of 400 feet and opened 1,200 feet of crosscuts and drifts at the bottom of the shaft.

In the Spring Mountain district the property of the Idaho Minerals Co. was optioned to the South Gilmore Mining Co. The latter and the Spring Mountain Mining Co., Inc., were both active during the summer months.

The only work in the Leadore district was the necessary annual labor and the completion of the topographic survey by the U. S. Geological Survey preparatory to a thorough geological study of the district in cooperation with the Idaho Bureau of Mines and Geology.

In the Pratt Creek district the Goldstone Mines Corporation, one of the largest and most active companies in the county, completed the construction of its hydroelectric power plant and a 100-ton fine-grinding amalgamation and flotation mill, which was started in 1929. The mill was operated for a short period, and a large amount of mine development work was done.

Two discoveries, one of high-grade copper-gold ore on Agency Creek in the McDevitt district, the other of high-grade gold ore in the Parker Mountain district, were reported.

The copper mines in the vicinity of Salmon were less active than in 1929. A small amount of work was done by four lessees at the property of the Harmony Mines Co. and the Winder-Stillman Con was active during the early part of the year. The Hecla Mining Co. and an organization of prospectors were active throughout the summer months in developing a discovery of high-grade copper-gold ore on Allison Creek, 10 miles south of Salmon on the divide between the Lemhi and Salmon Rivers.

Mrs. H. T. Steen, at the Continental group in the Yellow Jacket district, and the United Mace Smelters, Inc., which was holding the old Yellow Jacket mine under lease and option, each performed a small amount of work.

The Shoup district received more attention than at any time during the past 10 years. Two new organizations commenced work; and press stories were to the effect that one of them installed a small hydroelectric power plant and excavating machinery preparatory to operating a placer deposit. There was a substantial increase in prospecting.

The principal activities in the Leesburg district were based on hydraulic mining. Three companies constructed ditches and dams and installed a small amount of hydroelectric mining equipment during the summer months.

There was a slight increase in prospecting and development work in the Gibbonsville district, and the Rescue Gold Mines Co. was active throughout the summer months in reopening the principal entry at the A. D. & M. mine.

Gold mining has received more than its usual amount of attention in most of the districts of the county, and there has been a substantial increase in the number of prospectors and investigators seeking gold enterprises.

An important means of advertising the mineral resources of the county has been the mineral exhibit of the Salmon Commercial Club. The exhibit is housed in a large room, and it contains excellent specimens of ore from almost every district in the county.

ALLIE MINE

Office: Gilmore. **Owners:** Gilmore Mercantile Co., Gilmore. **Property:** Allie group; 12 patented claims, Texas dist.; Gilmore. **Development:** Principally by 1 tunnel 6000 ft. long, in which are 2 inclined shafts with 6 intermediate levels, opening the vein 290 ft. below the tunnel. **Plant:**

40-kw. electric generator, driven by Fairbanks-Morse semi-Diesel engine; 2 electrically-driven hoists; 1200-ft. aerial tramway; mine buildings. **Ore:** Lead-silver. **Remarks:** The property was operated throughout the year by two groups of lessees, who produced and marketed a substantial tonnage of high-grade lead-silver ore.

BEAVERHEAD LEAD MINES CO.

Office: Cheney Bldg., Reno, Nev. **Officers:** John Salsberry, Pres., Mills Bldg., San Francisco; J. E. Sullivan, Sec., Cheney Bldg., Reno, Nev. **Inc.:** Filed in Idaho, May 12, 1927. **Capital:** 3,000,000 shares; par value 10c; no shares issued. **Property:** Viola group; 1 patented, 1 unpatented claim, Nicholia dist.; Gilmore. **Ore:** Lead-silver. **Remarks:** Operated throughout the year by lessees, who produced and shipped a small tonnage of ore.

CHLORIDE EUREKA CO.

Office: Carmen. **Officers:** S. E. Bowler, Pres.-Mgr.; Harriet Bowler, Sec., both of Carmen. **Inc.:** Oct. 9, 1928. **Capital:** 500,000 shares; par value $1; 3 shares issued. **Remarks:** This company owns no property and is not conducting mining operations.

CONTINENTAL GROUP

Owner: Mrs. H. F. Steen, P. O. Box 1434, Stockton, Calif. **Property:** Continental group; 4 patented claims, Yellow Jacket dist.; Forney. **Development:** Principally by 1 tunnel 420 ft. long. **Plant:** Gas-driven Rix compressor; complete mining equipment and camp. **Ore:** Copper-gold-silver. **Men employed:** Average, 4. **Remarks:** Active during the summer months.

CONTINENTAL STANDARD MINING CO.

Office: 655 Dexter Horton Bldg., Seattle, Wash. **Officers:** C. M. Sonoda, Pres., Seattle, Wash. **Inc.:** Jan. 2, 1926. **Capital:** 100,000 shares preferred, 1,000,000 shares common; Jan. 23, 1930, common stock increased to 3,000,000 shares; par value $1; 727,309 shares issued. **Property:** Grizzly Hill group; 25 unpatented claims, Junction dist.; Leadore. **Development:** By 5 tunnels, totaling approximately 1000 ft., and an inclined shaft 175 ft. long. **Plant:** 200-cu.-ft. C-P compressor, driven by semi-Diesel engine; air-driven hoist. **Ore:** Lead-silver. **Remarks:** Annual labor only, the funds for which were derived from stock assessments. The company failed to file information as to the amount of preferred stock issued, although requested to do so.

GOLDEN AGE MINING CO.

Office: Sandy, Utah. **Officers:** J. R. Jensen, Pres.; J. P. Jensen, Sec., both of Sandy, Utah. **Inc.:** Nov. 29, 1930. **Capital:** 500,000 shares; par value 10c; 250,000 shares issued. **Property:** 6 unpatented claims, held under lease and option, Gibbonsville dist.; North Fork. **Development:** By 2 tunnels; No. 1, 700 ft. long; No. 2, 300 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

GOLDSTONE MINES CORPORATION

Office: 905 American Bank Bldg., Seattle, Wash. **Officers:** Arthur J. Theis, Pres.-Mgr.; William S. Akers, Sec., both of Seattle, Wash.; Andrew Prader, Supt., Baker. **Inc.:** Apr. 9, 1928. **Capital:** 2,000,000 shares; par value 25c; 1,900,000 shares issued. **Property:** Goldstone group; 9 unpatented claims held under lease and option, Pratt Creek dist.; Baker. **Development:** Principally by 1 tunnel 2150 ft. long. **Plant:** MINE: Electrically driven compressor; complete mining equipment and camp. MILL: 100-ton fine-grinding amalgamation and flotation. POWER: 195-kw. hydroelectric power plant driven by a Pelton wheel. **Ore:** Gold. **Men employed:** Average, 10. **Remarks:** Construction of the power plant and mill, which was started in 1929, was completed early in the year. A large amount of mine development was performed, and the mill was operated intermittently.

HARMONY MINES CO.

Office: Box 47, Salmon. **Officers:** A. W. Nieman, Pres.; Mrs. O. K. Mitchell, Sec., both of 5431 Lakewood Ave., Chicago, Ill.; E. F. Nieman, Mgr., Salmon. **Inc.:** Apr. 8, 1916. **Capital:** 3,000,000 shares; par value $1; 2,290,000 shares issued. **Property:** Harmony group; 7 patented, 17 unpatented claims; Eldorado dist.; Baker. **Development:** By 5 tunnels: No. 1, 180 ft.; No. 2, 270 ft.; No. 3, 700 ft.; No. 4, 2500 ft.; No. 5, 2650 ft. Total development, approximately 7500 ft. **Plant:** MINE: 50-h. p. hoist, 800-cu.-ft. I-R compressor, both electrically driven; electric storage-battery locomotive haulage; aerial tramway connecting No. 5 tunnel with the mill; complete mining equipment and camp. MILL: 200-ton fine-grinding flotation concentrator. POWER: 450-h. p. electric generator, driven by Diesel engine; 8-mile transmission line. **Ore:** Copper. **Remarks:** A small amount of work by lessees, who operated the mill for a period of 90 days.

IDAHO CONSOLIDATED MINING CO.

Officer: John Igou, Salmon. **Remarks:** The name was gleaned from the press, which indicated that the company was a local organization developing the Spare Time group on Rattlesnake Creek.

IDAHO PREMIER MINES CORPORATION

Office: Kellogg. **Officers:** A. C. Beal, Pres.-Mgr., The Dalles, Ore.; Lester S. Harrison, Sec., Kellogg. **Inc.:** Mar. 28, 1927. **Capital:** 2,000,000 shares; par value $1; 329,037 shares issued. **Property:** Leadore group; 52 unpatented claims, Junction dist.; Leadore. **Development:** By 2 tunnels: No. 1, 500 ft. long; No. 2, 876 ft. long. **Plant:** MINE: Small gas-driven compressor. MILL: Small gas-driven concentrator. **Ore:** Lead-silver. **Remarks:** Annual labor only.

IMA CONSOLIDATED MINING & MILLING CO.

Office: 810 Deseret Bank Bldg., Salt Lake City, Utah. **Officers:** Oscar W. Moyle, Pres.; Harry W. Rudine, Sec., both of Salt Lake City, Utah. **Inc.:** Dec. 16, 1902. **Capital:** 200,000 shares; par value 1c; 60,000 shares issued. **Property:** Ima group; 21 patented, 4 unpatented claims, Blue Wing dist.; May. **Development:** By 2 tunnels: No. 1, 1250 ft. long; No. 2, 1000 ft. long. **Plant:** MINE: Water-driven compressor; complete mining equipment and camp. MILL: 100-ton water-driven concentrator, constructed in 1915. **Ore:** Silver, copper, tungsten. **Remarks:** Under lease and option to W. P. Barton. See Ima Mines Corp.

IMA MINES CORPORATION

Officer: W. P. Barton, May. **Inc.:** Mar. 12, 1930. **Capital:** 1,000,000 shares; par value $1. **Remarks:** Failed to file the reports required by law. Lease and option on the property owned by the Ima Consolidated Mining & Milling Co. This is the fourth company that Mr. Barton has organized on this property, the former ones being: Blue Wing Tungsten Mining & Milling Co., incorporated Mar. 23, 1921, charter forfeited Nov. 30, 1923; Republic Consolidated Mining & Refining Co., incorporated Aug. 9, 1922, charter forfeited Nov. 30, 1924; Patterson Mines Corporation, incorporated Apr. 3, 1927.

LATEST OUT MINING & SMELTING CO., LTD.

Office: Salmon. **Officers:** D. L. Nichols, Sec.-Mgr., Salmon. **Inc.:** May 23, 1910. **Capital:** 500,000 shares; par value $1; all shares issued. **Property:** Latest Out; 1 patented claim, Texas dist.; Gilmore. **Development:** 1 tunnel, 365 ft. long; 2 inclined shafts, totaling 1100 ft., giving a vertical depth on the vein of 700 ft. Total development approximately 32,000 ft. **Plant:** F-M 40-h. p. gas-driven hoist; 145-cu.-ft. I-R gas-driven compressor; gravity tram; complete mining equipment and camp. **Ore:** Lead-silver. **Remarks:** Operated by five groups of lessees, who produced and marketed a small tonnage of ore.

LEAD MOUNTAIN MINING CO.

Office: 218 Felt Bldg., Salt Lake City, Utah. **Officers:** George W. Snyder, Pres.-Mgr.; Guy M. Snyder, Sec., both of Salt Lake City. **Inc.:** Aug. 26, 1929. **Capital:** 1,000,000 shares; par value 25c; all shares issued. **Property:** Nicholia group; 36 unpatented claims, some of which are held

under lease and option, Nicholia dist.; Reno. **Development:** By 2 tunnels: No. 1, 1000 ft. long; No. 2, 300 ft. long; and an inclined shaft 150 ft. long; vertical shaft 400 ft. deep, at the bottom of which is 1200 ft. of prospects and drifts. **Plant:** Hoist and 2-drill Sullivan compressor, both gas-driven; complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 16. **Remarks:** The property was acquired in June, 1929, after which new camp buildings were erected, equipment was installed, and work was started on sinking the vertical shaft. Since then the development has progressed without interruption. This was the largest development enterprise in the county.

LEADORE-LEMHI COPPER MINING CO.

Office: Leadore. **Officers:** J. D. Pritchett, Pres.-Mgr., Leadore; J. E. Pritchett, Sec., Salmon. **Inc.:** Aug. 22, 1927. **Capital:** 500,000 shares; par value 10c; 150,000 shares issued. **Property:** Baltimore group; 3 unpatented claims, McDevitt dist.; Leadore. **Development:** By 2 short tunnels. **Ore:** Copper-silver. **Men employed:** Average, 1. **Remarks:** Active during the summer months.

LEESBURG BONANZA PLACER CO.

Office: 611 Isabel St., Los Angeles, Calif. **Officers:** Carl A. Poulson, Pres.-Mgr.; Hans Therkelsen, Sec., both of Los Angeles, Calif. **Inc.:** Apr. 2, 1929. **Capital:** 2,500,000 shares; par value 10c; 1,863,337 shares issued. **Property:** Bonanza placers; 12 unpatented claims, Mackinaw dist.; Leesburg. **Ore:** Placer gold. **Men employed:** Average, 3. **Remarks:** Small amount of work on hydraulicking equipment was performed during the summer months. This company is a reorganization of the Bonanza Placer, Inc. Annual labor only.

LEESBURG LODE & PLACER MINING CO.

Office: Salmon. **Officers:** O. E. Kirkpatrick, Pres.-Mgr., Leesburg; J. A. Herndon, Sec., Salmon. **Inc.:** May 12, 1930. **Capital:** 600,000 shares; par value 10c; 401,050 shares issued. **Property:** Gold Dust group; 6 patented claims, Mackinaw dist.; Salmon. **Development:** Approximately 3000 ft. **Plant:** An old steam-driven 10-stamp mill. **Ore:** Gold.

LEMHI MINING CO.

Office: Winchester, Ind. **Officers:** Albert Warren, Pres., Cleveland, Ohio; A. L. Nichols, Sec., Winchester, Ind.; R. E. Lee Ramey, Mgr., Forney. **Inc.:** Jan. 16, 1924. **Capital:** 5000 shares; no par value; 4942 shares issued. **Property:** Rabbit Foot group; 8 unpatented claims, Gravel Range dist.; Forney. **Development:** By 3 tunnels, the principal one of which is 1700 ft. long. **Plant:** MINE: Steam-driven hoist. MILL: 10-stamp amalgamation. **Ore:** Gold. **Remarks:** Failed to file the reports required by law.

MONTANA COAL & IRON CO.

Officer: T. H. Freeman, Shoup. **Inc:** Not filed in Idaho. **Remarks:** Failed to file the reports required by law. Press stories were to the effect that this company was operating a placer property near Shoup, and that it had installed a 100-kw. hydroelectric power plant and excavating machinery.

MONTANA MINING & LIVESTOCK CO.

Office: William Taylor Hotel, San Francisco, Calif. **Officers:** F. H. Barnes, Pres.; E. H. Devlan, Sec., both of San Francisco, Calif. **Inc.:** Mar. 8, 1919. **Capital:** 5,000,000 shares; par value 10c; 1,208,830 shares issued. **Property:** Leesburg group; 9 unpatented placer and 6 unpatented lode claims, 500 acres deeded land,Mackinaw dist.; Leesburg. **Plant:** Steam-driven hoist and 100-cu.-ft. I-R compressor; complete mining and logging equipment; sawmill; complete camp and buildings. **Ore:** Gold. **Remarks:** Annual labor only.

NORTHWESTERN DEVELOPMENT CO., LTD.

Office: Ashland, Ky. **Officers:** C. E. Williams, Pres.; Thomas Boggess, Sec., both of Ashland, Ky. **Inc.:** Aug. 28, 1916. **Capital:** 500,000 shares; par value $1; 239,840 shares issued. **Property:** Primrose group; 6 patented claims, Eldorado dist.; Salmon. **Plant:** Gas-driven compressor; complete mining equipment and mine camp. **Ore:** Gold-silver-copper. **Remarks:** Idle.

OWL MINING CO., INC.
Office: Salmon. **Officers:** J. M. Freeman, Pres., Billings, Mont.; H. A. Simmons, Sec., Red Lodge, Mont. **Inc.:** Dec. 9, 1929. **Capital:** 1,000 shares; par value $100; 3 shares issued. **Property:** 9 unpatented claims, Mineral Hill dist.; Shoup. **Development:** 2 short tunnels. **Ore:** Gold and silver. **Men employed:** Average, 2. **Remarks:** A new tunnel, 250 ft. long, was driven during the year.

POCATELLO-LEMHI MINING & EXPLORATION CO.
Office: Ross Bldg., Pocatello. **Officers:** W. E. Magnuson, Pres.; Madge D. Hawkins, Sec., both of Pocatello; M. F. Barritt, Mgr., Leadore. **Inc.:** Oct. 23, 1926. **Property:** Jamieson group; 17 unpatented claims, Junction dist.; Leadore. **Development:** By 2 tunnels. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Annual labor only, the funds for which were derived from a stock assessment of 3 mills, levied on March 28.

PORTLAND MINING CO.
Office: Butte, Mont. **Officers:** E. J. Carleton, Pres.; W. S. Shaw, Sec., both of Butte, Mont. **Inc.:** Aug. 11, 1920. **Capital:** 500,000 shares; par value $1; all shares issued. **Property:** Portland group; 3 patented, 12 unpatented claims. Texas dist.; Gilmore. **Development:** By 1 tunnel 2000 ft. long. **Remarks:** Annual labor only.

RESCUE GOLD MINES CO.
Office: P. O. 624, Pasadena, Calif. **Officers:** Chas. Mushrush, Pres.; Willis H. Brown, Sec., both of Pasadena, Calif.; A. B. Post, Agent, P. O. 624, Pasadena, Calif. **Inc.:** Apr. 25, 1919. **Capital:** 90,000 shares; par value $1; 13,303 shares issued. **Property:** A. D. & M. group; 23 patented claims, Dahlonega dist.; Gibbonsville. **Ore:** Gold. **Remarks:** A small amount of work, which consisted principally of reopening the old workings, was done during the summer months.

SOUTH GILMORE MINING CO.
Office: Idaho Falls. **Officers:** Richard Martin, Pres.; Albert Martin, Sec., both of Idaho Falls. **Inc.:** Nov. 12, 1929. **Capital:** 300,000 shares; par value 10c; shares issued, unknown. **Property:** 9 unpatented claims, Spring Mountain dist.; Gilmore. **Development:** 8 short tunnels. **Ore:** Lead-silver. **Remarks:** Annual labor only. This company appears to be a reorganization of Idaho Minerals Co.

SPRING MOUNTAIN MINING CO., INC.
Office: Newhall, Calif. **Officers:** E. G. Carlson, Pres., Gilmore; A. S. Weiss, Sec., Newhall, Calif. **Inc.:** Filed in Idaho, Dec. 19, 1927. **Capital:** 1000 shares; par value $100; all shares issued. **Property:** Big Windy group; 5 patented claims, Spring Mountain dist.; Gilmore; held under lease and option. **Development:** By 2 tunnels: No. 1, 550 ft.; No. 2, 150 ft. **Plant:** Sullivan compressor, driven by semi-Diesel engine; complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** Active development throughout the summer months.

UNITED IDAHO MINING CO.
Office: No. 1, State St., c|o U. S. Smelting, Refining & Mining Co., Boston. **Officers:** C. A. Hight, Pres.; F. W. Batchelder, Sec., both of Boston; D. D. Muir, Jr., Mgr., Newhouse Bldg., Salt Lake City. **Inc.:** Oct. 18, 1924. **Capital:** 10,000 shares common, no par value; 10,000 shares preferred, par value $10; 7,053 shares common, all preferred, issued. **Property:** Pittsburgh-Idaho group; 5 patented claims, Texas dist.; Gilmore. **Development:** 4 tunnels: No. 1, 600 ft. long; No. 2, 1000 ft. long; No. 3, 1600 ft. long; No. 4, 1300 ft. long, in which is an inclined shaft 1200 ft. long, which gives a vertical depth of 950 ft. on the vein. **Plant:** MINE: 1 200-kw. Allis-Chalmers Diesel engine with generator, 1 I-R electrically driven 9x8, and 1 C. P. gas-driven compressor; 100-h. p. electrically driven double-drum hoist; complete mining equipment, camp, and buildings. MILL: 50-ton gas-driven concentrator. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Idle; maintenance only.

UNITED MACE SMELTERS, INC.

Office: 2763 Blake St., Denver, Colo. **Officers:** Robert G. Ainsworth, Pres.; M. G. Ainsworth, Sec.; C. H. Mace, Mgr., all of Denver, Colo.; John Lingelbach, Agent, Forney. **Inc.:** Filed in Idaho, Dec. 15, 1930. **Capital:** 1,500,000 shares; par value $1; 614,985 shares issued. **Property:** Yellow Jacket group; 7 patented, 37 unpatented claims, held under lease and option, Yellow Jacket dist.; Forney. **Men employed:** Average, 3. **Remarks:** A small amount of work during the summer months in reopening the old workings. The statements in the press by Mr. Lingelbach were to the effect that the company proposed installing a Mace smelter.

UTANA MINING CORPORATION

Office: 301 East Second So. St., Salt Lake City, Utah. **Officers:** W. H. Penner, Pres.-Mgr.; Web Greene, Sec., both of Salt Lake City. **Inc:** Aug. 4, 1921. **Capital:** 1,000,000 common, par value 10c; 100,000 preferred, par value $1; 119,000 shares issued. **Property:** Big Dyke group; 22 unpatented claims, Freeman dist.; Salmon. **Development:** Approximately 1600 ft. of underground workings. **Plant:** Steam-driven compressor; complete mining equipment and camp; complete machinery and equipment for cyanide plant. **Ore:** Lead, silver, copper, zinc. **Remarks:** Annual labor only.

VIRGINIA GOLD MINING & MILLING CO.

Office: 189 First Ave., Salt Lake City, Utah. **Officers:** A. W. Shaw, Pres.; L. M. Byers, Sec., both of Salt Lake City. **Inc.:** Aug. 21, 1925. **Capital:** 2,500,000 shares; par value 1c; 2,300,000 shares issued. **Property:** Virginia group; 9 patented, 13 unpatented claims, Eureka dist.; Baker. **Remarks:** Annual labor only.

WINDER-STILLMAN CON

Office: Salmon. **Officers:** R. H. Winder, Pres., Salt Lake City; J. W. Jones, Sec.-Mgr., Salmon. **Inc.:** Form of organization unknown. **Capital:** 1,000,000 shares; par value 1c; 446,118 shares issued. **Property:** Pope-Shenon group; 12 patented claims, Eureka dist.; Salmon. **Development:** 6 tunnels: No. 1, 70 ft. long; No. 2, 80 ft. long; No. 3, 400 ft. long; No. 4, 450 ft. long; No. 5, 800 ft. long; No. 6, 1000 ft. long. Total development approximately 3000 ft. of underground workings. **Plant:** MINE: 2 12x10 I-R electrically- driven compressors; Sullivan steel sharpener; complete mining equipment and camp. MILL: 60-ton electrically-driven concentrator, including fine grinding and flotation. **Ore:** Copper. **Men employed:** Average, 25. **Remarks:** Active operations during the early part of the year. A substantial tonnage of concentrate was produced and marketed.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Alex Stevens	Texas	Wm. Howard	Gilmore
Anaconda Gr.	Eldorado	J. H. Adams Est.	Salmon
Anaconda et al.	Blackbird	A. C. Ludwig	Salmon
Andy Lee	Gravel Range	F. M. Pollard	Los Angeles, Cal.
Arnett Creek Pl.	Mackinaw	Christ Stuckey	Leesburg
Baby Joe Gr.	Junction	W. F. Stone	Leadore
Belcher	Gibbonsville	Chas. Goff	North Fork
Big 8-Mile	Junction	J. D. Pritchett	Leadore
Big Windy	Spring Mountain	Joe Jugovich	Gilmore
Blue Bird	McDevitt	E. G. Lynch	Digby, N. S.
Boulder Gulch	Mineral Hill	John Brittain	Salmon
Brown Bull	Texas	E. C. Ross	Gilmore
Bryn Mawr et al.	Indian Creek	Davis Davies	North Fork
Buck-a-roo	Silverton	W. J. Shoup	Salmon
Buckhorn	Junction	Sellers Bros.	Salmon
Burlington	Eureka	Paul Rossier	Salmon
Cabin	Unorganized	Frank G. Worthing	Reno, Idaho
California Pl.	Mackinaw	A. C. Ludwig	Salmon
Carrie Cody	Texas	H. S. Knight	222 Kearns Bldg., Salt Lake City, U.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Castle Rock	Blue Wing	C. B. Graves	Patterson
Clara Morris Gr.	Gibbonsville	Largey Est.	46 E. Broadway, Butte, Mont.
Clipper Bullion	Mineral Hill	Mrs. Ethel Suydam	Shoup
Columbia	Yellow Jacket	A. C. Ludwig	Salmon
Copper Glance	Yellow Jacket	Chas. Anderson	Leesburg
Copper King	Mackinaw	Earl R. Galbraith	Salmon
Daly Creek	Mackinaw	John M. Smith	Salmon
----------	Indian Creek	W. W. Smith	Ulysses
Democrat	Texas	Thos. Grooms	Gilmore
Diamond Gulch	Eureka	Geo. Matics	Salmon
Dig More No. 1	Junction	Rouche & Pottle	Leadore
Dunton Placer	Gibbonsville	Fred Dunton	Gibbonsville
Eagle Mine	Gibbonsville	Alfred Anderson	Gibbonsville
Elmira	Junction	Jas. Corcoran	Salmon
Enterprise	Nicholia	Milo W. Zook	Gilmore
Florence	Eight Mile	Fred Chase	Leadore
Forney Gr.	Gravel Range	R. E. Lee Ramey	Forney
Golden Rule	Eureka	W. B. Horn	Salmon
Goldfield Gr.	Gibbonsville	A. W. Beason	Salmon
Gold Star	Mackinaw	J. A. Fry	Leesburg
Goldstone	Pratt Creek	Mrs. Isadore Gies	Great Falls, Mont.
Governor	Gibbonsville	F. C. Nohle	Gibbonsville
Grace	Mackinaw	Thos. Pope	Salmon
Greenhorn Mines	Eureka	F. S. Wright	Salmon
Grizzly Hill	Junction	W. F. Stone	Leadore
Grunter Gr.	Mineral Hill	M. M. McPherson	Pacific Grove, Cal.
Hard Carbonate	Spring Mountain	P. H. Clarke	Gilmore
Hawkeye Gr.	Blackbird	South & Weidner	Salmon
High Ball	Junction	Sellers Bros.	Salmon
High Ore	Spring Mountain	J. W. Spiers	Gilmore
Hockensmith	Mackinaw	Chas. Goff	Leesburg
Hughes Creek Pl.	Gibbonsville	Justin Finch	Helena, Mont.
Inspiration	McDevitt	Ray Pierce	Tendoy
Iron Mask	Spring Mountain	F. L. Clark	Gilmore
Italian	Mackinaw	J. A. Herndon	Salmon
King Solomon	Eureka	Henry Pobst	Salmon
Last Chance	Mackinaw	Grant Rood	Leesburg
Last Chance	Gibbonsville	Henry Schreiber	Gibbonsville
Liberty Bell	Pratt Creek	Jasper Lyne	Tendoy
Liberty Bond Gr.	McDevitt	R. F. Morphey	Leadore
Lick Creek	Gibbonsville	Frank Glennon	Gibbonsville
Lloyd Gr.	Junction	Chas. F. Lloyd	Dillon, Mont.
Lone Star	Eureka	Geo. Matics	Salmon
Lone Star	Pratt Creek	Mrs. Jennie Turnblade	Salmon
McCarty et al.	Gibbonsville	Percy Anderson	Salmon
McKinley Gr.	Eureka	Geo. Coronkrite	Salmon
Mahogany	Mineral Hill	A. C. Amonson	Salmon
Maine Silver Moon	Texas	J. A. Nash	Gilmore
Maryland	Junction	A. C. Amonson	Salmon
Mayflower	Mackinaw	Earl R. Galbraith	Salmon
Miser's Dream	Mineral Hill	R. A. Joseph	Gilmore
Moonshine	Silverton	W. W. St. Clair	Salmon
Modock Chief	Gibbonsville	J. Rathbun	Carmen
Moose Creek	Eureka	John E. Mullen	Salmon
Mountain Boy	Texas	Hugh Ferguson	512 W. Pearl St., Butler, Pa.
Mountain View	Eldorado	J. H. Smith et al.	Pocatello
Murphy Gr.	Texas	Joe Denton	Gilmore
Musgrove Mine	Blackbird	E. E. Edwards	Salmon

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Never Sweat Pl.	Mackinaw	Thos. Hungate	Leesburg
Patton Gr.	Junction	A. J. Smith, Mgr.	Leadore
Pearl Gr.	McDevitt	Pattie Bros.	Baker
Pope Gr.	Mackinaw	Thos. Pope	Salmon
Quartz Porphyry	Blackbird	A. C. Ludwig	Salmon
.....	Spring Mountain	Oakley & Ellis	Dubois
Rabbit Foot	Gravel Range	R. E. Lee Ramey	Forney
Rainbow	Eureka	William Swan	Salmon
Ramshorn	Junction	Thompson Bros.	Salmon
Ranger	Eldorado	Camele Rock	Salmon
Rasmason	Junction	Mrs. Minnie Rasmason	Salt Lake City
Rattler	Kirtley Creek	Homer Harris	Salmon
Ready Cash	Mineral Hill	Peter Wasescha	Shoup
Red Cross Gr.	Unorganized	J. T. Pugh	Salmon
Red Gravel	Mackinaw	Ah Moon	Leesburg
Richardson Pl.	Mackinaw	Will Shoup	Salmon
Ring Bone Cayuse	Mackinaw	Fred Brough	Salmon
Road Agent	Junction	Dick Roach	Leadore
Robinson Lode	Blackbird	Chas. S. Miller	Leesburg
Rosebud	Texas	Rock Vezina	Leadore
Rose & Bohannon	Blackbird	Bohannon Est.	Salmon
Roxie	Silverton	Lemm Cummings	Salmon
Roy	Junction	W. F. Stone	Leadore
Royal Gold	Eureka	Blanche G. Williams	1059 Lexington Av., New York
Ruby	Eldorado	Alfred Erickson	Baker
Silver Glance	Spring Mountain	Chas. J. Elg	Idaho Falls
Silver Moon	Texas	J. H. Lanyon	Gilmore
Sky Scraper	Junction	P. C. Sellers	Leadore
Smuggler et al.	Texas	Mac Carson	Gilmore
Speculation	Mineral Hill	Dave Sandilands	Salmon
Standard Placer	Eureka	Harry Kelly	Salmon
Sunbeam	Blackbird	Chas. Schultz	Salmon
Sunnyside	Texas	Jas. Sims	Salmon
Sunset	Mackinaw	Crist Stuckey	Leesburg
Tempest Gr.	Spring Mountain	Joseph G. Sims	Salmon
Tendoy	Unorganized	S. A. Matthews	Salmon
Tormey Gr.	Unorganized	Dr. F. S. Wright	Salmon
Uncle Sam	Spring Mountain	J. A. Nash	Gilmore
Union	Spring Mountain	James Sims	Salmon
Vaughn Placer	Mackinaw	T. Hungate	Leesburg
Verdun	Unorganized	Dr. F. S. Wright	Salmon
Vimedii	Carmen Creek	Burt W. Simer	Salmon
Viola	Nicholia	A. F. Shear	Reno
Walkover Placer	Hughes Creek	O. P. Kimmell	Salmon
War Eagle	Pratt Creek	Jack Turnblade	Baker
White Horse	Spring Mountain	O. M. Perkins	Gilmore
Yellow Jacket Pl.	Yellow Jacket	J. M. Burkhart, Jr.	Salmon

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

A geological reconnaissance across Idaho, by G. H. Eldridge: U. S. Geol. Survey Sixteenth Ann. Rept., pt. 2, pp. 217-276, **1895.***

Central Idaho gold field, by Don Maguire: Mines and Minerals, vol. 19, pp. 289-291, February, **1899.***

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey Twentieth Ann. Rept., pt. 3, pp. 75-256, **1900.***

The Hayden Creek, Idaho, meteoric iron, by W. E. Hidden: Am. Jour. Sci., 4th ser., vol. 9, pp. 367-368, **1900.**§
An outline of Idaho geology and of the principal ore deposits of Lemhi and Custer counties, by R.N.Bell: Proc. Int. Min.Cong.,4th sess., pp.64-80 **1901.**§
An extinct glacier of the Salmon River Range, by G. H. Stone: Am. Geology, vol. 11, pp. 406-409, **1903.**§
Mineral deposits of the Bitterroot Range and Clearwater Mountains, Montana, by Waldemar Lindgren: U. S. Geol. Survey Bull. 213, pp. 66-70, **1903.***
A geological reconnaissance across the Bitterroot Range and Clearwater Mountains in Montana and Idaho, by Waldemar Lindgren: U. S. Geol. Survey Prof. Paper 27, **1904.***
A complicated fault system (Gibbonsville, Idaho,) by H. C. Bacon: Eng. and Min. Jour., vol. 79, p. 324, Feb. 16, **1905.**§
Vein structure in the Monument mine, by H. C. Carr: Min. and Sci. Press, vol. 98, pp. 557-558, Apr. 17, **1909.***
Resources of Custer and Lemhi counties, Idaho: Salt Lake Min. Review, vol. 12, pp. 17-19, Mar. 15, **1911.**§
The Yellow Jacket mine, Idaho, by G. L. Sheldon: Eng. and Min. Jour., vol. 93, pp. 221-222, Jan. 27, **1912.**§
Gold deposits at Gibbonsville, Idaho, by F. C. Lincoln: Min. and Sci. Press, vol. 105, pp. 47-49, July 13, **1912.***
Lead-silver mines of Gilmore, Idaho, by Ralph Nichols: Am. Inst. Min. Eng. Trans., vol. 46, pp. 937-939, August, **1913.**§
Geology and ore deposits of Lemhi County, by J. B. Umpleby: U. S. Geol. Survey Bull. 528, **1913.***
Idaho placer operations, by Julius Hornbein: Eng. and Min. Jour., vol. 103, pp. 95-97, Jan. 13, **1917.**§
Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****
Note on cobalt-bearing veins, Lemhi County, Idaho (abstract), by F. L. Hess: Washington Acad. Sci. Jour., vol. 9, No. 16, p. 501, Oct. 4, **1919.**§
Mining experiences in Idaho in the nineties, by G. L. Sheldon: Eng. and Min. Jour., vol. 110, pp. 1212-1214, Dec. 25, **1920.**§
The volatilization process at the Pope Shenon mine, by R. H. Bradford: Min. and Sci. Press, vol. 123, pp. 263-266, Aug. 20, **1921.***
A new copper district near Salmon, Idaho, by C. P. Ross: Eng. and Min. Jour. Press, vol. 118, pp. 205-208, Aug. 9, **1924.**§
A glacially transported mine, by R. T. Walker: Eng. and Min. Jour.-Press, vol. 118, pp. 295-296, Aug. 23, **1924.**§
Ground water in Pahsimeroi Valley, Idaho, by O. E. Meinzer: Idaho Bureau of Mines and Geology Pamphlet 9, **1924.****
The copper deposits near Salmon, Idaho, by C. P. Ross: U. S. Geol. Survey Bull. 774, **1925.**‡
Geology and water resources of the Mud Lake basin, Idaho, by H. T. Stearns and L. L. Bryan: U. S. Geol. Survey Water-Supply Paper 560, pp. 85-134, **1925.**‡
A geologic reconnaissance of Clark and Jefferson, and parts of Butte, Custer, Fremont, Lemhi and Madison counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 19, **1927.***
Ore deposits in Tertiary lava in the Salmon River Mountains, Idaho, by C. P. Ross: Idaho Bureau of Mines and Geology Pamphlet 25, **1927.****
Geology and ore deposits of the Birch Creek district, Idaho, by P. J. Shenon: Idaho Bureau of Mines and Geology Pamphlet 27, **1928.****
Tertiary volcanic tuffs and sandstones used as building stones in the upper Salmon River valley, Idaho, by C. H. Behre, Jr.: U. S. Geol. Survey Bull. 811, pp. 237-252, **1929.****
Mining practice at Harmony Mines Co., Baker, Idaho, by R. D. Gardner: U. S. Bureau of Mines I. C. No. 6240, March, **1930.****
Milling methods and costs at the Harmony Mines, Baker, Idaho, by R. D. Gardner: U. S. Bureau of Mines I. C. No. 6285, June, **1930.****

LEWIS COUNTY

Lewis is one of the northern counties, being bounded on the north and west by Nez Perce, on the northeast by Clearwater, and on the east and south by Idaho County. Containing an area of but 470 square miles, and a population of 11.1 persons to the square mile, it is one of the smallest counties in the State in area and one of the largest in density of population. Excepting the small area occupied by Craig Mountains, practically all the county is tillable, and the principal industries are wheat raising and lumbering.

The county is served by the North and South State highway, by the Lewiston-Stites branch of the Northern Pacific Railroad, by the Lewiston-Grangeville branch, which is owned jointly by the Union Pacific and Northern Pacific railroads, by the Nez Perce & Idaho Railroad from Craigmont to Nez Perce, the county seat, and by the Craig Mountain Railroad from Reubens to Winchester.

The principal mineral resources are copper, gold, silver, marble, and limestone. Veins containing copper, gold, and silver have been discovered and developed in the Craig Mountains, principally along Deer Creek. At one time this section received considerable attention, and a small mill was constructed at one of the mines. The marble and limestone occur on Mission Creek near the Nez Perce County line. The marble occurs in all shades, colors, and diagrams familiar to the marble industry; it is exceptionally adaptable to commercial use.

The Winchester Copper Mining & Smelting Co., which acquired the Forest group of copper claims on Deer Creek in 1926, was active throughout the summer months.

CRAIG MOUNTAIN MINING & MILLING CO.

Office: Lewiston. **Officers:** Ben L. Schultz, Pres.-Mgr., Lewiston; W. W. Burr, Sec., Genesee. **Inc.:** Nov. 30, 1925. **Capital:** 600,000 shares; par value $1; 475,000 shares issued. **Property:** Craig Mountain group; 29 unpatented claims, Deer Creek dist.; Winchester. **Development:** Total development, approximately 5000 ft. **Plant:** Old mining and milling plant and equipment, installed in 1915. **Ore:** Copper. **Remarks:** Annual labor only.

WINCHESTER COPPER MINING & SMELTING CO.

Office: Winchester. **Officers:** T. A. Holmes, Pres., Peck; Alex Kasberg, Acting Sec., Lewiston. **Inc.:** Aug. 7, 1926. **Capital:** 1,500,000 shares; par value 10c; 928,237 shares issued. **Property:** Forest group; 10 unpatented claims, Deer Creek dist.; Winchester. **Development:** By 2 tunnels: No. 1, 520 ft. long; No. 2, 125 ft. long. **Plant:** Steam-driven Sullivan compressor; complete mining equipment and camp. **Ore:** Copper-silver. **Men employed:** Average, 4. **Remarks:** Active throughout the summer months.

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

A geological reconnaissance across the Bitterroot Range and Clearwater Mountains in Montana and Idaho, by Waldemar Lindgren: U. S. Geol. Survey Prof. Paper 27, **1904.***

Central Idaho gold districts, by S. P. Jellum: Northwest Min. News, vol. 3, pp. 83-91, 107-114, 134-139, **1908**; vol. 4, pp. 2-6, 31-37, 66-73, **1909.***

The Orofino coal field, Clearwater, Lewis, and Idaho counties, Idaho, by C. T. Lupton: U. S. Geol. Survey Bull. 621, pp. 99-108, **1915.***

A preliminary report on the clays of Idaho, by F. H. Skeels: Idaho Bureau of Mines and Geology Bull. 2, p. 59, **1920.***

The copper deposits of the Seven Devils and adjacent districts, by D. C. Livingston and F. B. Laney: Idaho Bureau of Mines and Geology Bull. 1, **1920.***

NEZ PERCE COUNTY

Nez Perce is one of the principal northern counties, bounded on the south and east by Idaho and Lewis counties, on the north and east by Clearwater and Latah counties, and on the west by the States of Washington and Oregon. It has an area of 851 square miles and was accredited with a population of 17,591 in the 1930 census. It is primarily an agricultural county, and Lewiston, the largest town and civic center of north-central Idaho, is the county seat. The county was originally organized under an act of the Legislature of Washington Territory before the Territory of Idaho was organized, and Lewiston was first settled in 1861, consequent to the discovery of, and as a supply point for, the placer mines in Clearwater and Idaho counties.

Lewiston is at the junction of the Snake and Clearwater rivers; steamboats can reach it from Portland, Oregon, although they are not used as a means of transportation from that point, and both rivers are navigable for boats of light draft. In addition to river boats, the county is served by the Union Pacific and Northern Pacific railroads, and by the North and South, and Lewis and Clark State highways.

The principal mineral resources are copper, silver, gold, marble, and limestone. The metals occur in isolated sections of the county and have never received much attention. The limestone, which is adaptable to Portland cement, occurs on the Snake River north of Lewiston, but the deposits have never been developed. The marble, which is of excellent grade and quality, occurs on the Clearwater River near Agatha. A little attempt has been made to exploit the marble deposits.

BONANZA GOLD MINING & MILLING CO.

Office: Lewiston. **Officers:** Geo. C. Ettershank, Pres.; Earl Parks, Sec., both of Lewiston. **Inc.:** Apr. 21, 1928. **Capital:** 250,000 shares; par value $1; 50,000 shares issued. **Property:** Bonanza group; 3 unpatented claims, unorganized dist.; Cove Gulch; Lewiston. **Development:** By 2 tunnels: No. 1, 250 ft. long; No. 2, 105 ft. long. **Ore:** Copper-silver-gold. **Remarks:** Idle.

INDEPENDENT MARBLE & LIME CO.

Office: Lewiston. **Officers:** W. F. Johnson, Pres., Nez Perce; P. R. Bevis, Sec., Lewiston. **Inc.:** Jan. 25, 1926. **Capital:** 1,000,000 shares; par value $1; 250,000 shares issued. **Property:** 220 acres held under lease and option; on Mission Creek. **Mineral sought:** Limestone.

MISSION CREEK LIME PRODUCTS CO.

Office: Columbia Bldg., Spokane, Wash. **Officers:** H. M. Wilkins, Pres.-Mgr.; O. C. Born, Sec., both of Spokane, Wash. **Inc.:** Sept. 6, 1930. **Capital:** 500,000 shares; par value $1; 3 shares issued. **Property:** Lease on Indian lands. **Ore:** Limerock.

TAMMANY OIL CO.

Office: Lewiston. **Officers:** B. F. Lorang, Pres., Lewiston. **Inc.:** Jan. 24, 1921. **Capital:** 100,000 shares; par value $1; July 13, 1921, increased to 1,000,000 shares. **Remarks:** Failed to file the reports required by law.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Gold Standard	Cave Gulch	G. C. Ettershank	Lewiston
Homestead Entry	Clearwater	G. H. Gibbs	R. F. D. No. 2, Juliaetta
Iron Cap	Peck	W. H. Rugg	Peck
Montana	Unorganized	Frank Cole	Lewiston

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

Geology and water resources of Nez Perce County, Idaho, by I. C. Russell: U. S. Geol. Survey Water-Supply Papers 53 and 54, **1901.**‡*

A geological reconnaissance across the Bitterroot Range and Clearwater Mountains of Montana and Idaho, by Waldemar Lindgren: U. S. Geol. Survey Prof. Paper 27, **1904.***

Central Idaho gold districts, by S. P. Jellum: Northwest Min. News, vol. 3, pp. 83-91, 107-114, 134-139, **1908**; vol. 4, pp. 2-6, 31-37, 66-73, **1909.***
Portland cement materials and industry in the United States, by E. C. Eckel, with contributions by E. F. Burchard and others: U. S. Geol. Survey Bull. 522, pp. 135-140, **1913.***
Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 60, art. 3, pp. 1-33, **1921.**‡

ONEIDA COUNTY

The only known mineral resources of this county are: Bentonite; various clays of excellent quality; and the reported occurrence of copper-lead ores carrying gold and silver.

BLUE JAY MINING CO.

Office: R. F. D. No. 1, Malad. **Officers:** David M. Williams, Pres.-Mgr.; T. E. Ray, Sec., both of Malad. **Inc.:** Nov. 6, 1929. **Capital:** 2,500,000 shares; par value 10c; 30 shares issued. **Property:** Blue Jay group; 6 unpatented claims, unorganized dist.; Malad. Held under lease and option from David M. Williams. **Development:** By 1 tunnel 600 ft. long and 2 short inclined shafts. **Ore:** Lead-copper-gold-silver. **Remarks:** Failed to file the reports required by law.

OWYHEE COUNTY

Owyhee is one of the historic counties of Idaho. It is situated in the southwestern portion of the State, and is bounded on the north by Canyon, Ada and Elmore counties, on the east by Twin Falls County, on the south by the State of Nevada, and on the west by the State of Oregon. Its area is 7,956 square miles, being larger than the State of New Jersey, and its population according to the 1930 census was only 4,103, or 0.5 persons to the square mile. The principal industries are farming, stockraising, and mining. Silver City, one of the oldest towns in the State, is the county seat.

The history of this county dates back to the discovery of placer gold and the rich veins of War Eagle Mountain in 1863. The first quartz mill was constructed in 1864, and for many years thereafter Owyhee was the principal mining county. The ores which occur in this county are the richest gold-silver ores ever discovered in the State, and many tons which were either milled or sent directly to smelter had a phenomenal value. Early statistics are not very reliable, but from the best sources available, an estimated production of over $40,000,000 is conservative.

The principal mineral resources of the county are silver, gold, copper, lead, zinc, antimony, diatomaceous earth, opals, manganese, and nitrates. The diversity of mineralization, the favorable geological conditions, and the wide distribution of the deposits throughout the county make it an exceptionally favorable field for prospectors and development companies, particularly because all the high-grade ore in the old mines has not been exhausted, nor have all the veins been discovered.

1930 Activities

One of the largest and most important new enterprises which was started in the State during 1929 was that of the Exploration Company of California, at the Golconda group in the South Mountain district. Late in 1929 new buildings were constructed, complete mining equipment was installed, and development work was started. Except for a period of 30 days, this company was active throughout the year. A large amount of crosscutting, drifting and sinking was done, and reports were to the effect that this work greatly increased the known resources of the property. This company's operation is the largest in the county. On account of the shortage of water, the American Gold Dredg-

ing Corporation was able to operate only during the early spring months. Three new development enterprises were started in the Reynolds Creek section of the Carson district, one of which installed a small gas-driven mill. There was a substantial increase of investigations in the Silver City district, and press stories were to the effect that a new organization had been perfected to consolidate the principal old mines on War Eagle Mountain. Two enterprises based on the presence of platinum in the volcanic glass sands lying at a depth of about 250 feet in the artesian basin of Little Valley near Bruneau were active throughout the year and one gave its project a large amount of publicity through circulars designed to further the sale of stock.

AFTERTHOUGHT MINING CO.

Office: 434 First Nat'l Bank Bldg., Boise. **Officers:** E. V. Orford, Pres.; S. L. Tipton, Sec., both of Boise. **Inc.:** Feb. 15, 1927. **Capital:** 400,000 shares common, 100,000 shares preferred; par value $1; 165,030 shares common, 3300 shares preferred issued. **Property:** Afterthought group; 1 patented, 4 unpatented claims, French dist.; Silver City; held under lease and option from E. V. Orford, Boise. **Development:** Principally by a vertical shaft 470 ft. deep, in which there are 5 intermediate levels. **Ore:** Silver-gold. **Remarks:** Annual labor only.

AMERICAN GOLD DREDGING CORPORATION

Office: 4817 W. Vernon Highway, Detroit, Mich. **Officers:** Walter J. Long, Pres.-Mgr., 8th St. & Garden Ave., Boise; L. H. Marvill, Sec., Detroit, Mich. **Inc.:** Filed in Idaho, Jan. 2, 1926. **Capital:** 300,000 shares common, 200,000 shares preferred; par value $1; 163,100 shares common, 172,200 shares preferred issued. **Property:** Meadow Creek group; 18 unpatented placer claims, containing 360 acres, part of which are held under lease and option; Steele dist.; Triangle. **Plant:** Electrically-driven table-type Yuba dredge with 2½-cu.-ft. buckets close connected. **Ore:** Placer gold. **Men employed:** Average, 10. **Remarks:** During 1927 this company constructed its dredge, new mine camp, and 4-mile electric transmission line. Dredging operations were commenced in January, 1928, continued until freezing weather interrupted, and were then resumed for a short period in the spring of 1929, after which operations were suspended and the dredge was converted from flume type to table type, with revolving screens and new stacker added. Operations were continued for a short period during the early part of the year.



AMERICAN GOLD DREDGING CORPORATION'S DREDGE

BANNER MINING & MILLING CO.

Office: Robt. Noble Bldg., Boise. **Officers:** Peter Steele, Pres.-Mgr., Silver City; F. S. Heer, Sec., Boise. **Inc.:** June 15, 1905. **Capital:** 1,500,000 shares; par value $1; 1,200,000 shares issued. **Property:** Banner group; 10 patented, 12 unpatented claims, Carson dist.; Silver City. **Development:** Over 11,000 ft. of underground workings. **Remarks:** Idle since 1923. Failed to file the reports required by law.

B. B. & M. OIL AND GAS CO.

Office: Boise. **Officers:** R. K. McDougal, Pres.; C. L. Blodgett, Sec.; D. A. Bowe, Mgr., all of Boise. **Inc.:** Dec. 18, 1930. **Capital:** 50,000 shares; par value $1; 30,000 shares issued. **Property:** Oil and gas leases on patented farm lands near Grandview.

BIG FOUR DEVELOPMENT CO.

Office: Box 1061, Boise. **Officers:** C. C. Zumwalt, Pres.-Mgr., Boise; M. H. Eustace, Sec., Caldwell. **Inc.:** Apr. 2, 1924. **Capital:** 500,000 shares; par value $1; 260,000 shares issued.

COSMOPOLITAN MINING CO., LTD.

Office: Murphy. **Officers:** Fred L. Barlow, Pres.; Mrs. Georgia Aguirre, Sec., both of Nampa. **Inc.:** Nov. 17, 1923. **Capital:** 500,000 shares; par value $1; 114,936 shares issued. **Property:** Hammond group; 5 unpatented claims, Carson dist.; Silver City. **Development:** By 1 tunnel 700 ft. long. **Ore:** Gold and silver. **Remarks:** A small amount of work by lessees.

E. B. MINING CO.

Office: Mountain Home. **Officers:** E. Dollemeyer, Pres., Chicago, Ill.; O. G. Crook, Sec., Glenns Ferry. **Inc.:** Nov. 5, 1929. **Capital:** 250,000 shares; par value $1; 177,007 shares issued. **Property:** Illinois group; 7 unpatented claims, Rough Mountain dist.; Grandview. **Development:** Principally by 1 tunnel 1300 ft. long. **Ore:** Silver. **Remarks:** A small amount of work during the summer months in rehabilitating the principal tunnel.

ECLIPSE MINING CO., INC.

Officers: J. H. Murray, Nampa. **Inc.:** May 29, 1930. **Capital:** 100,000 shares; par value $1. **Remarks:** Failed to file the reports required by law.

EMPIRE MINES CO.

Office: Robt. Noble Bldg., Boise. **Officers:** Peter Steele, Pres.-Mgr., Silver City; F. S. Heer, Sec., Boise. **Inc.:** Sept. 15, 1923. **Capital:** 2,500,000 shares; par value $1; 900 shares issued. **Property:** Trade Dollar group; 37 patented, 6 unpatented claims, Carson dist.; Silver City **Remarks:** Part of mine under lease to the Hoosier Leasing Co. Failed to file the reports required by law.

EXPLORATION COMPANY OF CALIFORNIA

Office: 351 California St., San Francisco, Calif. **Officers:** Charles Butters, Pres.; A. L. Dahl, Sec., both of San Francisco, Calif. **Inc.:** Filed in Idaho Nov. 12, 1929. **Capital:** 200,000 shares; no par value; 18,290 shares issued. **Property:** Golconda group; 15 patented, 10 unpatented claims, South Mountain dist.; Jordan Valley. Held under lease and option from Golconda Group Mining Co. and M. G. Sacrider. **Development:** Principally by 4 tunnels totaling over 3500 ft. **Plant:** 2 gas-driven compressors; gas-driven hoist; complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Men employed:** Average, 30. **Remarks:** The company was organized and the property acquired late in 1929, after which camp buildings were erected, equipment and machinery installed, and development work started. Except for a period of four weeks during 1930, work has progressed without interruption, and a large amount of crosscutting, drifting, and sinking has been done. The results of the new work are encouraging. This company is one of the largest development enterprises in the State.

GOLCONDA GROUP MINING CO.
Office: N. 610 Washington St., Spokane, Wash. **Officers:** G. A. Sonneman, Pres.-Mgr.; E. W. Sonneman, Sec., both of Spokane, Wash. **Inc.:** Jan. 11, 1908. **Capital:** 1,500,000 shares; par value 1c; all shares issued. **Property:** South Mountain group; 15 patented claims, South Mountain dist.; Jordan Valley, Ore. **Plant:** Small gas-driven compressor. **Ore:** Lead-zinc-silver. **Remarks:** Under option to Exploration Co. of California.

GOLD STANDARD MINING CORPORATION
Office: Boise. **Officers:** W. C. Dewey, Pres.-Mgr.; Victor Shawe, Sec., Boise. **Inc.:** Dec. 23, 1930. **Capital:** 2,000,000 shares common, 1,000,000 shares preferred; par value $1; shares issued, unknown. **Property:** Sunnyside group; 12 unpatented claims on Reynolds Creek, Carson dist.; Murphy. **Development:** By 1 tunnel 380 ft. long and a vertical shaft 150 ft. deep. **Ore:** Gold. **Remarks:** This company was organized and acquired its property in December. Plans have been completed to commence sinking operations at an early date. The property has a fair record of production from the old upper workings.

GOLD STAR MINING CO.
Officers: E. Lewis, Pres., Silver City. **Inc.:** Form of organization unknown. **Remarks:** Failed to file the reports required by law.

GREAT HOME MINING CO.
Office: Bruneau. **Remarks:** Name gleaned from the press. Failed to file the reports required by law when requested to do so. Supposed to be developing for platinum lying in volcanic glass sands in the artesian basin of Little Valley.

GREAT WESTERN MINES CO.
Office: Room 169, Republican House, Milwaukee, Wis. **Officers:** A. J. Kraemer, Pres., Menomonee Falls, Wis.; F. H. Mayhew, Sec., Milwaukee, Wis.; T. W. Galigher, Agent, 915 N. 21st St., Boise. **Inc.:** Nov. 29, 1920. **Capital:** 1,500,000 shares; par value 1c; 1,369,046 shares issued. **Property:** Quaker group; 10 unpatented claims, French dist.; Silver City. **Development:** By 2 tunnels: No. 1, 2600 ft. long; No. 2, 2800 ft. long. **Plant:** Electrically-driven 10x10 compressor; complete mining equipment and camp. **Ore:** Gold. **Remarks:** Failed to file the reports required by law.

HOOSIER LEASING CO.
Office: Silver City. **Officers:** Charles A. Hackney, Pres.; Peter Steele, Mgr., both of Silver City; Victor Shawe, Sec., Boise. **Inc.:** Nov. 16, 1926. **Capital:** 100,000 shares; par value $1; 35,793 shares issued. **Property:** Lease on Alpine vein from Empire Mines Co.; Carson dist.; Silver City. **Development:** Operations conducted through Blaine tunnel. **Ore:** Gold-silver. **Men employed:** Average, 4. **Remarks:** A small amount of high-grade ore was produced and marketed during the early part of the year.

IDA BELL GOLD MINES, INC.
Office: 520 16th Ave. S., Nampa. **Officers:** S. B. McCrosky, Pres.; Charles Rohm, Sec., both of Nampa. **Inc.:** Oct. 6, 1930. **Capital:** 100,000 shares; par value $1; all shares issued. **Property:** 5 unpatented claims on Reynolds Creek, held under lease and option, Carson dist.; Murphy. **Development:** By 2 tunnels: No. 1, 600 ft. long; No. 2, 150 ft. long. **Plant:** 5-ton gas-driven mill. **Ore:** Gold. **Men employed:** Average, 4. **Remarks:** A small amount of mine development work was done and the mill was installed.

IDAHO GOLD & PLATINUM MERGER MINES CO.
Office: Box 150, Bruneau. **Officers:** H. O. Milner, Pres., Twin Falls; E. A. Thom, Sec.; Phil Thom, Mgr., both of Bruneau. **Inc.:** Filed in Idaho Oct. 30, 1928. **Capital:** 5,000,000 shares; par value 10c; 3,978,426 shares issued. **Property:** 10 unpatented claims, 1380 acres, unorganized dist.; Little Valley; Bruneau. **Plant:** 30-h. p. gas-driven hoist; steam-driven compressor; complete mining equipment and camp. **Ore:** Platinum. **Men employed:** Average, 8. **Remarks:** This company's enterprise is based on

the presence of platinum in a volcanic glass sand lying at a depth of about 250 ft. in an artesian basin. In 1929 work was started on sinking a vertical shaft lined with concrete. This work was continued throughout 1930 to a total depth of approximately 170 ft. The funds were obtained from a 1 mill stock assessment, levied on May 15, and from the sale of stock, which was furthered by extensive advertising.

IMPERIAL MINING & MILLING CO., LTD.
Office: 1025 University Bldg., Denver, Colo. **Officers:** B. M. Webster, Sec., Denver, Colo. **Inc.:** Mar. 13, 1903. **Capital:** 500,000 shares; par value $1; all shares issued. **Property:** Imperial Lode; 1 patented claim, French dist.; Silver City.

NEVER SWEAT MINING CO.
Office: Nampa. **Officers:** Windsor J. Lloyd, Pres.; D. L. Rhodes, Sec., both of Nampa. **Inc.:** July 6, 1922. **Capital:** 50,000 shares; par value $10; 27,000 shares issued. **Property:** Never-Sweat group; 12 unpatented claims, French dist.; Silver City. **Development:** By 2 tunnels: No. 1, 2200 ft. long; No. 2, 1100 ft. long, in which is a vertical shaft 50 ft. deep. **Plant:** MINE: Electrically-driven compressor and complete mining equipment. MILL: 50-ton mill; fine grinding, amalgamation plates, and concentrating tables. Complete mine camp. **Ore:** Silver-gold. **Remarks:** Mill operated for a few days on ore which was extracted by 2 lessees.

OWYHEE DEVELOPMENT CO., INC.
Officers: S. D. Grammer, Reynolds. **Inc.:** Sept. 29, 1930. **Capital:** 500,000 shares; par value $1. **Remarks:** Failed to file the reports required by law.

OWYHEE GOLD MINING CO.
Office: Nampa. **Officers:** M. D. Polk, Pres.; V. C. Belknap, Sec., both of Nampa; John B. Platts, Mgr., Wallace. **Inc.:** Sept. 3, 1925. **Capital:** 500,000 shares; par value $1; 353,000 shares issued. **Property:** Mountain Chief group; 3 unpatented claims, French dist.; Silver City. **Development:** Principally by 3 tunnels: No. 1, 200 ft.; No. 2, 175 ft.; No. 3, 850 ft. Total depth 400 ft. **Plant:** 50-ton amalgamation mill. **Ore:** Gold. **Remarks:** Annual labor only.

OWYHEE SILVER MINES CO.
Office: Mountain Home. **Officers:** W. C. Dodge, Pres.; Frank Dodge, Sec.; Charles Sayko, Mgr., all of Mountain Home. **Inc.:** June 2, 1928. **Capital:** 2,500,000 shares; par value 10c; 1,585,000 shares issued. **Property:** Lucky Day group; 7 unpatented claims, Rough Mountain dist.; Grandview. **Development:** By 1 tunnel 300 ft. long. **Plant:** Gas-driven hoist; 10-stamp mill and amalgamation. **Ore:** Silver. **Remarks:** Failed to file the reports required by law.

PIXLEY BASIN MINING CO.
Office: Boise. **Officers:** C. E. Beymer, Pres.; P. G. Bertlesen, Sec., both of Boise. **Inc.:** April 11, 1930. **Capital:** 1,000,000 shares; par value 1c; 1,704 shares issued. **Property:** 6 patented claims, held under lease and option from the Castle Creek Mining & Milling Co., Steele dist.; Grandview. **Development:** Principally by 1 tunnel 870 ft. long. **Plant:** A small gas-driven flotation concentrator. **Ore:** Silver. **Men employed:** Average, 2. **Remarks:** Rehabilitation work necessary for sinking a shaft was commenced late in the year.

WAR EAGLE CONSOLIDATED MINING CO.
Office: 919 Real Estate Trust Bldg., Philadelphia, Pa. **Officers:** Frank S. Lewis, Pres.; Edwin H. Lewis, Asst. Sec., both of Philadelphia. **Inc.:** Apr. 22, 1907. Charter forfeited Dec. 1, 1912. **Capital:** 60,000 shares preferred, 240,000 shares common; par value $50; all shares issued. **Property:** South Oro Fino and Mahogany groups; 8 patented, 2 unpatented claims, French dist.; Silver City. **Remarks:** Company operations suspended in 1923, since which time occasional lessees have performed a little work. Company states property is under lease and option to Kirby Thomas of New York City.

WAR EAGLE MINING & MILLING CO.

Office: Boise. **Officers:** Howard C. Price, Pres., Portland, Ore.; E. P. Barnes, Sec., Boise. **Inc.:** Jan. 4, 1927. **Capital:** 1,000,000 shares; par value 10c; 510,000 shares issued. **Property:** Red Jacket group; 5 unpatented claims, French dist.; Silver City. **Development:** 3 tunnels, the principal one of which is over 2000 ft. long. **Plant:** Electrically driven compressor; complete mining equipment and camp. **Ore:** Gold and silver. **Men employed:** Average, 2. **Remarks:** A small amount of work during the summer months.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Addie Group	French	F. M. Orem	Salt Lake City, U.
American Eagle et al.	Carson	Idawa Gold Mng. Co.	Boise
Browney	Carson	Henry Hugg	Silver City
Chief	Unorganized	Mrs. Lois Steen	Oreana
Daly Group	Carson	J. W. Daly	Silver City
De Lamar	Carson	W. R. Helm	Jordan Valley, Ore.
Deluge et al.	Carson	John Grete	Silver City
Demming et al.	Steele	Demming Ex. Co. Trst	Nampa
Dubuque et al.	Carson	Elisha Lewis	Silver City
Gold Bug	French	Charles Cook	Silver City
Gold Hen et al.	Carson	H. P. Cox	Murphy
Gold Mile et al.	Carson	V. Richardson	Silver City
Golden Gate	Carson	Asher A. Getchell	Twin Falls
Happy Boy	Unorganized	A. T. Evans	Mountain Home
Henrietta	Carson	C. L. Norcross	168 Dartmouth St., Boston, Mass.
Home et al.	Carson	W. J. Stoddard	Silver City
Homestake	French	Mrs. George Schlack	Silver City
Lindy et al.	Carson	H. H. Bonnell	Silver City
Little Chief	Carson	James Carrolan	De Lamar
Meadow Lark	Carson	Willenegger Bros.	De Lamar
Mountain Chief	Carson	F. Robinson	Nampa
Nellie Ann No. 1	Carson	W. W. Jones, M. D.	Jordan Valley, Ore.
Ontario	Carson	Mrs. J. Mattenson	Boise
Owyhee et al.	Carson	Emma Brumbaugh	Silver City
Pauper	Carson	R. H. Leonard	Silver City
Perseverance	Flint	R. V. Thurston	Payette
Poorman	French	Fred Grete	Silver City
Potosi	Carson	Jack Stoddard	Silver City
Rich Gulch	Carson	Sam Williams	Tulsa, Okla.
Roosevelt et al.	Carson	R. Noble Est.	Boise
Rose et al.	Carson	James McNally	De Lamar
Ruth	French	Geo. Westlake	Hailey
San Juan et al.	French	Mary Grete Est.	Silver City
Silver Leaf et al.	French	N. C. Chapman	Boise
Snow Storm et al.	French	Lafe Boone	Boise
Star Gr.	Carson	Lewis Bros.	Silver City
Sugar Loaf	French	A. P. Nugent	Silver City
Sunnyside	Carson	I. E. Barber, Trus.	Boise
Tango et al.	Carson	A. J. Swan	Nyssa, Ore.
Tennesse et al.	Carson	John Nemanic	Silver City
Village Blacksmith	Carson	Duncan & Lackey	Silver City
Wennerstein Gr.	Carson	Andrew Wennerstein	Nampa
War Eagle Gr.	French	Wm. Healy	Boise

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

Precious stones; opal, by G. F. Kunz: U. S. Geol. Survey Mineral Resources, **1893**, p. 698.*

A geological reconnaissance across Idaho, by G. H. Eldridge: U. S. Geol. Survey Sixteenth Ann. Rept., pt. 2, pp. 217-276, **1895**.*

An Idaho silver-gold camp (Florida Mountain district), by F. G. Corning: Eng. and Min. Jour., vol. 60, p. 244, Sept. 14, **1895.**§

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey Twentieth Ann. Rept., pt. 3, pp. 65-256, **1900.***

Some Idaho mining districts, by Arthur Lakes: Mines and Minerals, vol. 22, pp. 203-206, December, **1901.***

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, pp. 42, 71 and 173, **1902.***

Notes on geology of southwestern Idaho and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Bull. 217, **1903.***

Preliminary report on artesian basins in southwestern Idaho and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Water-Supply Paper 78, **1903.**‡

Description of the Silver City quadrangle, by Waldemar Lindgren: U. S. Geol. Survey Geol. Atlas, Folio No. 104, **1904.***

Description of the Nampa quadrangle, by Waldemar Lindgren: U. S. Geol. Survey Geol. Atlas, Folio No. 103, **1904.***

South Mountain, Idaho, by R. N. Bell: Eng. and Min. Jour., vol. 83, pp. 283-284, Feb. 9, **1907.**§

The De Lamar mine of southwest Idaho, by H. S. Brown and F. G. Mudgett: California Jour. Tech., vol. 12, pp. 35-41, **1908.****

Some gold deposits of the Northwest, by F. C. Lincoln: Eng. and Min. Jour., vol. 92, p. 408, Aug. 26, **1911.**§

Nitrate deposits in southern Idaho and eastern Oregon, by G. R. Mansfield: U. S. Geol. Survey Bull. 620, pp. 19-44, **1915.***

Reopening of old De Lamar mine under way, by R. N. Bell: Eng. and Min. Jour., vol. 110, pp. 538-539, Sept. 11, **1920.**§

An occurrence of naumannite in Idaho, by E. V. Shannon: Am. Jour. Sci., 4th ser., vol. 50, pp. 390-391, November, **1920.**‡

A preliminary reconnaissance of the gas and oil possibilities of southwestern and south-central Idaho, by J. P. Buwalda: Idaho Bureau of Mines and Geology Pamphlet 5, **1923.***

Geology and water resources of the Bruneau River basin, Owyhee County, Idaho, by A. M. Piper: Idaho Bureau of Mines and Geology Pamphlet 11, **1924.***

Discovery of a Balkan fresh-water fauna in the Idaho formation of Snake River valley, Idaho, by W. H. Dall: U. S. Geol. Survey Prof. Paper 132, pp. 109-115, **1924.**‡

Geology and metalliferous resources of the region about Silver City, Idaho, by A. M. Piper and F. B. Laney: Idaho Bureau of Mines and Geology Bull. 11, **1926.***

The geology and ore deposits of the South Mountain mining district, Owyhee County, Idaho, by R. E. Sorenson: Idaho Bureau of Mines and Geology Pamphlet 22. **1927.***

PAYETTE COUNTY

The only known mineral resources of this county are diatomaceous earth; various clays of excellent quality; and natural gas, which has been developed at Payette.

Late in 1926 the Idaho Petroleum Co. at Payette acquired the property and equipment owned by the Idaho Oil & Gas Co., whose well was 1100 feet deep. Work was then started sinking the well to a further depth and was carried on intermittently throughout 1927, until a total depth of 1800 feet was gained. The encountering of gas was reported at the depths of 1485 and 1550 feet. During 1928 the assets of the Idaho Petroleum Co. were acquired by the Idaho-Oregon Petroleum Corporation through an exchange of stock; and an additional well was sunk to a depth of 1180 feet to further prove the extent of the gas. No operations were conducted during 1930 by this company, which reported that its property was under lease to the International Finance Corporation, although such a company has never qualified to do business in Idaho. Articles of incorporation filed by two other oil companies indicated that they expected to operate in this county.

IDAHO-OREGON OIL & GAS CO.

Office: Payette. **Officers:** L. Haarmann, Pres.-Mgr., Payette; J. H. Forbes, Sec., Caldwell. **Inc.:** May 12, 1923. **Capital:** 10,000 shares; par value $10; 6,500 shares issued. **Property:** Oil and gas leases on patented farm land, Little Willow Creek; Payette. **Plant:** Complete small well-drilling equipment. **Mineral sought:** Oil and gas.

IDAHO-OREGON PETROLEUM CORPORATION

Office: Payette. **Officers:** L. V. Patch, Pres.-Mgr.; C. A. Smith, Sec., both of Payette. **Inc.:** Dec. 1, 1927. **Capital:** 5,000 shares; no par value; 921 shares issued. **Development:** 2 wells: one 1800 ft. deep and one 1180 ft. deep. **Plant:** Complete well-drilling equipment, steam-driven. **Mineral sought:** Oil and gas. **Remarks:** Idle throughout the year. This company absorbed the assets of the Idaho Petroleum Co. through an exchange of stock. Property leased to the International Finance Corporation, which has never filed articles of incorporation in Idaho nor the reports required by law.

INTERMOUNTAIN BASIN OIL & GAS CO.

Officer: Irl Bishop, New Plymouth. **Inc.:** Nov. 28, 1930. **Capital:** 100,000 shares; par value $1. **Remarks:** Failed to file the reports required by law.

PAYETTE VALLEY OIL & GAS CORPORATION

Office: Payette. **Officers:** J. C. Palumbo, Pres.; B. L. Stamey, Sec., both of Payette. **Inc.:** Apr. 28, 1930. **Capital:** 15,000 shares; par value $10; 24 shares issued.

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Notes on geology of southwestern Idaho and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Bull. 217, **1903.***

Description of the Nampa quadrangle, by Waldemar Lindgren and N. F. Drake: U. S. Geol. Survey Geol. Atlas, Folio No. 103, **1904.***

Gas and oil prospects near Vale, Oregon, and Payette, Idaho, by C. W. Washburne: U. S. Geol. Survey Bull. 431, pp. 26-55, **1909.***

Oil and gas possibilities of eastern Oregon, by J. P. Buwalda: Oregon Bureau of Mines and Geology, vol. 3, No. 2, **1921.***

A preliminary reconnaissance of the gas and oil possibilities of southwestern and south-central Idaho, by J. P. Buwalda: Idaho Bureau of Mines and Geology Pamphlet 5, **1923.***

POWER COUNTY

The most active development work done in this county during the year was that of the Independent Mining Co. at its lead-silver prospect near Rockland. The oil development companies were practically idle throughout the year.

A few placer mines along the Snake River produced and marketed a small amount of placer gold.

ARBON VALLEY OIL CO.

Office: Pocatello. **Officers:** D. C. Ray, Pres.; L. B. Evans, Sec., both of Pocatello. **Inc.:** Feb. 20, 1923. **Capital:** 250,000 shares; par value $1; 222,500 shares issued. **Property:** Oil leases on patented farm land which have been assigned to Gem State Petroleum Co.

GEM STATE PETROLEUM CO.

Office: Pocatello. **Officers:** H. C. Harris, Pres.-Mgr.; S. G. Baker, Sec., both of Pocatello. **Inc.:** Oct. 2, 1923. **Capital:** 300,000 shares; par value $1; 304,630 shares issued. **Property:** Oil and gas leases on approximately 5,000 acres of farm land in Arbon Valley. **Development:** 10-inch well, 3450 ft. deep. **Mineral sought:** Oil and gas. **Remarks:** "Depth of well May 31, 1927: 2550 ft. Depth of well May 31, 1928: 2810 ft. Depth of well May 31, 1929: 3450 ft. Depth of well July 2, 1930: 3845 ft."

IDAHO RESEARCH AND DEVELOPMENT CO.

Office: 805 S. 10th Ave., Pocatello. **Officers:** Geo. Williams, Pres., Pocatello; Geo. Stoll, Sr., Sec.-Mgr., 119 W. Roy St., Seattle, Wash. **Inc.:** Aug. 2, 1920. **Capital:** 200,000 shares; par value $5; 123,504 shares issued. **Property:** Oil and gas leases in Arbon Valley. **Plant:** 15-h. p. steam-driven well-drilling rig and equipment. **Mineral sought:** Oil and gas. **Remarks:** Idle throughout the year. Leases assigned to Gem State Petroleum Co.

INDEPENDENT MINING CO.

Office: Rockland. **Officers:** G. B. Geswaldi, Pres.-Mgr., Kellogg; Jennie Mann, Sec., Rockland. **Inc.:** Oct. 24, 1925. **Capital:** 2,000,000 shares; par value 25c; 1,100,000 shares issued. **Property:** Independent group; 16 unpatented claims, unorganized dist.; Rockland. **Development:** By 1 shaft 230 ft. deep. **Plant:** Gas-driven 8x10 Sullivan compressor; small air-driven hoist; complete mining equipment. **Ore:** Lead-silver. **Remarks:** Annual labor only.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Bannock Peak	Unorganized	Frazier & McClandon	American Falls
Diamond et al Pl.	Snake River	Wm. M. Main	Aberdeen
Golden Clift Pl.	Snake River	Geo. J. Wheeler	American Falls
.....Pl.	Snake River	M. Launsberry	Minidoka
.....Pl.	Snake River	L. N. Rosencrans	American Falls
.....Pl.	Snake River	J. O. Payne	American Falls
.....Pl.	Snake River	Wm. & C. Wagstaff	American Falls

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

A preliminary report on the clays of Idaho, by F. H. Skeels: Idaho Bureau of Mines and Geology Bull. 2, **1920.***

Geography, geology, and mineral resources of the Fort Hall Indian Reservation, Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 713, **1920.**‡

Possibilities of petroleum in Power and Oneida counties, Idaho, by A. M. Piper: Idaho Bureau of Mines and Geology Pamphlet 12, **1924.****

SHOSHONE COUNTY

Shoshone County lies in the northern part of the State, and is bounded on the east by the State of Montana, on the south by Clearwater County, on the west by Latah, Benewah, and Kootenai counties, and on the north by Bonner County. In area it is one of the largest counties in the State covering 2,597 square miles. Lying approximately in the geographical center of the county is the famous Coeur d'Alene mining district, which contains an area of approximately 400 square miles, and which is known throughout the world as one of the largest lead-silver producing regions of the United States.

The entire county is mountainous, containing but a very small area of agricultural land, and is entirely dependent upon the mining and timber industries, particularly mining. These industries are well established, and it is to them that credit must be given for making this county one of the wealthiest in the State, as well as the county having the smallest public debt, one of the lowest tax levies, and the greatest per capita wealth.

It is the largest and most important mining county in the State, and for many years has produced 90 per cent of the lead and 85 per cent of the silver that has been derived from Idaho mines. Its importance can be better judged from the fact that Idaho ranks second in the United States in the production of lead and third in the production of silver. In addition to its production of lead and silver, Shoshone is the principal zinc producing county in the State, and one of the most important gold producers. The other metals which occur

in commercial quantities are copper, antimony, and tungsten. At one time copper was one of the principal metal products and the largest copper mines ever developed in the State were those near Mullan.

The county is served by the O.-W. R. & N. and Northern Pacific railroads, by the Coeur d'Alene-Yellowstone State highway, which is paved between Mullan, Wallace, and Pine Creek, and by well-maintained county roads, which reach the principal mines. Wallace is the county seat and the civic and business center. Kellogg, the home of the Bunker Hill & Sullivan M. & C. Co., is the largest town. The 1930 census accredited the county with a population of 19,060.

1930 Activities

The year 1930 was one of curtailment in production, plant construction, new enterprises, and mine development work. Most of the large companies reduced their production, and some of them suspended entirely. The totals of production, number of men employed, and expenditures for construction and mine plant installation were the smallest that the county has witnessed for many years. The Sherman Lead Co. was the only new dividend paying company; however, the dividend paid in 1930 was from the 1929 profits, and production was suspended in March. Practically all of the large mines, whether they suspended production or not, maintained an active development campaign throughout the year. This work, with scarcely an exception, greatly increased the known ore reserves. A large number of companies improved their mine and mill plants. With increased ore reserves and surface plants in excellent condition, the mining industry of this county is in a position to return rapidly to normalcy as soon as metal prices reach a higher level.

The attention which all of the large operators are giving to safety conditions and supervision was reflected in the very small number of fatal accidents. Working conditions throughout the Coeur d'Alene district are exceptionally favorable. All of the mines are well ventilated, and the operators devote much time, thought, and money to making the mines safe and to keeping them in such a condition that the men can do a full day's work without expending the energy which is required in poorly ventilated mines. It can safely be said that the mines of this district are the best ventilated ones in the United States. The subject of ventilation in the Coeur d'Alene mines was studied in 1930 by G. E. McElroy of the U. S. Bureau of Mines in cooperation with the Idaho Bureau of Mines and Geology. The publication of Mr. McElroy's report on "Mine Ventilation in the Coeur d'Alene Mining District," is expected early in 1931. The solarium, installed by the Bunker Hill & Sullivan M. & C. Co., in 1929, was a distinct contribution to welfare work. It continued to be used throughout the year by a large number of the company's employees and their families, and the results have been beneficial.

The principal producing mines in which the ore reserves were increased by new development work, the most important new construction, new mine plant installations, new enterprises, and outstanding development work can best be reviewed by companies.

The extensive development work in the Bunker Hill mine has greatly increased its resources. The completion of a winze from the 1,900 to the 2,000-foot level and the opening of the ore bodies at that depth, where the ore and geological conditions were found to be normal, together with the opening on Nos. 9 and 10 levels of the new ore first disclosed in 1929 on No. 6 level, have added many years to the life of the mine. The company increased its production but decreased its dividends during the year.

The many plant betterments which were added greatly increased the efficiency of the enterprise. The principal ones were the remodeling of all mills to conform with the most recent developments in flotation, many of which have been evolved under this company's direction, and the doubling of the capacity of the lead smelter. The expenditure for these and other plant improvements constituted the largest expenditure for new plant betterments made in the State during the year. The Crescent or Hooper tunnel, which was started late in 1928, was completed in 1930, and a 500-foot vertical



PARTIAL VIEW, MINE AND MILL PLANTS, BUNKER HILL & SULLIVAN M. & C. CO.

raise was driven to the upper levels. Production from this property was maintained throughout the year.

The enlargements and modernization of the smelter, commenced in 1929, were completed early in 1930. The production for the year, as a result of treating the entire output of the Bunker Hill mines, was the largest of any year since the smelter started operating.

The Bunker Hill & Sullivan M. & C. Co., because of the magnitude of the Bunker Hill mine, has become more of a manufacturing than a mining operation, and with its smelter, mills, experimental plants, and organization, is one of the largest organizations of its kind in the world.

The Hecla Mining Co., which is recognized as one of the principal lead-silver mining companies in the United States, increased its ore reserves in the Hecla mine. Development work, which consisted principally of putting the lower levels in condition for production, was conducted throughout the year. Normal production was maintained until September, when the continued low price of metals caused a reduction to a five-day-week basis. The mine and mill plants were further improved. The usual dividend rate was maintained. The company was actively engaged in developing two other properties in the Coeur d'Alene district and one in Lemhi County, and it maintained throughout the year an active scouting and investigating campaign in a search for additional properties. The management is progressive, and the life of the Hecla mine is assured for many years.

The Morning mine of the Federal Mining & Smelting Co., which is one of the oldest mines in the Coeur d'Alene district in point of continuous production, as well as one of the largest lead-silver-zinc mines in the United States, was maintained at capacity production throughout a large part of the year. The number of years that this record will continue is unknown, as development work on the 3,250, 3,450, and 3,650-foot levels has proved the ore bodies to be larger and more extensive than those on any of the upper levels, and the ore on the 3,450-foot level has been found to be richer in metal content than that on any of the levels above it.

During the year the shaft was extended to a depth of 153 feet below the 3,650-foot level, and the vein was crosscut on the 3,650-foot level. The 3,250-foot level was opened for the full length of the ore, and the 3,450-foot level was opened for a length of 590 feet. The mine and mill plants were greatly enlarged, and the mill was further improved to conform with recent developments in flotation practice. In addition to the ore mined under company operation, a large tonnage was extracted from the upper levels by lessees.

The Page mine of the Federal Mining & Smelting Co., in Government Gulch near Kellogg, was operated throughout the year at capacity production. The mill was enlarged and improved, principally by the addition of new crushing equipment. Additional mine and camp buildings were erected, a large amount of new mining equipment was installed, and approximately 1,000 feet of development work in the Black Hawk ground on the 1,200-foot level of the Page shaft was done. The success of this operation can be accredited entirely to flotation, because with the old milling methods it was impossible to mine and mill the ore at a profit.

The Sullivan Mining Co., which suspended production at the Star mine in 1928, pending completion of the zinc plant, and which resumed in February, 1929, maintained production at the rate of approximately 450 tons per day until April, 1930, when the low price of metals caused a suspension. The 4,000-foot level of the Star mine is connected with the 2,000-foot level of the Hecla mine by the Star crosscut, which is 8,900 feet long. This crosscut made a blind connection with the Star vein at a point 2,800 feet below the Star tunnel. After production was suspended in April, work was continued in driving the vertical operating raise and the vertical shaft which are to connect the Star crosscut and the upper tunnels of the Star mine. Construction of the cadmium recovery plant, which was started in 1929, was completed, and the plant was put into operation in May. In April the zinc plant was put on a greatly curtailed basis. The zinc and cadmium produced by the electrolytic plants of this company are of an especially high

grade and are finding a ready market, the zinc selling at an increase in price over that of any other zinc metal. The electrolytic plants of this company now constitute one of the largest and most important enterprises in the Pacific Northwest, and one which insures the permanence of the mining industry in Shoshone County.

One of the largest expenditures made by any company in the Coeur d'Alene district during the year for mine development, new mine plant installation, and new mill was made by the Jack Waite Mining Co. An extension of the railroad was graded for a distance of three miles, the principal haulage tunnel was entirely rehabilitated and relaid with heavier rails, a new I-R compressor was added to the mine plant, a new mill building was constructed, and the installation of entirely new milling equipment was started. It was expected to have the mill fully completed and ready for operation early in 1931. The new mine development work greatly increased the known ore reserves, and a large tonnage of crude ore and concentrate was marketed.

The extensive improvement campaign started in 1929 by the Sunshine Mining Co., which consisted of rebuilding the principal haulage tunnel, No. 5, of constructing a new hoist station and skip pockets, new inclined shaft, and new buildings, of installing a new hoist and compressor, and of enlarging the mill to 500-ton capacity, was completed early in 1930, and capacity production was maintained throughout the year. The inclined shaft was sunk from the 1,300 to the 1,700-foot level, and a large amount of drifting on the 1,300-foot level and the levels above it was done. This work greatly increased the ore reserves of the mine. The ore on the 1,300-foot level was found to be of higher grade and greater extent than on any of the upper levels. This company is one of the largest producers and dividend payers in the Coeur d'Alene district, although the low price of silver caused a reduction in the dividend rate.

One of the principal mines in the Coeur d'Alene district to be placed on a profitably operating basis in 1929 and the only addition to the list of dividend paying mines in the State during 1930 was the Sherman Lead Co. This company's mine is connected with No. 5 tunnel of the Hercules Mining Co., through which it is operated, and the ore is sold to the Hercules custom mill at Wallace. Production was maintained until March, when the low price of metals caused a suspension. However, development work was continued, and over 2,500 feet of raises and drifts were run. This work exposed a large amount of new ore, which greatly increased the known resources of the mine. Control of this company is held by the Tamarack & Custer Consolidated Mining Co.

One of the few companies which maintained production throughout the year was the Dayrock Mining Co.; however, it reduced to a one-shift basis in March and later to six days a week. Over 3,000 feet of crosscuts, drifts, and raises were run on the four principal levels of the Dayrock mine. This work greatly increased the known ore reserves, and the mine is fast developing into one of the most important producers in the Coeur d'Alene district. During the year three additional properties, the Option, Black Cloud, and California groups, were acquired. This company now has a large, compact holding as compared with three claims held under lease and option when it was formed in 1924.

The Golconda Lead Mines enlarged and improved its mine plant, installed a large electrically driven hoist and compressor, extended its new shaft from the 1,400 to the 1,800-foot level, and performed a large amount of development work on the 1,600 and 1,800-foot levels. The ore opened on these levels greatly increased the known resources of the mine. Capacity production was maintained until March 15, when the low price of metals forced a suspension; however, milling operations on a one-shift basis were resumed on August 1. The company obtained the property owned by the Square Deal Mining & Milling Co. under lease and option and started a crosscut on the 1,400-foot level to develop it. An important discovery of high-grade lead-silver ore was made late in the year on the surface of the Mayflower group about 2,000 feet

east of the known ore bodies. Logging operations exposed the ore, and work was started in driving a tunnel to explore it. This company is fast becoming recognized as one of the principal operations in Shoshone County.

At the Galena mine of the Callahan Zinc-Lead Co., the principal work consisted of crosscutting to and drifting on the 800 and 1,000-foot levels on the new south vein, which was discovered by diamond drilling in 1928 and opened on the 600-foot level in 1929. This work resulted in exposing such a substantial amount of new ore that the company is fast becoming reestablished as one of the principal operators in the Coeur d'Alene district. As the Galena mine is located in the so-called "dry belt," in the south side of the district, the success it is attaining, particularly as ore and geologic conditions are improving at depth, has been an important factor in stimulating development throughout this section.

At the Sidney mine, operated by the Sidney Leasing Co., the principal shaft was extended 200 feet. A large amount of development work was performed, and production was maintained until July. The new development work, particularly on the lower levels, was successful in greatly increasing the known ore reserves of this mine. The fact that this mine is located on Pine Creek and that the ore is improving in grade and extent as depth is gained has been significant in proving that this section of the Coeur d'Alene district is not without merit; and the success of this enterprise has greatly stimulated mine development in this part of the district.

The Tamarack & Custer Consolidated Mining Co., which operates one of the substantial producing mines of the Coeur d'Alene district, maintained a steady output and an extensive development campaign until late in March, when production was entirely suspended. A crew of 12 men was retained on development work, which consisted of sinking a 200-foot winze on the vein in No. 7 tunnel. It was reported that this work indicated the existence of a new ore body. The development and exploratory work performed during the year amounted to over 2,400 feet. The company's ore is transported in railroad cars to the Hercules mill, which buys the entire output.

The Gold Hunter Mines, Inc., at Mullan, one of the oldest mines in Shoshone County in point of continuous production, maintained capacity output and an extensive development campaign during the first three months of the year. All operations were then suspended because of the low price of metals.

The Constitution Mining & Milling Co. maintained mine development and production until July, when the low price of metals compelled suspension. The principal development work consisted of sinking the vertical shaft from the 600-foot level to the 800-foot level and drifting on the latter level. The new ore exposed by this work greatly increased the known reserves of the mine. The company's expenditure for mine development and mine plant improvement was among the largest expenditures in the Pine Creek section.

Construction of the new mill, which was started late in 1929, by the Pine Creek Lead-Zinc Mining Co. was completed; No. 3 tunnel was rehabilitated; and the mine and mill were placed in condition for production. This company's expenditure was one of the largest made in the Pine Creek section during the year.

The Douglas Mining Co., Ltd., whose property is located on Pine Creek near the Constitution, during the first four months of the year maintained an active development campaign, consisting principally of drifting on the vein at the 300-foot level of the inclined shaft. The new ore developed by this work was one of the important disclosures of the year in the Pine Creek district.

The Atlas Mining Co. conducted active mine development work during the early part of the year, after which this work was suspended. Ore bins and a 2,000-foot aerial tramway, connecting the mine and the mill of the Gold Hunter Mines, Inc., were constructed. Upon the completion of the tramway, mine work was resumed. The mine development consisted of 1,490 feet of crosscuts and drifts, 920 feet of diamond drilling, and the extraction of sufficient ore to make a one-car shipment of concentrate.

The Granada Lead Mines, Inc., a new organization, whose property adjoins that of the Golconda Lead Mines, installed a power line, an electrically driven compressor, and complete mining equipment; erected mine buildings; and commenced driving a long crosscut tunnel. Work on the tunnel was continued without interruption, and it was extended over 500 feet. Two veins containing a good showing of lead-silver ore were encountered. These disclosures greatly increased the attractiveness of the enterprise.

The Metropolitan Mines Corporation, Ltd., whose property is located on Big Creek, extended the power line to its mine and installed an electrically driven compressor during the early part of the year, after which the principal tunnel was extended without interruption.

The Bunker Chance Mining Co., whose property is in Milo Gulch near Wardner, installed an electrically driven compressor and complete mining equipment, and continued its principal tunnel throughout the year.

The New Jersey Consolidated Mines Co., at the King of Pine Creek mine, during the early part of the year extended its vertical shaft to the 300-foot level and did a large amount of drifting on the vein on this level. This work greatly enhanced the possibilities of this enterprise. The work was hampered by an exceedingly large flow of water, which made it necessary to install powerful electrically driven pumps. This company's expenditures were among the largest in the Pine Creek section during 1930.

The Coeur d'Alene Mines Corporation, which is operating the Mineral Point and St. Elmo groups near Osburn, conducted an active development campaign, which consisted of extending the principal tunnel approximately 2,000 feet.

The Stratton Silver Summit, Inc. was one of the principal development enterprises in the Coeur d'Alene district which maintained work throughout the year. The crosscut was extended 1,676 feet to a total distance of 4,716 feet, and 540 feet of a drift was driven west from the crosscut at a point 4,300 feet in from the portal. The drift encountered ore minerals containing good values in silver. This encouragement greatly enhanced the possibilities for a successful outcome.

The Mutual Mines Development Co. was active throughout the year and commenced building a flotation concentrator. Definite information as to its activities and mill construction is lacking.

The General Mines Corporation received a larger amount of publicity from the press than any other mining company in the State. Press reports were to the effect that the principal tunnel was extended, and that this work revealed a mineralization dissimilar to any other in the district.

The Ajax Mining Co. drove over 2,000 feet of tunnels and drifts on the Bixby tunnel level during the year. This company is one of the oldest development enterprises in the Coeur d'Alene district and one which has conducted work without interruption for many years. The development work was encouraging. The company's persistence is deserving of success.

The Independence Lead Mines Co. conducted work throughout the year. A 100-foot vertical shaft was sunk on the vein, and a large amount of drifting at the bottom of the shaft was done. This work encountered a good showing of lead-silver ore.

Little Sunshine Mining Co. added a compressor and an air-driven hoist and started sinking a vertical shaft in April. The shaft is located in the principal tunnel at a distance of 4,200 feet from the portal. It was completed to a distance of 300 feet, and a large amount of exploratory work was done on two levels.

The Coeur d'Alene Mining & Smelting Co., whose property is located on Nine Mile Creek and whose stock is controlled by residents of Wallace, extended its principal tunnel without interruption.

The mill owned by John P. George, operator of the Roberts lease at Wardner in the old Last Chance mine of the Bunker Hill & Sullivan M. & C. Co., was destroyed by fire in June. A new mill was constructed and placed in operation during the closing months of the year.

The United Metals Co., at the Black Bear group, was active for six months and extended the principal tunnel 900 feet.

The Pearson Mining Co., in the St. Joe district near Falcon, was active throughout the year in extending its long crosscut.

Companies whose work amounted to more than the legal requirement and which were active during a large part of the year were as follows:

Blue Eagle Mining Co.; Blue Ribbon Mining Co.; Commercial Traveler Mining Co.; Keystone Mining Co.; North Star Mining & Development Co.; Sonora Mining & Milling Co.; and Vendetta Chief Mining Co.

AETNA MINING & MILLING CO., LTD.

Office: Wallace. **Officers:** P. J. Maggy, Pres.; W. A. Devan, Sec., both of Wallace. **Inc.:** March 9, 1915. **Capital:** 1,500,000 shares; par value 10c; all shares issued. **Property:** 4 unpatented claims, Lelande dist.; Burke. **Development:** By 2 tunnels: No. 1, 250 ft. long; No. 2, 762 ft. long. **Remarks:** Annual labor only. A stock assessment of 2 mills was levied on Oct. 4.

AJAX MINING CO.

Office: 714 W. 14th Ave., Spokane. **Officers:** F. Moriarity, Pres.; J. A. Havighorst, Sec., both of Spokane, Wash.; A. G. Anderson, Mgr., Burke. **Inc.:** Oct. 20, 1902. **Capital:** The capital stock was increased to 2,000,000 shares on July 6, 1925; par value $1; 1,614,122 shares issued. **Property:** 17 patented, 3 unpatented claims, Lelande dist.; Burke. **Development:** Principally by 3 tunnels and 3 shafts. Total development approximately 32,000 ft. Main or Bixby tunnel is located in Gorge Gulch a short distance above the town of Burke. This tunnel intersects the Ajax vein at a distance of 6000 ft., at which point is a 400-ft. vertical shaft with over 2000 ft. of drifting at the 200 and 400-ft. levels. **Plant:** MINE: Type-10 I-R 550-cu.-ft. electrically-driven air compressor; I-R No. 50 steel sharpener; Hoar shovel. **Ore:** Lead-silver. **Men employed:** Average, 12. **Remarks:** Over 2000 ft. of crosscuts and drifts were run on the Bixby tunnel level. Stock assessments were levied during the year as follows: Jan. 7, 1c; June 20, 1c; Oct. 31, 1c.

ALAMEDA MINING CO.

Office: Wallace. **Officers:** O. W. Lewis, Pres.; James A. Wayne, Sec.-Mgr., both of Wallace. **Inc.:** Feb. 14, 1910. **Capital:** 1,500,000 shares; increased on Sept. 20, 1929, to 2,000,000 shares; par value $1; 1,500,000 shares issued. **Property:** Alameda group; 8 patented, 7 unpatented claims, Lelande dist.; Wallace. **Development:** By 2 tunnels: No. 1, 500 ft. long; No. 2, 3600 ft. long. **Plant:** Electrically-driven I-R compressor and complete mining equipment. **Ore:** Lead-zinc-silver. **Remarks:** Failed to file the reports required by law. A stock assessment of 3 mills was levied on Sept. 25.

ALHAMBRA MINING CO., LTD.

Office: 504 Empire State Bldg., Spokane, Wash. **Officers:** W. J. C. Wakefield, Pres., Peyton Bldg., Spokane, Wash.; William A. Corey, Sec., Spokane, Wash. **Inc.:** Dec. 26, 1898. **Capital:** 1,000,000 shares; par value $1; 987,399 shares issued. **Property:** Alhambra group; 23 patented claims, Yreka dist.; Kellogg. **Development:** Approximately 13,200 ft. **Ore:** Lead-silver. **Plant:** MINE: 12x12 Laidlaw-Dunn Gordon electrically-driven compressor, complete mining equipment. **Remarks:** Property under lease to Bunker Hill & Sullivan M. & C. Co., which is operating it through the Hooper tunnel on Big Creek.

ALICE MINING CO.

Office: Wallace. **Officers:** James F. McCarthy, Pres.; Leo J. Hoban, Sec., both of Wallace. **Inc.:** July 30, 1902. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** 21 patented, 2 unpatented claims, Hunter dist.; 3½ miles east of Wallace. **Development:** 10,000 ft. of underground workings. **Plant:** MINE: Complete mine camp and buildings. MILL: Partly dismantled 125-ton concentrator. **Ore:** Lead-silver. **Remarks:** Idle.

ALMA RAY MINING CO.
Office: Kellogg. **Officers:** Elmer E. Brown, Pres.-Mgr.; C. B. Forbes, Sec., both of Kellogg. **Inc.:** April 21, 1917. **Capital:** 1,500,000 shares; par value 25c; 800,000 shares issued. **Property:** Alma Ray group; 5 unpatented claims, Yreka dist.; Kellogg. **Development:** Principally by 2 tunnels: No. 1, 300 ft. long; No. 2, 480 ft. long. **Ore:** Lead-silver, copper. **Remarks:** Failed to file the reports required by law.

ALPENA COPPER MINING CO., LTD.
Office: Wallace. **Officers:** C. W. Beale, Pres.; A. H. Featherstone, Sec.; J. C. Purcell, Mgr., all of Wallace. **Inc.:** Aug. 9, 1900. **Capital:** 1,000,000 shares; par value 10c; all shares issued. **Property:** Alpena group; 6 unpatented claims, St. Joe dist.; Adair. **Ore:** Copper-gold. **Remarks:** Annual labor only.

AMAZON MANHATTAN MINING CO.
Office: Wallace. **Officers:** P. J. Maggy, Clerk, Wallace. **Inc.:** A partnership. **Property:** Amazon Manhattan group; 9 patented claims, Beaver dist.; Carbonite. **Development:** By 3 tunnels: No. 1, 510 ft.; No. 2, 1180 ft.; No. 3, 3856 ft. **Ore:** Lead-zinc-silver. **Remarks:** Idle.

AMBERGRIS CONSOLIDATED MINING CO.
Office: Wallace. **Officers:** Harry L. Day, Pres.; W. B. Heitfeld, Sec., both of Wallare. **Inc.:** Dec. 14, 1928. **Capital:** 3,500,000 shares; par value $1; 3,476,300 shares issued. **Property:** Ambergris, Guelph, and Honolulu groups; 13 patented, 10 unpatented claims, Beaver and Lelande dists.; Burke. **Development:** Mine opened and operated through No. 5 Hercules tunnel, in addition to which there are 8 intermediate tunnels and 3 shafts; total development, approximately 19,000 ft. **Plant:** Mine plant and equipment leased from Hercules Mining Co. **Ore:** Lead-silver. **Remarks:** This is a consolidation of the Ambergris Mines Co., the Guelph Mining & Milling Co., Ltd., and the Honolulu Mining Co., Ltd. Annual labor only and a small amount of work by lessees, who extracted and shipped a small tonnage of mill ore.

AMERICAN LEAD MINES, LTD.
Office: 323 Lindelle Block, Spokane. **Officers:** R. L. Brainard, Pres., Kellogg; Matt Baumgartner, Sec.-Mgr., Spokane. **Inc.:** Feb. 2, 1925. **Capital:** 1,000,000 shares; par value 10c; 527,500 shares issued. **Property:** Crescent group; 10 unpatented claims on the West Fork of Big Creek, Yreka dist.; Kellogg. **Development:** By 1 tunnel 650 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 1. **Remarks:** Annual labor only. A stock assessment of 4 mills was levied on June 12.

AMERICAN METALS CORPORATION
Office: Sun Life Bldg., Spokane, Wash. **Officers:** Jas. Riley, Pres., Tekoa, Wash.; E. D. Wilcox, Sec., Spokane, Wash. **Inc.:** Jan. 14, 1929. **Capital:** 1,000,000 shares; par value $1; no shares issued. **Remarks:** Owns no property.

AMERICAN MINING CO., LTD.
Office: Wallace. **Officers:** T. Sheppard, Pres.; W. E. Stache, Sec., both of Wallace. **Inc.:** Nov. 1, 1899. **Capital:** 1,000,000 shares; par value 10c; 150,063 shares issued. **Property:** American group; 2 unpatented claims, Placer Center dist.; Wallace. **Development:** 3 tunnels: No. 1, 65 ft. long; No. 2, 80 ft. long; No. 3, 440 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of 2 mills was levied on March 20.

ANACONDA COPPER MINING CO.
Office: 25 Broadway, New York City. **Officers:** C. F. Kelley, Pres.; A. H. Melin, Sec., both of New York City. **Inc.:** Filed in Idaho, Apr. 10, 1916. **Capital:** 12,000,000 shares; par value $50; 8,828,063 shares issued. **Property:** Sunset group; 3 patented, 3 unpatented claims, Beaver dist.; Wallace. **Development:** By 1 tunnel 3785 ft. long and a vertical shaft 800 ft. deep with 4 intermediate levels. Total development, approximately 10,000 ft. **Ore:** Lead-silver-zinc. **Remarks:** Annual labor only.

ANCHOR MINING CO.

Office: 803 Sherwood Bldg., Spokane, Wash. **Officers:** Lloyd E. Gandy, Agent, Spokane, Wash. **Inc.:** Nov. 18, 1897. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Anchor group; 8 patented claims, Lelande dist.; Burke. **Development:** Principally by 1 tunnel 6000 ft. long and 1 vertical shaft 210 ft. deep. **Plant:** 20-h. p. hoist and 3-drill I-R compressor, both electrically driven. **Ore:** Lead-silver. **Remarks:** Property under option to Hecla Extension Mining Co.

ARCTIC MINING & MILLING CO., LTD.

Office: Kellogg. **Officers:** Henry Lalonde, Pres., Wallace; Geo. H. Heller, Sec., Osburn. **Inc.:** July 5, 1907. **Capital:** 1,500,000 shares; par value $1; 600,000 shares issued. **Property:** Arctic group; 5 unpatented claims, Placer Center dist.; Wallace. **Development:** By 1 tunnel 990 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

ARGENTA MINING CO., LTD.

Office: Wallace. **Officers:** W. C. Richardson, Pres.-Mgr., Mullan; C. D. Brock, Sec., St. Maries. **Inc.:** Dec. 10, 1906. **Capital:** 1,500,000 shares; par value $1; 1,108,000 shares issued. **Property:** Argenta group; 3 patented claims, Hunter dist.; Mullan. **Development:** 2 tunnels: No. 1, 900 ft. long; No. 2, 250 ft. long. **Ore:** Lead-silver. **Remarks:** Idle throughout the year.

ASSOCIATED MINES CORPORATION, LTD.

Office: Lindelle Bldg., Spokane, Wash. **Officers:** Matt Baumgartner, Pres.-Mgr., Spokane, Wash.; Roy H. Kingsbury, Sec., Wallace. **Inc.:** Nov. 7, 1930. **Capital:** 3,000,000 shares; par value 10c; shares issued, unknown. **Remarks:** This company was organized with assessable stock to take over the property of the Delaware Mines Corporation, whose stock is non-assessable.

ATLANTIC MINING CO.

Office: Wallace. **Officers:** Herman J. Rossi, Pres.; Otto A. Olsson, Sec.-Mgr., both of Wallace. **Inc.:** June 11, 1897. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Atlantic group; 7 unpatented claims, Beaver dist.; Prichard. **Development:** Principally by 1 tunnel 340 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

ATLAS MINING CO.

Office: Mullan. **Officers:** Thomas F. Keeley, Pres., 516 E. 28th St., Chicago; Charles K. Cartwright, Sec.; W. Earl Greenough, Mgr., both of Mullan. **Inc.:** Mar. 4, 1924. **Capital:** 2,000,000 shares; par value $1; all shares issued. **Property:** Atlas group; 19 patented, 19 unpatented claims, Hunter dist.; Mullan. **Development:** 7 tunnels and 2 inclined shafts; the principal of which is the Atlas tunnel 7030 ft. long, at the end of which is the Carbonate Hill drift 3000 ft. long. **Plant:** Electrically driven compressor, and complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 12. **Remarks:** The property of the Atlas Mining Co. is a consolidation of four properties, the Carbonate Hill, Idaho Giant, Boulder Creek, and Atlas, on which there is approximately 22,000 ft. of tunneling, drifting, crosscutting, and sinking. Active mine development work during the early part of the year, after which this work was suspended. Ore bins and a 2000-ft. aerial tramway connecting the mine and the mill of the Gold Hunter Mines, Inc., were constructed. Upon the completion of the tramway, mine work was resumed. The mine development consisted of 1490 ft. of crosscuts and drifts, 920 ft. of diamond drilling, and the extraction of sufficient ore to make a one-car shipment of concentrate. Stock assessments were levied as follows: March 18, 1c; June 27, 1c.

ATLAS X CO.

Office: Mullan. **Officers:** James A. Wayne, Pres.; M. M. Yeoman, Sec., both of Wallace; W. Earl Greenough, Mgr., Mullan. **Inc.:** Nov. 24, 1906, as Carney Copper Co., Ltd. Name changed Jan. 7, 1928. **Capital:** 1,500,000 shares; par value $1; 746,042 shares issued. **Property:** Carney group; 9 unpatented claims; Mullan. **Development:** By 3 tunnels: No. 1, 500 ft. long; No. 2, 1600 ft. long; No. 3, 1050 ft. long. **Remarks:** Control of stock in this company is held by the Atlas Mining Co.

AULBACH GROUP

Owner: Adam Aulbach, Murray. **Property:** Aulbach group; 5 patented, 1 unpatented claim, Coeur d'Alene dist.; Murray. **Development:** By 3 tunnels, the longest of which is No. 2, 450 ft. long. **Ore:** Lead-silver. **Remarks:** This property is one of the oldest locations in the Coeur d'Alene district and has been held almost continuously by the present owner.

BASIN MINING CO.

Office: Wallace. **Officers:** Jerome J. Day, Pres.; P. J. Maggy, Sec., both of Wallace. **Inc.:** June 22, 1915. **Capital:** 1,500,000 shares; par value 5c; 1,000,000 shares issued. **Property:** Basin group; 5 patented claims, Lelande dist.; Burke.

BEAR PLACER MINING CO.

Office: 608 Empire State Bldg., Spokane, Wash. **Officers:** F. R. Clark, Pres.; G. M. Johnson, Sec., both of Spokane. **Inc.:** Aug. 5, 1924. **Capital:** 10,000 shares; par value $10; 6,671 shares issued. **Property:** Bear Placer group: 2 unpatented placer claims, unorganized dist.; on St. Joe River; Superior, Mont. **Ore:** Placer gold. **Remarks:** Annual labor only.

BELL MINING CO.

Office: 504 Empire State Bldg., Spokane, Wash. **Officers:** Robert C. Moffitt, Pres., Seattle; Charles Hussey, Sec., Spokane, Wash. **Inc.:** Oct. 17, 1898. **Capital:** 500,000 shares; par value 25c; 495,500 shares issued. **Property:** 9 patented claims, Lelande dist.; Wallace. **Remarks:** Under development by the United Metals Co.

BELL OF THE WEST MINING CO.

Office: Wallace. **Officers:** George R. Trask, Pres.-Mgr.; M. E. Trask, Sec., both of Wallace. **Inc.:** Oct. 23, 1899. **Capital:** 1,500,000 shares; par value 5c; all shares issued. **Property:** Bell of the West group; 2 patented, 4 unpatented claims, Placer Center dist.; Wallace. **Development:** 2 tunnels: No. 1, 250 ft. long; No. 2, 1000 ft. long with 300 ft. of crosscuts. **Plant:** Electrically driven hoist and I-R compressor; complete mining equipment and mine camp. **Ore:** Lead-silver. **Men employed:** Average, 8. **Remarks:** This company's property was under option to Western Mines, Ltd., until June 1, 1930, when the lease and option was transferred to the Silver Cloud Mines, Inc.

BELMONT MINING CO., LTD.

Office: Wallace. **Officers:** James H. Taylor, Pres.-Mgr.; L. W. Defenbach, Sec., both of Wallace. **Inc.:** Mar. 26, 1900. **Capital:** 1,000,000 shares; par value $1; 330,000 shares issued. **Property:** Belmont group; 14 unpatented claims, Evolution dist.; Osburn. **Development:** Principally by 1 tunnel 1500 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only. Control of stock under option to Silver Basin Consolidated Mining Co.

BENTON MINING CO., LTD.

Office: Wallace. **Officers:** Mary Callahan, Pres., Spokane, Wash.; E. G. Gnaedinger, Sec.-Mgr., Wallace. **Inc.:** Feb. 14, 1903. **Capital:** 1,500,000 shares; par value $1; 1,160,000 shares issued. **Property:** Benton group; 5 patented claims, Lelande dist.; Burke. **Development:** By 6 tunnels, the principal one of which is 1000 ft. long, and 1 vertical shaft 200 ft. deep. **Ore:** Lead-silver. **Remarks:** Idle.

BIG DIVIDE MINING CO., LTD.

Office: Wallace. **Officers:** Frank P. Markwell, Pres., Los Angeles, Calif.; J. F. Markwell, Sec., Sanger, Calif. **Inc.:** Aug. 23, 1904. Charter forfeited Nov. 30, 1928. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Big Divide group; 10 patented, 5 unpatented claims, Lelande dist.; Wallace. **Plant:** Large air compressor driven by 150-h. p. electric motor. **Ore:** Lead-silver. **Remarks:** Idle.

BIG ELK MINING CO., LTD.

Office: Wallace. **Officers:** Peter Peterson, Pres.-Mgr., Saltese, Mont.; A. H. Featherstone, Sec., Wallace. **Inc.:** April 26, 1909. **Capital:** 2,000,000 shares; par value $1; all shares issued. **Property:** Big Elk group; 17 unpatented claims, St. Joe dist.; Delage. **Ore:** Copper-gold. **Remarks:** Annual labor only.

BIG IT MINING & MILLING CO.
Office: Kellogg. **Officers:** H. S. Davenport, Pres., Enaville; M. L. Pratt, Sec.-Mgr., Kellogg. **Inc.:** Dec. 5, 1916. **Capital:** 1,500,000 shares; par value 10c; 1,058,573 shares issued. **Property:** Big It group; 13 unpatented claims, Yreka dist.; Masonia. **Development:** By 2 tunnels: No. 1, 270 ft.; No. 2, 850 ft. **Ore:** Lead-zinc-silver. **Remarks:** Failed to file the reports required by law.

BIG THREE MINING CO.
Office: Wallace. **Officers:** William Tyler, Pres., Burke; Therrett Towles, Sec., Wallace. **Inc.:** Sept. 14, 1929. **Capital:** 1,500,000 shares; par value 25c; 963,200 shares issued. **Property:** 6 patented, 2 unpatented claims, patented land being held under lease and option; Lelande dist.; Burke. **Development:** By 2 tunnels: No. 1, 90 ft. long; No. 2, 800 ft. long. **Ore:** Lead-silver. **Remarks:** After organization was completed, development work was started. A stock assessment of 2 mills was levied on May 27.

BISMARCK MINING CO.
Office: Wallace. **Officers:** C. M. Viruly, Pres., Amsterdam, Holland; W. H. Herrick, Mgr., Wallace. **Inc.:** Jan. 18, 1924. **Capital:** 1,250,000 shares, increased to 1,500,000 shares, Sept. 25, 1930; par value 10c; 1,197,338 shares issued. **Property:** Bismarck group; 3 unpatented claims, Big Creek, Yreka dist.; Kellogg. **Development:** By 1 tunnel 1400 ft. long. **Plant:** Gas-driven compressor; complete mining equipment. **Ore:** Lead-silver. **Remarks:** Annual labor only.

BITTER ROOT MOUNTAIN MINING CO.
Office: 939 S. Cowley St., Spokane, Wash. **Officers:** W. P. Flood, Pres.; Mrs. F. A. Noteware, Sec., both of Spokane, Wash. **Inc.:** May 6, 1901. **Capital:** 1,500,000 shares; par value 5c; all shares issued. **Property:** Lookout group; 3 patented claims, Hunter dist.; Mullan. **Development:** Principally by 1 tunnel 1000 ft. long. **Ore:** Lead-silver. **Remarks:** Inactive since 1900.

BLACK BEAR MINES CO.
Office: Wallace. **Officers:** C. A. Hagan, Pres., Moscow; A. G. Kennedy, Sec., Wallace. **Inc.:** Feb. 24, 1917. **Capital:** 2,000,000 shares; par value 20c; 1,388,051 shares issued. **Property:** Black Bear group; 5 patented, 2 unpatented claims, Lelande dist.; Wallace. **Development:** Principally by 1 tunnel 4100 ft. long. **Plant:** 750 cu. ft. electrically-driven compressor; complete mining equipment. **Ore:** Lead-zinc-silver. **Remarks:** Under option to the United Metals Co.

BLACK HAWK MINING & DEVELOPMENT CO., LTD.
Office: Wallace. **Officers:** A. W. Hoover, Sec.; H. G. Washburn, Mgr., both of Wallace. **Inc.:** Aug. 19, 1901. **Capital:** 1,500,000 shares; par value 10c; 1,332,352 shares issued. **Property:** Black Hawk group; 13 patented claims, Yreka dist.; Kellogg. **Development:** By 2 tunnels: Black Hawk, 2920 ft. long; Page, 2600 ft. long. **Ore:** Silver-lead-zinc. **Remarks:** Property under lease to the Federal M. & S. Co., which operated it throughout the year in conjunction with the Page mine, which see.

BLAINE & EMMETT MINING CO., LTD.
Office: Kellogg. **Officers:** Merrill Heblethwaite, Pres.-Mgr., Murray; R. W. Skeman, Sec., Kellogg. **Inc.:** Dec. 20, 1909. **Capital:** 1,000,000 shares; par value $1; 484,312 shares issued. **Property:** Blaine & Emmett group; 6 unpatented claims, Eagle dist.; Prichard. **Development:** 2 tunnels: No. 1, 300 ft. long; No. 2, 700 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

BLUE EAGLE MINING CO.
Office: Kellogg. **Officers:** Ed McCarty, Pres.; C. B. Forbes, Sec., both of Kellogg. **Inc.:** Apr. 18, 1925. **Capital:** 1,500,000 shares; par value 1c. Increased Dec. 8, 1928, to 3,000,000 shares; par value 10c; 1,507,081 shares issued. **Property:** Blue Eagle group; 15 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 2 tunnels: No. 2, 285 ft. long; No. 3, 500 ft. long. **Plant:** Electrically-driven 8x9 I-R compressor;

complete mining equipment. **Ore:** Lead-zinc-silver. **Men employed:** Average, 2. **Remarks:** A small amount of road construction and the principal tunnel extended a short distance during the year. A stock assessment of 1 mill was levied on May 5.

BLUE RIBBON MINING CO.

Office: 601 N. Monroe St., Spokane, Wash. **Officers:** Al Harris, Sec., Spokane, Wash. **Inc.:** Oct. 22, 1914. **Capital:** 1,500,000 shares; par value 10c; 388,000 shares issued. **Property:** Blue Ribbon group; 9 unpatented claims, Hunter and Lelande dists.; Burke. **Development:** Principally by 1 tunnel 2500 ft. long. **Men employed:** Average, 3. **Remarks:** Active throughout the year. Stock assessments were levied as follows: Jan. 2, 1 mill; March 24, 1 mill; May 19, 1 mill.

BLUE STAR MINING & MILLING CO., LTD.

Office: Kingston. **Officers:** Peter Weida, Pres., Kellogg; A. C. Morbeck, Sec., Kingston. **Inc.:** June 8, 1901. **Capital:** 1,000,000 shares; par value $1; 300,000 shares issued. **Property:** 160 acres patented land, Yreka dist.; Kingston.

BLUE WING MINING CO., LTD.

Office: Wallace. **Officers:** Herman J. Rossi, Sec., Wallace. **Inc.:** July 8, 1901. **Capital:** 1,000,000 shares; par value 10c; all shares issued. **Property:** Blue Wing group; 3 patented, 12 unpatented claims, Placer Center dist.; Wallace. **Plant:** Electrically driven compressor; complete mining equipment. **Ore:** Lead-silver. **Remarks:** Property under lease and option. Lessee extended principal tunnel approximately 1000 ft. during the year.

BOBBY ANDERSON GROUP MINING CO.

Office: Kellogg. **Officers:** F. N. Johnson, Pres., Spokane, Wash.; T. R. Mason, Sec., Kellogg. **Inc.:** June 16, 1906. **Capital:** 1,500,000 shares; par value $1. Increased on March 25, 1929, to 2,000,000 shares; par value $1; 1,935,000 shares issued. **Property:** Bobby Anderson group; 15 unpatented claims, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel 1800 ft. long and an inclined shaft 100 ft. long. **Plant:** Electrically-driven compressor and hoist; complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Men employed:** Average, 9. **Remarks:** Late in the year a contract was given to extend the principal tunnel 500 ft. A stock assessment of 5 mills was levied on Oct. 25.

BONANZA MINES CORPORATION

Office: Wallace. **Officers:** Therrett Towles, Sec., Wallace. **Inc.:** July 12, 1927. **Capital:** 1,500,000 shares; par value 25c; 613,503 shares issued. **Remarks:** Owns no property.

BRITISH AMERICAN MINES & SMELTER CORPORATION

Office: Smith Tower Bldg., Seattle, Wash. **Inc.:** Not filed in Idaho. **Remarks:** Has never filed the reports required by law.

BULLFROG SILVER LEAD MINING CO.

Office: Burke. **Officer:** L. J. Oatman, Burke. **Inc.:** May 17, 1930. **Capital:** 500,000 shares; par value 20c. **Remarks:** Failed to file the reports required by law.

BULLION MINING CO., LTD.

Office: Wallace. **Officers:** William Squance, Pres.; James H. Taylor, Sec.-Mgr., both of Wallace. **Inc.:** Dec. 5, 1902. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Bullion group; 16 patented, 1 unpatented claim, St. Joe dist.; Mullan. **Development:** 3 tunnels: No. 1, 500 ft. long; No. 2, 2000 ft. long; No. 3, 4800 ft. long; 1 vertical shaft 100 ft. deep. **Plant:** Pelton water wheel driving an I-R compressor. **Ore:** Copper-gold. **Remarks:** Idle throughout the year.

BUNKER CHANCE MINING CO.

Office: Wardner. **Officers:** Nick Petrinovich, Pres.-Mgr.; R. L. Brainard, Sec., both of Wardner. **Inc.:** May 8, 1922. **Capital:** 1,500,000 shares; par value 25c; 1,200,000 shares issued. **Property:** Bunker Chance group; 1 patented, 6 unpatented claims, Yreka dist., Wardner. **Development:** By

4 tunnels, the principal one of which is 1250 ft. long. **Plant:** Electrically driven 7x9 I-R compressor and complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Mine plant and equipment were installed and the principal tunnel was extended without interruption throughout the year.

BUNKER HILL & SULLIVAN MINING & CONCENTRATING CO.

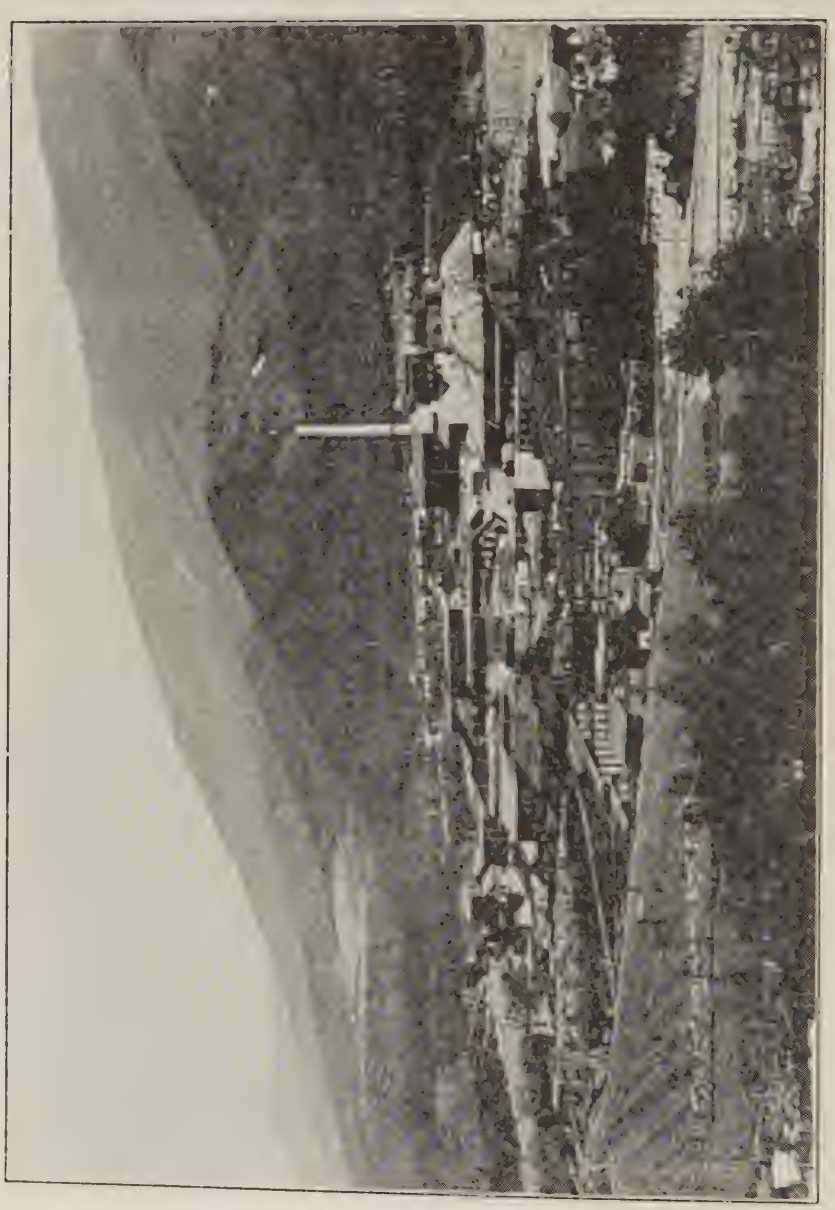
Office: Kellogg. **Officers:** F. W. Bradley, Pres.; J. W. Crosby, Sec., both of 1022 Crocker Bldg., San Francisco, Calif.; Stanly A. Easton, Mgr., Kellogg. **Inc.:** Originally incorporated in Oregon and filed in Idaho, Aug. 20, 1903; changed to a Delaware corporation and filed in Idaho, April 16, 1924. **Capital:** 327,000 shares common; par value $10; 20,000 shares preferred; par value $100; all common shares issued. **Property:** Bunker Hill; 355 patented, 44 unpatented claims, Yreka dist.; Kellogg. **Development:** The principal adit is the Kellogg tunnel, which is 24,000 ft. long, in which are the two principal inclined shafts, one of which is known as the White Raise, and the other the main shaft, which is approximately 2785 ft. long, giving a vertical depth of 2000 ft. below the Kellogg tunnel level. In the main shaft are 13 intermediate levels. Total development, approximately 60.6 miles. **Plant:** MINE: 2 electrically driven hoists, 2 electrically driven I-R compressors, one steam-driven Nordberg compressor. Trolley locomotive haulage in Kellogg tunnel; storage battery locomotive haulage in intermediate levels. Complete and modern machine shop, blacksmith shop and change house. MILL: Four complete and modern concentrators, including flotation: Sweeny mill, capacity 300 tons, accommodates custom ores, particularly those from Pine Creek; West mill, capacity 1200 tons, treats output from the Bunker Hill mine; South mill, capacity 600 tons, treats output from Star mine of Sullivan Mining Co.; Crescent mill on Big Creek, capacity 100 tons, treats output from Crescent and Alhambra mines. **Ore:** Lead-silver. **Men employed:** In mine, mill and smelter, average 1140.

BUNKER HILL SMELTER

Officers: Frank M. Smith, Director, 1117 Paulsen Bldg., Spokane, Wash.; A. F. Beasley, Supt., Kellogg. **Remarks:** This smelter was erected during 1917, since which time it has been continually enlarged and improved and is now one of the most modern, complete and up-to-date plants in the United States. The smelting plant covers an area of about 30 acres and consists of complete buildings and equipment for sampling, roasting, sintering, smelting and refining lead, silver, and gold ores. During 1929 its capacity was doubled, in anticipation of the termination on Feb. 1, 1930, of the company's smelting contract with the American Smelting & Refining Co., to whom the Bunker Hill was obliged to ship one-half of its production. In addition to refined lead, silver, and gold, antimonial lead and copper sulphate are also produced. The principal supply of ore is from the company's own mine and the mines of the Coeur d'Alene district. The company is doing a general custom business and is drawing ore from all of the northwestern states as well as from British Columbia and Alaska, and is becoming a strong competitor in the smelting business. This smelter and its operations are fully described and illustrated in many of the articles listed under the bibliography of Shoshone County. The enlargements and modernization, commenced in 1929, were completed early in 1930. The production for the year, as a result of treating the entire output of the Bunker Hill mines, was the largest of any year since the smelter started operating.

REMARKS

This company is the largest dividend payer and maintains the largest pay roll of any mine in Idaho; it is also the largest producer of lead-silver ore in the State, if not in the world; and is one of the few companies in the United States that mine, mill, smelt, refine, manufacture, and sell lead ore and lead products. The enterprise, particularly the mine



BUNKER HILL SMELTER

and mill, has been established for such a long period and all operations have become so well founded that it has practically expanded into a manufacturing operation. The mine is opened by over 59 miles of underground workings and has a sufficient tonnage of ore reserves to assure many years of continued operations.

During the past few years this organization has been actively engaged in prospecting and developing mining properties throughout the State, and during 1924 acquired the mines owned by the Hall-Interstate Mining Co. and the Lost Pilgrim Mining Co., situated near the head of the Deadwood River in Valley County. The interest shown in developing lead mines outside of the Coeur d'Alene district is having a tremendous influence in attracting attention to the State's undeveloped resources.

The management is progressive and intelligent and an unusual amount of initiative is shown in the conduct of the affairs of the company and civic activities. An excellent spirit of cooperation has been created and maintained in the employees, and everything possible is done to promote their welfare. The common stock was listed on the New York Curb Exchange during the latter part of 1926; in January, 1927, it sold at a low of $67.50 per share; in March, 1929, it had risen to a high of $165 per share, and in January, 1930, it had dropped to a low of $48 per share, these being the highest and lowest points.

This company owns a 50 per cent interest with the Hecla Mining Co. in the Sullivan Mining Co., the owner of the Star mine in the Coeur d'Alene district; and a 50 per cent interest in the Alaska-Treadwell Gold Mining Co. and the Treadwell Yukon Co., Ltd., both of Alaska. Ore from the latter property was shipped to the smelter at Kellogg. In addition to the foregoing, the company is actively interested in developing properties in Nevada; at Sudbury, Ontario, Canada; and the Green Mountain group in the Elk City district, Idaho County, Idaho.

The extensive development work in the Bunker Hill mine has greatly increased its resources. The completion of a winze to the 2000-ft. level and the opening of the ore bodies at that depth, where the ore and geological conditions were found to be normal, together with the opening of Nos. 9 and 10 levels of the new ore first disclosed in 1929 on No. 6 level, have added many years to the life of the mine. The company increased its production but decreased its dividends during the year.

The many plant betterments which were added greatly increased the efficiency of the enterprise. The principal ones were the remodeling of all mills to conform with the most recent developments in flotation, many of which have been evolved under this company's direction, and the doubling of the capacity of the lead smelter. The expenditure for these and other plant improvements constituted the largest expenditure for new plant betterments made in the State during the year. The Crescent or Hooper tunnel, which was started late in 1928, was completed in 1930, and a 500-ft. vertical raise was driven to the upper levels. Production from this property was maintained throughout the year.

BURKE MINING CO., LTD.

Office: Wallace. **Officers:** Wm. Bailey, Pres.-Mgr.; John C. Glahe, Sec., both of Wallace. **Inc.:** May 31, 1902. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** 12 patented claims, Lelande dist.; Burke. **Development:** 2 tunnels: No. 1, 125 ft. long; No. 2, 1000 ft long. **Ore:** Lead-silver. **Remarks:** Idle.

BUTTE & COEUR D'ALENE DEVELOPMENT CO.

Office: Wallace. **Officers:** T. B. Cosgrove, Pres.-Mgr., Mullan; Elmer E. Johnston, Sec., Kellogg. **Inc.:** Sept. 17, 1927. **Capital:** 2,500,000 shares; par value $1; 1,861,870 shares issued. **Property:** Plymouth group; 11 unpatented claims, Hunter dist.; Mullan. **Development:** By 2 tunnels: No. 1, 400 ft. long; No. 2, 960 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

CALABRIA MINING CO.

Office: Kellogg. **Officers:** Mike Amabile, Pres.; Gabriel Faraca, Sec., both of Kellogg. **Inc.:** Apr. 8, 1929. **Capital:** 1,000,000 shares; par value 25c; 15 shares issued. **Property:** Royal group; 5 unpatented claims, Evolution dist., Moon Creek; Kellogg. Held under lease and option. **Development:** By 3 tunnels: No. 1, 625 ft.; No. 2, 75 ft.; No. 3, 450 ft. **Plant:** Electrically driven hoist and compressor; complete mining equipment. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

CALEDONIA MINING CO.

Office: Kellogg. **Officers:** Stanly A. Easton, Pres.-Mgr.; Lee Prather, Sec., both of Kellogg. **Inc.:** July 1, 1907. **Capital:** 2,605,000 shares; par value $1; all shares issued. **Property:** Caledonia; 2 patented claims, Yreka dist.; Kellogg. **Development:** Approximately 19,250 ft. of underground workings. **Plant:** Equipment rented from Bunker Hill & Sullivan M. & C. Co. **Ore:** Silver-lead. **Remarks:** Small amount of work by lessees throughout the year.

CALEDONIA SILVER-LEAD MINING CO.

Office: Kellogg. **Officers:** A. C. Beal, Pres-Mgr., Spokane, Wash.; Lester S. Harrison, Sec., Kellogg. **Inc.:** Oct. 24, 1927. **Capital:** 10,000 shares preferred, par value $5; 800,000 shares common, par value 25c; 6000 shares preferred, 1300 shares common issued. **Property:** 7 unpatented claims, Yreka dist.; Wardner. **Development:** Principally by 1 tunnel 1300 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

CALLAHAN ZINC-LEAD CO.

Office: Wallace. **Officers:** D. A. Callahan, Pres.; C. W. Newton, Sec.-Mgr., both of Wallace. **Inc.:** July 18, 1912, as Consolidated Interstate Mining Co.; name changed March 25, 1921. **Capital:** 1,000,000 shares; par value $10; 716,592 shares issued.

CALLAHAN MINE

Property: Interstate-Callahan group; 81 patented, 2 unpatented claims, Beaver dist.; Interstate. **Development:** Principal development is main transportation tunnel which is 5500 ft. long and a three-compartment vertical shaft 2000 ft. deep. Total development, approximately 10 miles. **Plant:** MINE: Two single drum air-driven hoists and one 250-h. p. electrically-driven double drum hoist; three large I-R electrically-driven



GALENA MILL: CALLAHAN ZINC-LEAD CO.

compressors; trolley locomotive haulage in main tunnel. Complete and modern blacksmith shop, machine shop, sawmill, mine equipment, camp and company buildings. MILL: 600-ton concentrator, including flotation. **Ore:** Zinc-lead-silver. **Men employed:** Average, 2. **Remarks:** At one time this property was one of the largest zinc mines in the United States. No ore has been mined since October, 1923.

GALENA MINE

Property: Chicago-Boston, Killbuck, Vulcan, Argentine, Wallace, and Silver Range groups; 31 patented, 67 unpatented claims, Lake Gulch, Placer Center dist.; Wallace. **Development:** By 33 tunnels, a 600-ft. vertical shaft, and an 800-ft. vertical winze in the 600-ft. level. Total development, approximately 34,000 ft. **Plant:** MINE: One 150-h. p. Lidgerwood, one 200-h. p. Coeur d'Alene Hdw. electrically-driven hoist; 3 I-R electrically-driven compressors, total capacity 1500 cu. ft.; complete equipment and mine camp. MILL: 150-ton flotation. **Ore:** Lead-silver. **Men employed:** Average, 30. **Remarks:** An extensive development campaign was maintained throughout the year and the mill was operated on a one-shift basis on ore extracted in development work. The principal work consisted of crosscutting to and drifting on the 800 and 1000-ft. levels on the new south vein, which was discovered by diamond drilling in 1928 and opened on the 600-ft. level in 1929. This work resulted in exposing such a substantial amount of new ore that this company is fast becoming reestablished as one of the principal operators in the Coeur d'Alene district. As the Galena mine is located in the so-called "dry belt," in the south side of the district, the success it is attaining, particularly as ore and geologic conditions are improving at depth, has been an important factor in stimulating development throughout this section.

CARBONATE MINING & MILLING CO.

Office: Wardner. **Officers:** C. Wiese, Pres.-Mgr., Wardner. **Inc.:** Oct. 7, 1899. **Capital:** 1,000,000 shares; par value 25c; 411,465 shares issued. **Property:** Carbonate group; 4 unpatented claims, Pine Creek, Yreka dist.; Beeler. **Development:** By 4 tunnels: No. 1, 600 ft.; No. 2, 300 ft. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only. A stock assessment of 2 mills was levied on March 29.

CEDAR CREEK MINING & DEVELOPMENT CO., LTD.

Office: Wallace. **Officers:** Charles Bollinger, Pres.; L. W. Defenbach, Sec., both of Wallace. **Inc.:** June 28, 1905. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Cedar Creek group; 5 patented, 28 unpatented claims, Summit dist.; Murray. **Development:** 3 tunnels: No. 1, 1200 ft. long; No. 2, 2125 ft. long; No. 3, 4430 ft. long; 1 inclined shaft 343 ft. long. Total development, approximately 9500 ft. **Plant:** MINE: 12x12 electrically-driven compressor and air-driven hoist; complete mining equipment and camp. MILL: 100-ton flotation concentrator. **Ore:** Lead-zinc-silver. **Men employed:** Average, 3. **Remarks:** A small amount of development work during the year. Stock assessments were levied as follows: March 26, 1c; June 25, 1c.

CENTRAL MINING CO.

Office: Burke. **Officers:** M. V. McNamee, Pres.; F. H. Richardson, Sec.; F. C. Richardson, Mgr., all of Burke. **Inc.:** Oct. 28, 1911. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Central group; 5 patented claims, lying between Hercules and Oom Paul; Lelande dist.; Burke. **Development:** Approximately 1200 ft., principally tunnels. **Ore:** Lead-silver.

CHESTER MINING CO., LTD.

Office: Kellogg. **Officers:** P. P. Weber, Pres.; C. W. Simmons, Sec., both of Kellogg. **Inc.:** July 31, 1900. **Capital:** 1,000,000 shares; par value $1; 923,945 shares issued. **Property:** Chester group; 6 patented claims, Evolution dist.; Osburn.

CINCINNATI MINING CO.
Office: Wallace. **Officers:** R. E. Seysler, Pres.; W. H. Herrick, Sec.-Mgr., both of Wallace. **Inc.:** Jan. 18, 1924. **Capital:** 1,000,000 shares; par value 25c; 700,000 shares issued. **Property:** Cincinnati group; 5 unpatented claims, Hunter dist.; Mullan. **Development:** By 5 tunnels: No. 1, 1200 ft. long; No. 2, 1200 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

CLEAR GRIT MINING CO., LTD.
Office: Wallace. **Officers:** F. C. Rood, Pres., Longview, Wash.; E. G. Gnaedinger, Sec.-Mgr., Wallace. **Inc.:** May 9, 1906. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** 6 unpatented claims, Beaver dist.; Prichard. **Development:** By 1 tunnel approximately 2000 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

CLIMAX SILVER-LEAD MINING CO.
Officer: H. V. Edwards, Wallace. **Inc.:** April 22, 1914. **Capital:** 1,500,000 shares; par value 25c. **Remarks:** Has refused to file reports since 1928.

COEUR D'ALENE BIG CREEK MINING CO.
Office: 146 30th Ave., Seattle, Wash. **Officers:** E. J. Brown, Pres.; C. F. Uhden, Sec., both of Seattle. **Inc.:** Jan. 31, 1925. **Capital:** 1,500,000 shares; par value 10c; all shares issued. **Property:** 4 unpatented claims, Yreka dist.; Big Creek; Kellogg. **Development:** Principally by 1 tunnel 1407 ft. long. **Plant:** 12x10 C-P compressor, electrically driven; drill sharpener; complete mining equipment and camp. **Ore:** Lead-silver. **Remarks:** Annual labor only.

COEUR D'ALENE CHAMPION MINING CO.
Office: E. 1827 Sprague Ave., Spokane, Wash. **Officers:** J. Reeves, Pres.; James Keeth, Sec., both of Spokane, Wash. **Inc.:** Jan. 22, 1907. **Capital:** 1,500,000 shares; par value $1; 383,007 shares issued. **Property:** Champion group; 16 unpatented claims, Hunter and Lelande dists.; Burke. **Development:** By 4 tunnels, the principal one of which is 3200 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

COEUR D'ALENE CRESCENT MINING CO.
Office: 404 Jamieson Bldg., Spokane, Wash. **Officers:** G. H. Walters, Acting Pres.; F. W. Mauser, Sec., both of Spokane, Wash. **Inc.:** Dec. 12, 1913. **Capital:** 1,250,000 shares; par value $1; 650,000 shares issued. **Property:** Evolution group; 6 unpatented claims, Evolution dist.; Osburn. **Ore:** Lead-silver. **Remarks:** Under option to Evolution Mining Co.

COEUR D'ALENE EAGLE LEAD-SILVER MINING CO., LTD.
Office: W. 2808 Dean Ave., Spokane, Wash. **Officers:** James R. Dawson, Pres.-Mgr.; Sarepta Jonas, Sec., both of Spokane, Wash. **Inc.:** Apr. 2, 1928. **Capital:** 2,000,000 shares; par value 25c; 325,000 shares issued. **Property:** 22 unpatented claims, Yreka dist.; Pine Creek. **Development:** By 2 tunnels: No. 1, 300 ft. long; No. 2, 100 ft. long. **Ore:** Lead-zinc-silver. **Men employed:** Average, 1. **Remarks:** Annual labor only.

COEUR D'ALENES LEAD CO.
Office: Wallace. **Officers:** Walter H. Hanson, Pres.; Herman Marquardt, Sec., both of Wallace. **Inc.:** Apr. 28, 1927. **Capital:** 4,000,000 shares; par value $1; 3,550,000 shares issued. **Remarks:** "The only assets of this company are 500,000 shares of the capital stock of the Atlas Mining Co." Stock assessments of 2 mills each were levied on July 24 and Nov. 7.

COEUR D'ALENE METALS CO.
Office: Eagle Blk., Wallace. **Officers:** M. W. Neary, Pres., San Francisco, Calif.; A. G. Kennedy, Sec., Wallace. **Inc.:** Jan. 18, 1926. **Capital:** 10,000 shares; par value $100; 285 shares issued. **Property:** Lease and option on property of Great Eastern Mining Co., Ltd. **Remarks:** Idle.

COEUR D'ALENE MINES CORPORATION
Office: 605 Columbia Bldg., Spokane, Wash. **Officers:** George Turner, Pres.; F. E. Coffeen, Sec.; S. H. Richardson, Mgr., all of Spokane, Wash. **Inc.:** Nov. 1, 1928. **Capital:** 3,000,000 shares; par value $1; 1,473,034 shares issued. **Property:** Mineral Point and St. Elmo groups; 2 patented, 14 unpatented claims, held under lease and option; Evolution dist.; Osburn. **Development:** By 12 tunnels: No. 3, 1000 ft. long; No. 4, 1100 ft.

long; No. 5, 4600 ft. long. Total development, approximately 9500 ft. **Plant:** 350-cu. ft. Worthington compressor, electrically driven; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 7. **Remarks:** Active development campaign maintained throughout the year without interruption.

COEUR D'ALENE MINING CO.

Office: Ames Bldg., Boston, Mass. **Officers:** Burton E. Eames, Pres.; John P. Wright, Sec., both of Boston, Mass. **Inc.:** July 20, 1900. **Capital:** 125,000 shares; par value $10; 118,586 shares issued. **Property:** Placer claims, which were exhausted by Yukon Gold Co.

COEUR D'ALENE MINING & SMELTING CO.

Office: Wallace. **Officers:** A. D. Wallace, Pres.-Mgr.; F. F. Brewer, Sec., both of Wallace. **Inc.:** July 18, 1904. **Capital:** 1,000,000 shares; par value $1; 923,800 shares issued. **Property:** 9 unpatented claims, Placer Center dist.; Wallace. **Development:** By 2 tunnels: No. 1, 450 ft.; No. 2, 2000 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 4. **Remarks:** The principal tunnel was extended without interruption. Stock assessments were levied as follows: April 17, 3 mills; Sept. 24, 3 mills.

COEUR D'ALENE SILVER-LEAD MINING CO.

Office: 1004 E. 8th Ave., Spokane, Wash. **Officers:** Charles J. Heidenreich, Pres., Spokane, Wash. **Inc.:** June 16, 1916; charter forfeited Dec. 1, 1922. **Capital:** 1,200,000 shares; par value $1; 752,800 shares issued. **Property:** 6 patented claims, Hunter dist.; Mullan. **Development:** By 2 tunnels: No. 1, 1200 ft. long; No. 2, 300 ft. long. **Ore:** Lead-silver. **Remarks:** Idle for 10 years.

COEUR D'ALENE SYNDICATE MINING CO.

Office: Wallace. **Officers:** Philip Wiseman, Vice-Pres.; P. Kenneth Wiseman, Sec., both of 1206 Pacific Mutual Bldg., Los Angeles, Calif. **Inc.:** Sept. 16, 1922. **Capital:** 900,000 shares; 200,000 preferred, par value $5; 700,000 common, par value $1; 85,933 common shares issued. **Property:** Flynn and Senator groups held under lease and bond; 42 patented, 4 unpatented claims, Lelande and Hunter dists.; Gem. **Development:** 11,000 ft. of underground workings. **Plant:** Electrically-driven 900-cu. ft. I-R compressor; drill sharpener and complete mining equipment; Hoar shovel. **Ore:** Lead-silver. **Remarks:** Failed to file the reports required by law.

COLUMBIA COPPER CO., LTD.

Office: Wallace. **Officers:** Joseph Huber, Pres.-Mgr., Mullan; C. W. Betts, Sec., Wallace. **Inc.:** April 24, 1914. **Capital:** 2,500,000 shares; par value $1; 1,635,385 shares issued. **Property:** Columbia group; 22 unpatented claims, Hunter dist.; Mullan. **Development:** By 11 tunnels, totaling approximately 2500 ft. **Ore:** Lead-silver, copper. **Remarks:** Annual labor only.

COMMERCIAL TRAVELER MINING CO.

Office: 203 Standard Stock Exchange Bldg., Spokane, Wash. **Officers:** H. N. Dias, Pres.; M. L. Lieb, Sec., both of Spokane; Otto Achord, Mgr., Masonia. **Inc.:** May 6, 1926. **Capital:** 2,000,000 shares; par value 5c; 1,666,665 shares issued. **Property:** 12 unpatented claims, Pine Creek, Yreka dist.; Kellogg; held under lease and option from Shrine Mining Co. **Development:** By 4 tunnels, the principal one of which is 1800 ft. long. **Plant:** Electrically-driven D-G compressor; complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Men employed:** Average, 4. **Remarks:** The principal tunnel was extended a short distance during the year. A stock assessment of 5 mills was levied on March 28.

COMSTOCK COPPER MINING CO.

Office: Wallace. **Officers:** Therrett Towles, Pres.; Otto A. Olsson, Sec., both of Wallace. **Inc.:** Nov. 23, 1906. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Remarks:** The officers of this company report that the property has been sold to the British American Mines & Smelter Corporation. The latter company has never filed articles of incorporation in Idaho, nor has it filed with the inspector of mines the reports required by law.

CONSOLIDATED INDEPENDENT CALUMET MINING CO.

Office: Wallace. **Officers:** John H. Nordquist, Pres.-Mgr.; A. G. Kennedy, Sec., both of Wallace. **Inc.:** Oct. 9, 1906, as Lucky Calumet Copper Mining Co., Ltd. Name changed Nov. 24, 1928. **Capital:** 1,500,000 shares; par value $1; 1,134,267 shares issued. **Property:** Lucky Calumet group; 13 patented, 2 unpatented claims, Hunter dist.; Mullan. **Development:** Principally by 2 tunnels: No. 1, 1400 ft. long; No. 2, 1950 ft. long. Total development, approximately 12,585 ft. **Plant:** Electrically driven 5-drill I-R two-stage compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 5. **Remarks:** Active development work for 3 months. This company is developing its property through the lower tunnel of the National Copper Mining Co., Ltd. A stock assessment of 5 mills was levied on April 16.

CONSOLIDATED METALS, INC.

Office: Wallace. **Officers:** Geo. D. Evans, Wallace. **Inc.:** Oct. 21, 1921. **Capital:** 1,000,000 shares; par value 25c. **Remarks:** Has never filed the reports required by law. Supposed to have a lease on part of the property owned by the Lincoln Mining Co.

CONSTITUTION MINING & MILLING CO.

Office: Masonia. **Officers:** J. P. Graves, Pres.; B. H. Kizer, Sec., both of Spokane, Wash.; Wm. P. White, Mgr., Masonia. **Inc.:** Sept. 17, 1902. **Capital:** 1,750,000 shares; par value $1. Increased Aug. 31, 1929, to 3,500,000 shares; par value $1; 2,645,934 shares issued. **Property:** Constitution group, 21 patented, 42 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 3 tunnels: No. 1, 205 ft.; No. 2, 2508 ft.; No. 3, 2359 ft.; an inclined shaft from the surface 240 ft. deep, extending to the 200-ft. level; and a vertical shaft 862 ft. deep in No. 3 tunnel. Total development, approximately 11,280 ft. **Plant:** MINE: Double-drum 150-h. p. hoist, 530-cu.-ft. C. P. and 1575-cu.-ft. I-R compressor, all electrically driven; drill sharpeners; storage-battery locomotive haulage; complete mining equipment and camp. MILL: 200-ton concentrator, fine grinding and flotation. **Ore:** Lead-zinc-silver. **Men employed:** Average, 93. **Remarks:** Mine development and production were maintained until July, when the low



CONSTITUTION MINING & MILLING CO. MILL

price of metals compelled suspension. The principal development work consisted of sinking the vertical shaft from the 600-ft. level to the 800-ft. level and drifting on the latter level. The new ore exposed by this work greatly increased the known reserves of the mine. The expenditure for mine development and mine plant improvement was one of the largest expenditures in the Pine Creek section. This enterprise is fully described in the September, 1929, issue of the Mining Congress Journal.

COPPER CHIEF MINING CO.

Office: Wallace. **Officers:** D. E. Wickward, Pres.; James H. Taylor, Sec.-Mgr., both of Wallace. **Inc.:** Sept. 25, 1907. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Copper Chief group; 7 patented, 4 unpatented claims, St. Joe dist.; Adair. **Ore:** Copper-gold. **Remarks:** Failed to file the reports required by law.

COPPER KING MINING & SMELTING CO.

Office: Wallace. **Officers:** W. B. Heitfeld, Pres.; W. A. Devan, Sec., both of Wallace. **Inc.:** Aug. 13, 1901. **Capital:** 1,500,000 shares; par value $1; 1,224,402 shares issued. **Property:** Copper King group; 18 patented, 3 unpatented claims, Lelande and Hunter dist.; Mullan. **Development:** Principally by 3 tunnels: No. 1, 200 ft. long; No. 2, 2000 ft. long; No. 3, 5000 ft. long. Total development, approximately 10,000 ft. **Plant:** Electrically driven compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Remarks:** Mining claims patented during the year. Stock assessments were levied as follows: April 17, 5 mills; Sept. 8, 5 mills.

CORBY LODE MINING CO.

Office: Kellogg. **Officers:** John B. Steffes, Pres.-Mgr.; F. William Voigtlander, Sec., both of Kellogg. **Inc.:** Jan. 27, 1930. **Capital:** 1,000,000 shares; par value 25c; 608,000 shares issued. **Property:** Corby group; 5 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** 1 tunnel 650 ft. long. **Ore:** Gold-copper-silver.

C. & R. MINING CO.

Office: 312 Old Nat'l Bank Bldg., Spokane, Wash. **Officers:** E. R. Week, Pres.; Ben L. Collins, Sec.; Russell F. Collins, Mgr., all of Spokane, Wash. **Inc.:** June 16, 1904. **Capital:** 1,250,000 shares; par value $1; all shares issued. **Property:** C. & R. group; 10 patented claims, on Sunset Peak, Lelande dist.; Burke. **Development:** By 3 tunnels: No. 1, 400 ft.; No. 2, 1200 ft.; No. 3, 6000 ft. **Plant:** Electrically-driven I-R compressor; complete mining equipment. **Ore:** Lead-silver. **Remarks:** Refused to file the reports required by law.

CUBA MINING CO.

Office: Wallace. **Officers:** W. H. Hanson, Pres.; Herman Marquardt, Sec., both of Wallace. **Inc.:** Nov. 18, 1899. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Cuba group; 2 patented claims, Placer Center dist.; Wallace. **Development:** 2 tunnels: No. 1, 500 ft. long; No. 2, 1100 ft. long. **Plant:** Electrically-driven I-R compressor; complete mining equipment. **Ore:** Lead-silver. **Remarks:** Idle.

DAY DEVELOPMENT CO.

Office: Wallace. **Officers:** Harry L. Day, Pres.; W. B. Heitfeld, Sec., both of Wallace. **Inc.:** Filed in Idaho as Hercules Exploration Co. Nov. 27, 1928; named changed Nov. 25, 1930. **Capital:** 10,000 shares; par value $100; 10 shares issued.

DAYROCK MINING CO.

Office: Wallace. **Officers:** F. M. Rothrock, Pres., Spokane; Jerome J. Day, Sec.; Henry L. Day, Mgr., both of Wallace. **Inc.:** Nov. 30, 1923, as Strattons Mines Co.; name changed Nov. 19, 1928. **Capital:** 2,000,000 shares; par value 10c; 1,755,800 shares issued. **Property:** Dayrock, Panhandle, and Monarch-Bonanza groups; 35 patented, 19 unpatented claims, Placer Center dist.; Wallace. **Development:** Dayrock group: Principally by 1 tunnel 1450 ft long, in which is an inclined shaft 460 ft. long, with 4 intermediate levels, which opens the vein to a vertical depth of 400 ft. Panhandle group: Principally by 1 tunnel 1562 ft. long, and an inclined shaft 360 ft. long, with 3 intermediate levels, which opens the vein to a

vertical depth of 253 feet. Total development in both groups, over 21,000 ft. **Plant:** Electrically driven hoist and 2 electrically driven compressors; complete mining equipment; storage-battery locomotive haulage.. **Ore:** Lead-silver. **Men employed:** Average, 50. **Remarks:** Other than rehabilitation and annual labor all operations were confined to the Dayrock group. Over 3000 ft. of crosscuts, drifts, and raises were run on the four principal levels. Production was maintained without interruption; however, it was reduced to a one-shift basis in March and later to 6 days a week. The ore is sold to the Hercules custom mill at Wallace. Three additional properties, Option, Black Cloud, and California groups, were acquired. This company now has a large compact holding as compared with the three claims held under lease and option in 1924. The property is conservatively and intelligently managed, and the management is to be congratulated upon the attention which it gives to safety and avoidance of accidents. The development work of the past year greatly increased the known ore reserves. The mine is fast developing into one of the most important producers of the Coeur d'Alene district.



SURFACE PLANT: DAYROCK MINING CO.

DECKER DEVELOPMENT CO.

Office: Kellogg. **Officers:** George Decker, Pres.-Mgr.; Mrs M. E. Morgan. Sec., both of Kellogg. **Inc.:** Oct. 1, 1927. **Capital:** 500,000 shares; par value 10c; 244,430 shares issued. **Property:** Stewart group; 11 patented, 8 unpatented claims, held under lease; Yreka dist.; Kellogg. **Development:** By Fir tunnel, 2400 ft. long. **Ore:** Lead-silver. **Remarks:** Idle.

DEEP WONDER MINE

Office: 408 Ziegler Bldg., Spokane, Wash. **Officers:** Charles J. Kapps, Trustee, Spokane, Wash. **Property:** Deep Wonder group; 12 patented claims, Hunter dist.; Mullan. **Ore:** Lead-silver. **Remarks:** Property under lease and option to Mutual Mines Development Co.

DEER CREEK MINING CO.

Office: Wallace. **Officers:** C. E. Biggs, Pres.; N. S. Jacobs, Sec., both of Spokane, Wash. **Inc.:** May 23, 1925. **Capital:** 2,000,000 shares, par value 1c; increased on Jan. 22, 1930, to 2,000,000 common, par value 20c, 10,000 preferred, par value $10; 1,491,000 common issued. **Property:** 30 unpatented claims, part of which are held under lease and option, Beaver dist.; Wallace. **Development:** Principally by an 800-ft. tunnel and a 100-ft.

inclined shaft. **Plant:** Gas-driven 10x12 Sullivan compressor and hoist; complete mining equipment and camp. **Ore:** Lead-silver. **Remarks:** Annual labor only. Part of 2 claims under lease to Delta Leasing Co.

DELAWARE MINES CORPORATION

Office: 323 Lindelle Bldg., Spokane, Wash. **Officers:** Matt Baumgartner, Pres.; A. L. Hooper, Sec., both of Spokane; F. C. Bailey, Mgr., Wallace. **Inc.:** March 10, 1926. **Capital:** 5,000,000 shares; par value 10c; 3,416,201 shares issued. **Property:** Rex and Red Monarch groups; 6 patented, 51 unpatented claims, Placer Center and Beaver dists.; Wallace. **Development:** By 4 tunnels, the principal of which are No. 4 or Rex tunnel, approximately 4000 ft. long, in which is a vertical shaft 700 ft. deep; and Red Monarch tunnel, 5900 ft. long. **Plant:** 3 electrically driven compressors; complete mining equipment and 2 mine camps. **Ore:** Lead-zinc-silver. **Remarks:** Failed to file the reports required by law. A preliminary report filed by the Associated Mines Corporation stated that the latter company, whose stock is assessable, was being organized to take over the assets of this company, whose stock is nonassessable.

DICKENS CONSOLIDATED MINES CO.

Office: 402 Standard Stock Exchange Bldg., Spokane, Wash. **Officers:** Guy E. Reigel, Pres.; Robert Porter, Sec., both of Spokane. **Inc.:** Mar. 18, 1925. **Capital:** 2,500,000 shares; par value 10c; all shares issued. **Property:** Dickens group; 31 unpatented claims, Moon Creek, Evolution and Yreka dists.; Kellogg. **Development:** Principally by a vertical shaft 700 ft. deep. Total development, approximately 7000 ft. **Plant:** MINE: 900-cu.-ft. Sullivan compressor and hoist, both electrically driven; complete mining equipment and camp. MILL: 150-ton flotation concentrator. **Ore:** Lead-zinc-silver. **Remarks:** Press reports were to the effect that a small amount of diamond drilling was done on the 600-ft. level during the early part of the year. A stock assessment of 1c was levied on May 31.

DICKENS-EAST MINING CO.

Office: 215 Waverly Place, Spokane, Wash. **Officers:** John Cromie, Pres., Osburn; C. Fred Kratzer, Sec., Spokane, Wash. **Inc.:** Aug. 18, 1926. **Capital:** 2,500,000 shares; par value 10c; all shares issued. **Property:** 10 unpatented claims, Moon Creek, Yreka dist.; Kellogg. **Development:** By 3 tunnels: No. 1, 165 ft.; No. 2, 95 ft. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

DOUGLAS MINING CO., LTD.

Office: Wallace. **Officers:** Frank F. Johnson, Pres., Boise; H. C. Adami, Sec.; H. J. Rossi, Mgr., both of Wallace. **Inc.:** Oct. 24, 1903. **Capital:** 1,200,000 shares; par value $1; all shares issued. **Property:** Douglas group; 15 patented claims, Pine Creek, Yreka dist.; Kellogg. **Developopment:** By 4 tunnels: No. 1, 930 ft.; No. 2, 1350 ft.; No. 3, 1900 ft.; No. 4, 650 ft.; and an inclined shaft 330 ft. long. **Plant:** Electrically driven compressor and hoist; complete mining equipment and camp. **Ore:** Zinc-lead-silver. **Men employed:** Average, 6. **Remarks:** Active during the early part of the year. The work consisted principally of drifting on the vein at the bottom of the inclined shaft. The ore uncovered by this work greatly increased the known resources of the mine.

DU BOIS MINING CO.

Office: Kellogg. **Officers:** H. E. Ginter, Pres., Du Bois, Pa.; J. B. Eberhart, Sec.-Treas., Punxsutawney, Pa. **Inc.:** Aug. 9, 1914. **Capital:** 1,000,000 shares; par value $1; 300,000 shares issued. **Property:** 7 patented, 1 unpatented claim, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel 1250 ft. long. **Ore:** Lead-silver. **Remarks:** Property under option to New Jersey Consolidated Mines Co.

DULUTH MINING CO.

Office: Wallace. **Officers:** W. B. Heitfeld, Pres., Wallace. **Inc.:** June 10, 1909. **Capital:** 1,500,000 shares; par value 25c; 322,210 shares issued. **Property:** Duluth group; 8 patented claims, Lelande dist.; Burke. **Development:** By 5 tunnels, with a total development of approximately 1000 ft. **Ore:** Lead-silver. **Remarks:** Idle.

EAGLE CREEK GOLD MINING CO.
Office: Wallace. **Officers:** Archibald Smith, Sec., Wallace. **Inc.:** July 10, 1922. **Capital:** 500,000 shares; par value $1. **Remarks:** Has not filed the reports required by law since 1924. A stock assessment of 5 mills was levied on April 3.

EAST ALAMEDA MINING CO., LTD.
Office: 689 South Catalina St., Los Angeles, Calif. **Officers:** Frank P. Markwell, Pres., Los Angeles, Calif. **Inc.:** July 25, 1907. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** East Alameda group; 1 patented, 1 unpatented claim, Lelande dist.; Black Bear. **Ore:** Lead-silver.

EAST CALEDONIA MINES CO.
Office: Wallace. **Officers:** H. J. Rossi, Pres.; Franklin Pfirman, Sec., both of Wallace. **Inc.:** Mar. 6, 1915. **Capital:** 1,000,000 shares; par value 25c; 156,730 shares issued. **Property:** East Caledonia group; 2 patented, 5 unpatented claims, Yreka dist.; Kellogg. **Plant:** Electrically-driven I-R compressor, electrically-driven hoist, complete mining equipment. **Ore:** Lead-silver. **Remarks:** Annual labor only.

EAST HECLA MINING CO., LTD.
Office: Wallace. **Officers:** John P. Gray, Pres., Coeur d'Alene; A. H. Featherstone, Sec., Wallace. **Inc.:** Nov. 24, 1906. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** East Hecla group; 4 patented claims, Hunter dist.; Mullan. **Remarks:** Idle for a number of years.

EAST STANDARD MINING CO.
Office: Wallace. **Officers:** J. E. Gyde, Sec., Wallace. **Inc.:** Aug. 9, 1911. **Capital:** 1,000,000 shares; par value $1. **Remarks:** Has refused to file the reports required by law since 1926. The Big Three Mining Co. reports that it is operating the property owned by this company under a lease and option.

EASTERN STAR MINING CO., LTD.
Office: Wallace. **Officers:** Jack Johnstone, Pres.-Mgr., Burke; John C. Glahe, Sec., Wallace. **Inc.:** Aug. 29, 1906. **Capital:** 1,000,000 shares; par value $1; 600,000 shares issued. **Property:** Eastern Star group; 18 unpatented claims, Lelande dist.; Burke. **Development:** 2 tunnels: No. 1, 150 ft. long; No. 2, 900 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

ELDORADO MINING & SMELTING CO., LTD.
Office: Wallace. **Officers:** J. C. Waddell, Pres., Coeur d'Alene; G. W. Dougherty, Sec., Wallace. **Inc.:** July 5, 1907. **Capital:** 1,250,000 shares; par value 10c; 1,204,820 shares issued. **Property:** 1 patented, 3 unpatented claims, Yreka dist.; Kellogg. **Development:** By 1 tunnel, approximately 1000 ft. long. **Plant:** Gas-driven compressor. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of 1½ mills was levied on April 12.

ELGIN & OGDEN MINING CO.
Office: Kellogg. **Officers:** Wesley J. Herring, Pres.-Mgr.; H. L. Goodwin, Sec., both of Kellogg. **Inc.:** July 11, 1921. **Capital:** 1,000,000 shares; par value 5c; 639,595 shares issued. **Property:** 5 unpatented claims, Big Creek, Yreka dist.; Kellogg. **Development:** By 2 tunnels: No. 1, 500 ft.; No. 2, 450 ft. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of 5 mills was levied on Sept. 8.

ENCHANTED HILL MINING CO.
Office: Kellogg. **Officers:** A. C. Beal, Pres.-Mgr., Spokane, Wash.; Lester S. Harrison, Sec., Kellogg. **Inc.:** Feb. 27, 1928. **Capital:** 2,000,000 shares common, par value 10c; 25,000 shares preferred, par value $1; 1,500 shares common, all shares preferred issued. **Property:** Enchanted Hill group; 19 unpatented claims, unorganized dist.; St. Joe. **Development:** By 1 tunnel 60 ft. long. **Ore:** Lead-copper-silver. **Remarks:** Annual labor only.

ENTERPRISE MINING CO.

Office: Kellogg. **Officers:** Fred F. Donaldson, Pres.-Mgr.; W. A. Tuson, Sec., both of Kellogg. **Inc.:** June 4, 1910. **Capital:** 1,000,000 shares; par value $1; 589,250 shares issued. **Property:** Enterprise group; 1 patented, 7 unpatented claims, Yreka dist.; Kellogg. **Development:** By 3 tunnels: No. 1, 150 ft. long; No. 2, 180 ft. long; No. 3, 1400 ft. long. **Men employed:** Average, 1. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of 3 mills was levied on July 1.

EQUITABLE MINING & MILLING CO.

Office: 303 Sherman Ave., Coeur d'Alene. **Officers:** C. L. Dittimore, Pres.; H. W. Fintzel, Sec., both of Coeur d'Alene. **Inc.:** April 3, 1916. **Capital:** 1,250,000 shares; par value 1c; 599,926 shares issued. **Property:** 7 unpatented claims; Pine Creek, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel 1100 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

EVOLUTION MINING CO.

Office: Wallace. **Officers:** Montgomery Waddell, Pres., New York City; Julius P. Hall, Mgr., Wallace. **Inc.:** July 25, 1927. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Evolution group; 8 unpatented claims, Evolution dist.; Osburn; held under lease and option from the Coeur d'Alene Crescent Mining Co. **Development:** By 1 tunnel 1500 ft. long; a vertical shaft 300 ft. deep; and an inclined shaft 800 ft. long, giving a vertical depth of 340 ft. **Plant:** Electrically-driven compressor and hoist; complete mining equipment. **Ore:** Lead-silver. **Remarks:** Idle through the year.

FANNIE GREMM MINING CO.

Office: Wallace. **Officers:** Thomas McCabe, Pres.; Alfred J. Dunn, Sec., both of Wallace. **Inc.:** Dec. 6, 1900. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** 2 patented claims adjoining the Morning mine on the east, Hunter dist.; Mullan. **Development:** Approximately 16,000 ft. of underground workings. **Ore:** Lead-silver. **Remarks:** Idle.

FEDERAL MINING & SMELTING CO.

Office: 120 Broadway, New York City. **Officers:** F. H. Brownell, Pres.; J. L. Martin, Sec., both of New York City; H. G. Washburn, Mgr., Wallace. **Inc.:** Sept. 24, 1903. **Capital:** 200,000 shares preferred, 100,000 shares common; par value of each, $100; 29,876 shares preferred, 60,000 shares common issued.

MORNING GROUP

Property: 41 patented claims, Hunter dist.; Mullan. **Development:** The two principal tunnels are No. 5, 1600 ft. long, and No. 6, the main transportation tunnel, 9500 ft. long. The principal shaft, which is located in No. 6 tunnel, is a vertical, 4-compartment shaft, 2850 ft. deep, with 14 intermediate levels below No. 6 tunnel, which opens the vein to a depth of approximately 5220 ft. Total development, approximately **37 miles.** **Plant:** MINE: 1 double-reel hoist, arranged for electric drive by means of direct-current hoist motor 600 h. p., 450 r. p. m., through single reduction herringbone gear, driven by synchronous motor generator (motor 700 h. p.; generator 500 KW-D. C.) 1200 r. p. m., 265 volts; one 600-h. p. electrically-driven double-drum Nordberg hoist; one Nordberg single-drum geared hoist, driven by 300-h. p. electric motor; one water-driven 5200-cu.-ft. Ricks compressor; one Laidlaw-Dunn-Gordon 3200-cu.-ft. compressor, two Ingersoll-Rand 2500-cu.-ft. compressors, and one Prescott pump, 400 gal. capacity, on 2450 level, all electrically driven; complete mining equipment, machine shops, sawmill, company buildings and hotel. HAULAGE: 500-volt electric in main, or No. 6, tunnel; 250-volt electric and 10 storage-battery locomotives in intermediate levels. MILL: 1200-ton concentrator, including flotation. Two ore-sorting plants and complete modern change house. **Ore:** Lead-silver-zinc. **Men employed:** Average, 540, exclusive of lessees. **Remarks:** Capacity production maintained throughout the year. The number of years that this record will



MORNING MILL AND SURFACE PLANT, FEDERAL M. & S. CO.



PAGE MINE: FEDERAL M. & S. CO.

continue is unknown, as development work on the 3250, 3450 and 3650-ft. levels has proved the ore bodies to be larger and more extensive than on any of the upper levels, and the ore on the 3450-ft. level has been found to be richer in metal content than on any of the levels above it. During the year the shaft was extended to a depth of 153 ft. below the 3650-ft level, and the vein was crosscut on the 3650-ft. level. The 3250-ft. level was opened for the full length of the ore, and the 3450-ft. level was opened for a length of 590 ft. The mine and mill plants were greatly enlarged, and the mill was further improved to conform with recent developments in flotation practice. In addition to the ore mined under company operation, a large tonnage was extracted from the upper levels by lessees.

PAGE GROUP

Property: 86 patented claims, Yreka dist.; Kellogg. **Development:** By 9 tunnels, the principal one of which is the Curlew, 650 ft. long; and an inclined shaft 900 ft. long, giving a vertical depth of 700 ft. Total development, approximately 23,000 ft. **Plant:** MINE: A 100 h. p. hoist and a 75-h. p. double-drum hoist, both electrically driven; a 400-cu.-ft., an 800-cu.-ft., and a 2550-cu.-ft. electrically driven compressor; 1 trolley locomotive and 2 storage-battery locomotives; complete and modern mine camp, equipment and buildings. MILL: 300-ton flotation concentrator. **Ore:** Lead-zinc-silver. **Men employed:** Average, 119. **Remarks:** During the year the mill was enlarged and improved, principally by the addition of new crushing equipment. New mine and camp buildings were erected, and a large amount of new mining equipment was installed. Production was maintained without interruption throughout the year, and approximately 1000 ft. of development work in the Black Hawk

ground on the 1200-ft. level of the Page shaft was done. The success of this operation can be accredited entirely to flotation, because with the old milling methods it was impossible to mine and mill the ore at a profit.

MACE GROUP

Property: 35 patented claims, Lelande dist.; Mace. **Development:** Principal development consists of No. 6 tunnel, 3600 ft. long; No. 2, Campbell, 3000 ft. long; and a 3-compartment vertical shaft 2400 ft. deep, with 22 intermediate levels. Total development: Approximately 4 miles. **Plant:** MILL: Two 500-ton concentrators, including flotation. **Ore:** Lead-silver. **Remarks:** Except for the operation of a few lessees, who produced a small tonnage of ore, this property was idle. No. 6 tunnel is now known as No. 7 of the Tamarack & Custer Consolidated Mining Co.



PAGE MILL: FEDERAL M. & S. CO.

BURKE GROUP

Property: One millsite, Lelande dist.; Burke. **Plant:** A small hydroelectric power plant.

FRISCO GROUP

Property: 15 patented claims, Lelande dist.; Gem. **Development:** Principally by 4 tunnels: No. 1, 1000 ft. long; No. 2, 1500 ft. long; No. 3, 550 ft. long; No. 4, 1000 ft. long; and a vertical 4-compartment shaft 1650 ft. deep. Total development, approximately 6 miles. **Ore:** Lead-zinc-silver. **Remarks:** A substantial tonnage of ore was produced by lessees during the year.

BIG CREEK GROUP

Property: 3 patented claims, Evolution dist.; Kellogg. **Development:** By 1 tunnel, 75 ft. long. **Ore:** Lead-zinc-silver.

GOVERNMENT GULCH GROUP

Property: Five-sixteenths interest in 1 patented claim, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel, which is 500 ft. long. Total development, approximately 1700 ft. **Ore:** Lead-silver.

CON. BIEDERMAN GROUP

Property: One-half interest in 2 patented claims and one-third interest in 2 patented claims, Yreka dist.; Kellogg. **Development:** By 2 tunnels: No. 1, 320 ft. long; No. 2, 125 ft. long. **Ore:** Lead-zinc-silver.

REMARKS

This company is one of the largest lead-zinc-silver producers in the United States, operating properties in Missouri and Idaho. The total production from its Idaho properties makes it rank second in production in Idaho.

FIDELITY COMPANY, LTD.

Office: Wallace. **Officers:** Oscar B. Bergstrom, Pres., 149 Broadway, New York City; Allan G. Kennedy, Sec.-Mgr., Wallace. **Inc.:** Nov. 5, 1915. **Capital:** 2,500,000 shares; par value 20c; 1,675,309 shares issued. **Property:** Monarch group; 7 patented, 29 unpatented claims, Summit dist.; Murray. **Development:** By 3 tunnels, the principal of which is No. 3, or main crosscut tunnel, which is 3120 ft. long; and an inclined shaft 300 ft. deep; total development, approximately 13,500 ft. **Plant:** MINE: Ottumwa air-driven hoist, 10-drill water-driven compressor, complete mining equipment and camp. MILL: 150-ton concentrator, jigs and tables. **Ore:** Lead-zinc-silver. **Men employed:** 1 watchman. **Remarks:** Annual labor only.

FIRST NATIONAL SILVER MINES, LTD.

Office: 323 Lindelle Blk., Spokane, Wash. **Officers:** Dan Krehbiel, Pres., Lind, Wash.; Matt Baumgartner, Sec.-Mgr., Spokane, Wash. **Inc.:** April 7, 1920. **Capital:** 3,000,000 shares; par value 5c; 2,600,000 shares issued. **Property:** Liston group; 7 patented, 26 unpatented claims, Big Creek, Evolution dist.; Kellogg. **Development:** By 3 tunnels: No. 1, 1000 ft. long; No. 2, 2500 ft. long; No. 3, 2600 ft. long. **Plant:** Steam-driven compressor, and complete mining equipment. **Ore:** Lead-silver. **Remarks:** Annual labor only.

FLAGSTAFF MINING CO.

Office: Wallace. **Officers:** Emery Guay, Pres.; Evelyn Vowels, Sec., both of Spokane, Wash.; E. L. Vowels, Mgr., Prichard. **Inc.:** Oct. 29, 1927. **Capital:** 1,000,000 shares; par value 10c, 683,195 shares issued. **Property:** Jippo group; 5 unpatented claims, Eagle dist.; Prichard. **Remarks:** Annual labor only.

FLORENCE MINING & MILLING CO., LTD.

Office: Kellogg. **Officers:** Robert R. Pence, Pres.; E. C. Franks, Sec.; L. E. Franks, Mgr., all of Spokane, Wash.. **Inc.:** Aug. 15, 1908. **Capital:** 1,000,000 shares; par value $1; 424,652 shares issued. **Property:** Dallaire group; 10 unpatented claims, Big Creek, Yreka dist.; Kellogg. **Development:** 5 tunnels: No. 1, 100 ft. long; No. 2, 150 ft. long; No. 3, 80 ft. long; No. 4, 180 ft. long; No. 5, 1875 ft. long. **Plant:** Electrically driven I-R compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Remarks:** Property optioned to Keystone Mining Co.

FLYNN GROUP MINING CO.

Office: Wallace. **Officers:** J. J. Cronin, Pres.; J. F. Whelan, Sec., both of Wallace. **Inc.:** Aug. 21, 1905. **Capital:** 2,500,000 shares; par value 25c; 1,605,000 shares issued. **Property:** Flynn group; 21 patented claims, Lelande dist.; Black Bear. **Development:** Total development, 6600 ft. **Remarks:** Under option to Coeur d'Alene Syndicate Mining Co.

FORMOSA LEAD MINING CO., LTD.

Office: 504 Empire State Bldg., Spokane, Wash. **Officers:** Charles Hussey, Sec., Spokane, Wash. **Inc.:** Jan. 19, 1907. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** 3 patented claims, Lelande dist.; Wallace. **Remarks:** Under development by Mutual Mines Development Co., which see.

FORT WAYNE MINING CO.

Office: Wallace. **Officers:** E. W. Conrad, Pres.-Mgr., Wallace; J. M. Henneck, Sec., Spokane, Wash. **Inc.:** Sept. 22, 1924; name changed July 8, 1930, to Idaho Montana Mining & Oil Co. **Capital:** 1,500,000 shares, par value 33 1-3c; increased July 8, 1930, to 2,000,000 shares, par value 50c; 1,141,726 shares issued. **Property:** Eclipse group; 19 unpatented claims, Evolution dist.; Osburn. **Development:** Principally by 1 tunnel, which is 2300 ft. long. **Plant:** Gas-driven compressor. **Ore:** Lead-silver. **Remarks:** Annual labor only.

GALENA MINING CO.

Office: Wallace. **Officers:** A. H. Featherstone, Pres.; W. L. Coe, Sec., both of Wallace. **Inc.:** Not filed in Idaho. **Capital:** 3,000,000 shares; par value $1; 2,000,000 shares issued. **Property:** Idaho Galena group; 10 unpatented claims, Placer Center dist.; Plymouth group, 2 unpatented claims, West Federal group, 12 unpatented claims, Hunter dist.; Wallace. **Remarks:** This company is a consolidation of and acquired the property, through an exchange of stock, of the following companies: Idaho Galena Mining Co., Plymouth Lead Mines Co., and West Federal Mining Co. Annual labor only.

GEM STATE MINING CO.

Office: 720 Peyton Bldg., Spokane, Wash. **Officers:** W. E. Horstkotte, Sec., Spokane, Wash. **Inc.:** Aug. 25, 1924. **Capital:** 2,200,000 shares; no par value; 1,100,000 shares issued. **Property:** 8 patented, 12 unpatented claims, Hunter dist.; Wallace. **Development:** By 6 tunnels, the longest of which is No. 4, 1878 ft. in length. **Ore:** Lead-silver-zinc. **Remarks:** Annual labor only. A stock assessment of 2 mills was levied on Feb. 15.

GENERAL MINES CORPORATION

Office: 402 Empire State Bldg., Spokane, Wash. **Officers:** C. Roholt, Pres., Worley; H. G. Loop, Sec., Spokane, Wash. **Inc.:** Nov. 23, 1925. **Capital:** 2,000,000 shares; par value 5c; shares issued, unknown. **Property:** Big Eight group; 12 unpatented claims and 106 acres patented land, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel 2850 ft. long. **Plant:** Electrically driven G-D compressor; complete mining equipment. **Remarks:** Failed to file the reports required by law, although twice notified to do so. During the year this enterprise received a larger amount of publicity from the press than any other mining company in the State. The press reports were to the effect that the principal tunnel was extended, and that this work revealed a mineralization dissimilar to any other in the district.

GERTIE MINING CO.

Office: Wallace. **Officers:** E. E. Flood, Pres.; F. M. Rothrock, Sec., both of Spokane, Wash. **Inc.:** July 23, 1914. **Capital:** 2,500,000 shares; par value 10c; all shares issued. **Property:** Gertie group; 3 patented claims, Lelande dist.: Burke.

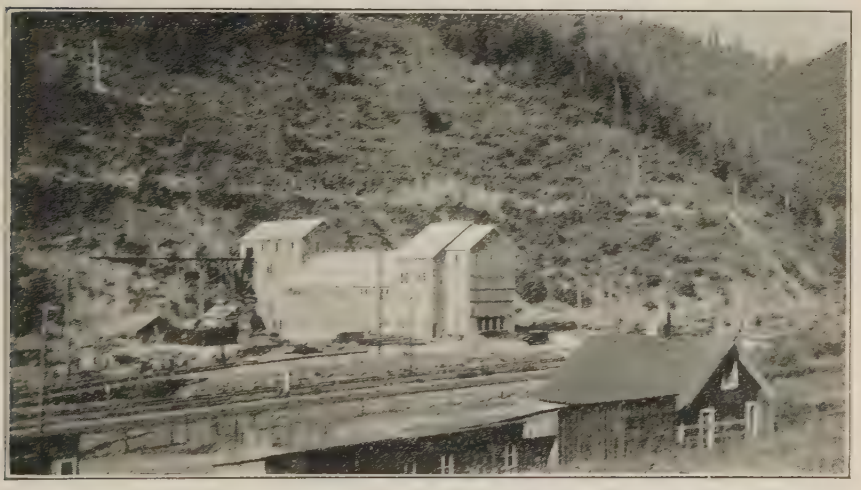
GIANT MINING & DEVELOPMENT CO.

Office: Wallace. **Officers:** Paul Liver, Pres.-Mgr.; E. R. Turk, Sec., both of Wallace. **Inc.:** Sept. 22, 1899. **Capital:** 1,000,000 shares; par value 10c; 554,990 shares issued. **Property:** 8 unpatented claims, Beaver dist.; Wallace. **Development:** Principally by 1 tunnel, which is 1050 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Annual labor only. A stock assessment of 3 mills was levied on Oct. 20.

GOLCONDA LEAD MINES

Office: Wallace. **Officers:** A. H. Featherstone, Pres., Wallace; Chas. P. Lund, Sec.; Wm. A. Beaudry, Mgr., both of Spokane, Wash. **Inc.:** Jan. 18, 1927. **Capital:** 2,000,000 shares; par value $1; all shares issued. **Property:** Hector group; 14 patented, 6 unpatented claims, Hunter dist.; Wallace; Mayflower group; 14 unpatented claims, Lelande and Hunter dists.; Wallace. **Development:** Mine opened by the Mayflower tunnel, 5000 ft. in length, an inclined raise 800 ft. long, and a vertical shaft 800 ft. deep, both from Mayflower tunnel (1000-ft. level). **Plant:** MINE: Two electrically driven 750-cu.-ft. Sullivan compressors; 2 air-driven hoists

and a large electrically driven hoist; storage-battery locomotive haulage; sawmill, yards, and timber-shed; complete mining equipment. MILL: 200-ton concentrator, fine-grinding, flotation. **Ore:** Lead-zinc-silver. **Men employed:** Average, 115. **Remarks:** The mine plant was enlarged and improved; a large new electrically driven hoist and a compressor were installed. The main shaft was extended from the 1400 to the 1800-ft. level, and a large amount of development work was done on the 1600 and 1800-ft. levels. The ore opened on these levels greatly increased the known resources of the mine. Capacity production was maintained until March 15, when the low price of metals forced a suspension; however, milling operations on a one-shift basis were resumed on August 1. The property owned by the Square Deal Mining & Milling Co. was obtained under lease and option, and a crosscut was started on the 1400-ft. level to develop this property. One of the most important discoveries of the year of high-grade lead-silver ore was made on the surface of the Mayflower group about 2000 ft. east of the present operations. This discovery was made late in the year through logging operations, and work was started to develop it. The money for the development work, plant additions, and improvements was obtained from mine profits. This company is fast becoming recognized as one of the principal operations in Shoshone County.



GOLCONDA LEAD MINES: MILL

GOLD HUNTER MINES, INC.

Office: 516 E. 28th St., Chicago, Ill. **Officers:** Edwin C. Hennessy, Pres.; Thomas F. Keeley, Sec., both of Chicago, Ill.; C. K. Cartwright, Mgr., Mullan. **Inc.:** April 24, 1925; formerly Gold Hunter Mining & Smelting Co. **Capital:** 20,000 shares; par value $10; all shares issued. **Property:** Gold Hunter; 12 patented claims. Hunter dist.; Mullan. **Development:** Principal main haulage tunnel 7600 ft. long, from which level is a shaft 1500 ft. deep to the 1200-ft. level, in which there is another shaft 600 ft. deep. **Plant:** MINE: Complete and modern; electric hoist; two 3000-cu-ft. electrically-driven compressors; pumps; machine and blacksmith shop; electric haulage. MILL: 500-ton concentrator, including flotation. **Ore:** Lead-silver. **Men employed:** Average, 160. **Remarks:** Capacity output and extensive development campaign conducted for the first three months of the year, after which all operations were suspended because of the low price of metals.

GOODENOUGH MINING CO.
Office: Sanger, Calif. **Officers:** F. P. Markwell, Pres., Los Angeles, Calif.; J. Fred Markwell, Sec., Sanger, Calif. **Inc.:** Apr. 6, 1922. **Capital:** 2,500,000 shares; par value 1c; all shares issued. **Property:** Goodenough group; 13 patented, 5 unpatented claims, Lelande and Hunter dists.; Gem. **Remarks:** Property under option to United Metals Co.

GOVERNMENT GULCH MINING CO.
Office: Wallace. **Officers:** H. G. Washburn, Mgr.; A. W. Hoover, Sec., both of Wallace. **Inc.:** July 15, 1918. **Capital:** 1,500,000 shares; par value 10c; 1,350,567 shares issued. **Property:** Government Gulch group; 6 patented claims, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel 500 ft. long and a vertical shaft 100 ft. deep. Total development, approximately 1800 ft. **Ore:** Lead-zinc-silver. **Remarks:** Idle.

GRANADA LEAD MINES, INC.
Office: Wallace. **Officers:** A. H. Featherstone, Pres.; O. W. Lewis, Sec., both of Wallace. **Inc.:** Feb. 5, 1930. **Capital:** 2,000,000 shares; par value $1; all shares issued. **Property:** 110 acres patented land, 9 unpatented claims, Hunter dist.; Wallace. **Development:** Principally by 1 tunnel over 500 ft. long. **Plant:** Electrically driven compressor; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 4. **Remarks:** This company's property adjoins that of the Golconda Lead Mines. During the year the company was organized, equipment was installed, and work was started on driving a long crosscut tunnel. This work was maintained without interruption, and the tunnel intersected two veins containing a good showing of ore.

GREAT DUNKER MINING & MILLING CO.
Office: 316 Lindelle Bldg., Spokane, Wash. **Officers:** Carl A. Pearson, Sec.-Mgr., Star Route, Kellogg. **Inc.:** Jan. 11, 1924. **Capital:** 1,000,000 shares; par value 10c; 315,980 shares issued. **Property:** Great Dunker group; 3 patented, 2 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 7 short tunnels. **Ore:** Lead-zinc-silver, antimony. **Remarks:** Annual labor only.

GREAT EASTERN MINING CO., LTD.
Office: Wallace. **Officers:** John Carlson, Pres., Gem; John C. Furst, Sec., Wallace. **Inc.:** Oct. 22, 1900. **Capital:** 1,000,000 shares; par value $1; 750,000 shares issued. **Property:** Great Eastern group; 12 patented claims, Lelande dist.; Gem. **Development:** Total development, approximately 4000 ft.; the principal tunnel is 600 ft. long. **Ore:** Lead-silver-zinc.

GREEN HILL CLEVELAND MINING CO.
Office: Wallace. **Officers:** F. H. Brownell, Pres., 120 Broadway, New York City; John H. Wourms, Sec.; H. G. Washburn, Mgr., both of Wallace. **Inc.:** Oct. 7, 1912. **Capital:** 320,000 shares; par value $1; all shares issued. **Property:** Green Hill group; 3 patented claims, Lelande dist.; Mace. **Ore:** Silver-lead-zinc. **Remarks:** Idle since 1917.

HAPPY DAY MINING CO., LTD.
Office: Day Bldg., Wallace. **Officers:** Daniel Morgan, Pres., Spokane, Wash. **Inc.:** Sept. 30, 1899. **Capital:** 1,000,000 shares; par value 10c; 791,737 shares issued. **Property:** Happy Day group; 6 patented claims, Lelande dist.; Burke. **Development:** Principally by 1 tunnel 1500 ft. long. **Ore:** Lead-silver.

HECLA EXTENSION MINING CO.
Office: Wallace. **Officers:** Chas. Oster, Pres., Wallace; George C. Hollister, Sec., 14 Wall St., New York. **Inc.:** Oct. 21, 1926. **Capital:** 1,500,000 shares; par value 25c; all shares issued. **Property:** Anchor group; 8 patented claims, held under lease and option from the Anchor Mining Co., and 1 unpatented claim, Lelande dist.; Burke. **Development:** By 2 tunnels: No. 1, 700 ft. long; No. 2, 2800 ft. long; and a 600-ft. vertical shaft. **Plant:** Electrically driven I-R compressor; electrically driven hoist; and complete mining equipment. **Ore:** Lead-silver. **Remarks:** Idle.

HECLA MINING CO.

Office: Wallace. **Officers:** James F. McCarthy, Pres.-Mgr.; L. E. Hanley, Sec., both of Wallace. **Inc.:** Sept. 26, 1898. **Capital:** 1,000,000 shares; par value 25c; all shares issued. **Property:** 46 patented claims, Lelande dist.; Burke. **Development:** Principally by a 4-compartment vertical shaft, which is 2800 ft. deep, and a 3-compartment vertical shaft from the 2000-ft. level, which is 800 ft. deep. Total development, approximately 10 miles. **Plant:** MINE: 2 electrically driven I-R compressors, totaling 7500 ft., housed in steel and concrete buildings; one of the largest, most complete and modern mine plants in the United States; 2 electrically driven hoists. MILL: 700-ton concentrator, including flotation. **Ore:** Lead-silver. **Men employed:** Average, 443.



HECLA MINING CO.'S MILL

REMARKS

Mine development work, which consisted principally of placing the lower levels in condition for production, was conducted throughout the year. Normal production was maintained until September, when the continued low price of metals caused a reduction to a 5-day-a-week basis. The mine and mill plants were further improved. The usual dividend rate was maintained. The company was actively engaged in developing two other properties in the Coeur d'Alene district and one in Lemhi County, and it maintained throughout the year an active scouting and investigating campaign in a search for additional properties. This company is one of the principal lead-silver producing companies in the United States. The management is progressive, and the life of the Hecla mine is assured for many years.

HENNESSY-BURNS MINING CO.

Office: Wallace. **Officers:** Jos. R. Whelan, Sec., Wallace. **Inc.:** Aug. 18, 1906. **Capital:** 1,000,000 shares; par value $1. **Remarks:** Has never filed the reports required by law.

HERCULES MINING CO.

Office: Wallace. **Officers:** Harry L. Day, Pres.-Mgr.; A. P. Ramstedt, Sec., both of Wallace. **Inc.:** Dec. 31, 1923. **Capital:** 500,000 shares; par value $10; 430,180 shares issued.



HECLA MINING CO.: MINE BUILDINGS AND TOWN OF BURKE

HERCULES GROUP

Property: Hercules group, 36 patented claims; Columbia lode, 1 patented claim; Lelande and Placer Center dists.; Burke. **Development:** Principally by 5 tunnels: No. 1, 280 ft.; No. 2, 3350 ft.; No. 3, 3900 ft.; No. 4, 5900 ft.; No. 5, 8550 ft.; and a 4-compartment vertical shaft 1300 ft. deep, with 8 intermediate levels. Total development, approximately 18 miles. **Plant:** MINE: Special first motion, double-reel, Nordberg electric hoist, direct connected to 700-h. p. motor. One 22x16 I-R and 1 29x21 I-R compressor, both electrically driven. Electric trolley locomotive in main transportation tunnel and storage-battery locomotives in intermediate levels. Complete and modern mine equipment and shops. MILL: 900-ton concentrator, including flotation. See pages 23 to 27 of the 1929 report for complete description. **Ore:** Lead-silver. **Men employed:** Average, 52.

MAHER-HEARN GROUP

Property: 38 patented claims; Lelande dist.; Burke. **Development:** Through 4500-ft. tunnel of Gertie Mining Co., at the end of which is over 4000 ft. of tunnel and a 400-ft. vertical shaft. **Plant:** Electrically-driven 1000-cu.-ft. I-R compressor; air-driven hoist; trolley electric locomotive haulage; complete and modern equipment. **Ore:** Lead-silver.

ANDREWS GROUP

Property: 4 unpatented claims, Lelande dist.; Burke. **Development:** By 1 tunnel 300 ft. long.

REMARKS

During the year the Hercules mine surface plant and tunnels Nos. 4 and 5 were used in the operation of the Sherman Lead Co., the Humming Bird Mining Co., and the Ambergris Consolidated Mining Co. The mill was operated on a custom basis and treated the entire output of the Sherman Lead Co., Dayrock Mining Co., and Tamarack & Custer Mining Co., in addition to that of a large number of small producers and lessees. The principal mines and mining companies which this company owns or controls are: Hercules and Maher-Hearn mines, Ambergris Consolidated Mining Co.; Humming Bird Mining Co.; Roanoke Mining Co.; Western Union Mining Co.; and Marsh Mines, Consolidated.

HIDDEN TREASURE MINING CO.

Office: Wallace. **Officers:** A. W. Hoover, Sec.; H. G. Washburn, Mgr., both of Wallace. **Inc.:** May 18, 1908. **Capital:** 500,000 shares, par value $10; decreased Sept. 6, 1930, to 10c; all shares issued. **Property:** Hidden Treasure group; 4 patented claims, Lelande dist.; Burke. **Development:** Principally by 1 tunnel 2540 ft. long. **Ore:** Silver-lead-zinc.

HIGH CROPPING SILVER-LEAD MINING CO.

Office: Burke. **Officers:** Hugh Gibson, Pres.-Mgr.; J. F. Hurtubise, Sec., both of Burke. **Inc.:** Sept. 18, 1924. **Capital:** 1,500,000 shares; par value 25c; 340,000 shares issued. **Property:** High Cropping group; 5 unpatented claims, Lelande dist.; Burke. **Development:** 1 tunnel, 310 ft. long.

HIGHLAND-SURPRISE CONSOLIDATED MINING CO.

Office: Kellogg. **Officers:** Dr. Charles R. Mowery, Pres., Wallace; George D. Lamielle, Sec., Kellogg. **Inc.:** Aug. 27, 1912. **Capital:** 1,200,000 shares; par value $1; 1,190,122 shares issued. **Property:** 3 patented, 36 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** Approximately 2 miles of underground workings. **Plant:** MINE: A 7-drill I-R compressor, electrically driven; complete mining equipment and camp. MILL: 150-ton concentrator. **Ore:** Lead-zinc-silver. **Men employed:** Average, 1. **Remarks:** Annual labor only. A stock assessment of 1c was levied on Jan. 10.



HERCULES MINING CO.: MILL

HILARITY LEAD-SILVER MINING CO.
Office: Mullan. **Officers:** J. A. Glowe, Pres.; C. W. Ingram, Sec.- Mgr., both of Mullan. **Inc.:** Apr. 24, 1916, as Pine Creek Mining & Milling Co.; name changed May 7, 1923; charter forfeited Nov. 30, 1930. **Capital:** 2,000,000 shares; par value 10c; 1,250,000 shares issued. **Property:** 12 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel 500 ft. long, and a 200-ft. vertical shaft. **Plant:** Electrically driven compressor; complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Remarks:** Failed to file the reports required by law. A stock assessment of 5 mills was levied on June 27.

HILL MINING & MILLING CO.
Office: First State Bank Bldg., Kellogg. **Officers:** Elmer Brown, Pres.-Mgr.; F. Wm. Voightlander, Sec., both of Kellogg. **Inc.:** May 10, 1916. **Capital:** 1,000,000 shares; par value 2c; 520,428 shares issued. **Property:** Hill group; 4 unpatented claims, Yreka dist.; Kellogg. **Development:** By 1 tunnel 800 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

HORNSILVER MINING & MILLING CO.
Office: Coeur d'Alene. **Officers:** Ben L. Collins, Pres., 312 Old Nat'l Bank Bldg., Spokane, Wash.; Russell F. Collins, Sec.-Mgr., Coeur d'Alene. **Inc.:** May 31, 1901. **Capital:** 1,000,000 shares; par value 10c; 718,505 shares issued. **Property:** 9 unpatented claims, Placer Center dist.; Wallace. **Development:** 1 tunnel, 1000 ft. long. **Ore:** Lead-silver-gold. **Remarks:** Annual labor only.

HORSESHOE MINING CO.
Office: Mullan. **Officers:** Jas. B. Scoles, Pres.-Mgr., Mullan. **Inc.:** July 16, 1908. **Capital:** 1,500,000 shares; par value $1; 900,000 shares issued. **Property:** Horseshoe group; 9 unpatented claims, Hunter dist.; Mullan. **Development:** 2 tunnels: No. 1, 400 ft. long; No. 2, 3000 ft. long. **Ore:** Lead-silver. **Remarks:** Tunnel controlled by Atlas Mining Co.

HULL SILVER LEAD CO.
Office: Wallace. **Officers:** P. J. Maggy, Sec., Wallace. **Inc.:** July 1, 1929. **Capital:** 2,000,000 shares; par value $1; all shares issued. **Property:** 4 unpatented claims, Lelande dist.; Wallace. **Development:** By 1 tunnel 165 ft. long. **Ore:** Silver-lead.

HUMBOLT MINING CO.
Office: Burke. **Officers:** James Dunne, Pres.-Mgr., Burke. **Inc.:** An association. **Property:** Humbolt group; 8 unpatented claims, Lelande dist.; Burke. **Development:** 3 short tunnels. **Ore:** Lead-silver. **Remarks:** Annual labor only.

HUMBOLT MINING & MILLING CO.
Office: Wallace. **Officers:** Geo. Noble, Sec., East 314 17th St., Spokane, Wash. **Inc.:** April 13, 1929. **Capital:** 3,000,000 shares; par value 50c. **Remarks:** Failed to file the reports required by law. The report filed for 1929 stated that this company was a reorganization of the Deer Creek Mining Co., which see.

HUMMING BIRD MINING CO.
Office: Burke. **Officers:** Harry L. Day, Pres.-Mgr., Wallace; W. H. Hoover, Sec., Burke. **Inc.:** June 27, 1898. **Capital:** 1,500,000 shares; par value $1; 1,411,075 shares issued. **Property:** Humming Bird group; 18 patented claims, Lelande dist.; Burke. **Development:** Total development, approximately 12,400 ft. of tunnels, the principal of which are No. 4, 1253 ft. long, and No. 5, Hercules, 12,086 ft. long. **Plant:** All equipment used in operation furnished by Hercules Mining Co. **Ore:** Lead-silver. **Remarks:** Idle. A stock assessment of 4 mills was levied on Oct. 27.

HYPOTHEEK MINING & MILLING CO.
Office: Wallace. **Officers:** E. G. Gnaedinger, Pres.; Otto A. Olsson, Sec.-Mgr., both of Wallace. **Inc.:** Feb. 13, 1901. Capital: 2,000,000 shares; par value 10c; all shares issued. **Property:** 760 acres of patented land, Yreka dist.; Kellogg. **Development:** By 2 tunnels: No. 1, 700 ft. long; No. 2, 1500 ft. long; and a vertical shaft 1100 ft. deep. Total development, approximately 37,000 ft. **Plant:** MINE: Double-drum electric hoist; No. 10 I-R compressor, electrically driven; machine shop; sawmill; and complete mining equipment; 12 buildings. MILL: 200-ton concentrator. **Ore:** Lead-silver. **Remarks:** Idle.

IDAHO COPPER MINING CO., LTD.
Office: Wallace. **Officers:** W. H. Herrick, Pres.; A. H. Featherstone, Sec., both of Wallace. **Inc.:** Aug. 24, 1906. **Capital:** 1,250,000 shares; par value $1; all shares issued. **Property:** 3 patented claims, Hunter dist.; Mullan. **Ore:** Copper. **Remarks:** Idle for a number of years.

IDAHO & EASTERN MINING & MILLING CO.
Office: Wallace. **Officers:** John H. Wourms, Pres.; W. A. Devan, Sec., both of Wallace. **Inc.:** Aug. 20, 1903. **Capital:** 1,000,000 shares; par value $1; 758,900 shares issued. **Property:** Idaho & Eastern group; 4 patented, 2 unpatented claims, Lelande dist.; Burke. **Development:** By 1 tunnel 86 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

IDAHO-LEADVILLE MINES CO.
Office: 823 First Ave., Spokane, Wash. **Officers:** Thomas Fahey, Pres.; E. P. Ryan, Sec., both of Spokane, Wash. **Inc.:** Apr. 1, 1914. **Capital:** 1,000,000 shares; par value 10c; 548,020 shares issued. **Property:** 12 unpatented claims, Evolution dist.; Osburn. **Development:** By 2 tunnels: No. 1, 900 ft. long; No. 2, 145 ft. long. **Ore:** Lead-silver. **Remarks:** Failed to file the reports required by law.

IDAHO & LOS ANGELES MINING & MILLING CO.
Office: Wallace. **Officers:** Thomas McCabe, Pres.; Alfred J. Dunn, Sec.-Mgr., both of Wallace. **Inc.:** June 6, 1904; charter forfeited Dec. 2, 1916. **Capital:** 1,000,000 shares; par value $1; 820,000 shares issued. **Property:** 16 patented claims, Beaver dist.; Wallace. **Development:** By 3 tunnels: No. 1, 150 ft. long; No. 2, 1700 ft. long; No. 3, 800 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** Idle.

IDAHO MONTANA MINING & OIL CO.
Office: Wallace. **Officers:** E. W. Conrad, Pres.-Mgr., Wallace; J. M. Henneck, Sec., Spokane, Wash. **Inc.:** Sept. 22, 1924, as Fort Wayne Mining Co.; name changed July 8, 1930. **Capital:** 1,500,000 shares, par value 33 1-3c; increased July 8, 1930, to 2,000,000 shares, par value 50c; 1,141,726 shares issued. **Property:** Eclipse group; 19 unpatented claims, Evolution dist.; Osburn. **Development:** Principally by 1 tunnel, which is 2300 ft. long. **Plant:** Gas-driven compressor. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of 2 mills was levied on June 4.

IDAHO-MONTANA AND ORLANDO CONSOLIDATED MINING CO.
Office: Wallace. **Officers:** John A. Swan, Pres.-Mgr.; Carl Johnson, Sec., both of Burke. **Inc.:** July 14, 1925. **Capital:** 1,500,000 shares; par value 10c; 1,039,002 shares issued. **Property:** 7 unpatented claims, Lelande dist.; Burke. **Development:** By 3 tunnels: No. 1, 80 ft. long; No. 2, 500 ft. long; No. 3, 600 ft. long. **Ore:** Antimony. **Remarks:** Idle.

IDAHO SILVER MAGNET MINES CO.
Office: 823 First Ave., Spokane, Wash. **Officers:** E. P. Ryan, Sec., Spokane, Wash. **Inc.:** Sept. 14, 1928. **Capital:** 3,000,000 shares; par value 25c; shares issued, unknown. **Property:** 30 unpatented claims, Evolution dist. **Development:** Principally by 1 tunnel 900 ft. long. **Ore:** Lead-silver. **Remarks:** This company reports that it was organized to take over the property of the Idaho-Leadville Mines Co.

IDAHO STAR MINING CO.

Office: 212 Eagle Bldg., Spokane, Wash. **Officers:** Hans Peterson, Pres.; R. T. Lawrence, Sec.-Mgr., both of Spokane, Wash. **Inc.:** Oct. 8, 1924. **Capital:** 1,500,000 shares; par value 10c; 1,050,800 shares issued. **Property:** 28 unpatented claims, St. Joe dist.; Adair. **Development:** By 1 tunnel 768 ft. long. **Plant:** Water-driven compressor. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** Principal tunnel extended 60 ft. during the year.

IDORA MINING CO., LTD.

Office: Jamieson Blk., Spokane, Wash. **Officers:** James C. Broad, Pres.; C. E. Mallette, Sec.-Mgr., both of Spokane, Wash. **Inc.:** Apr. 23, 1915. **Capital:** 1,500,000 shares; par value 10c; 600,000 shares issued. **Property:** Idora group; 1 patented, 8 unpatented claims, Beaver dist.; Carbonite. **Plant:** MINE: 1 electrically-driven compressor. MILL: 100-ton concentrator. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only. A stock assessment of 2 mills was levied on Aug. 19.

IMPERIAL MINING CO.

Office: Wallace. **Officers:** William Becker, Pres.; Homer G. Brown, Sec.-Mgr., both of Wallace. **Inc.:** Nov. 21, 1906. **Capital:** 1,500,000 shares; par value $1; 1,178,981 shares issued. **Property:** Imperial group; 8 patented claims, Lelande dist.; Burke. **Development:** Principally by 2 tunnels: No. 2, 1000 ft. long; No. 3, 4000 ft. long. Total development, approximately 10,000 ft. **Plant:** Electrically-driven 4-drill I-R compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Remarks:** Idle throughout the year.

INDEPENDENCE LEAD MINES CO.

Office: Wallace. **Officers:** W. D. Greenough, Pres., Spokane, Wash.; Herman Marquardt, Sec.; Henry B. Kingsbury, Mgr., both of Wallace. **Inc.:** Filed in Idaho: Nov. 12, 1929. **Capital:** 4,000,000 shares; par value $1; 2,500,000 shares issued. **Property:** Independence group, 10 patented claims; American Commander group, 2 patented claims; Hunter dist.; Mullan. **Development:** American Commander group: By 4 tunnels: No. 1, 190 ft. long; No. 2, 1160 ft. long; No. 3, 1300 ft. long; No. 4, 2500 ft. long; Independence group: Principally by 4 tunnels: No. 1, 100 ft. long; No. 2, 300 ft. long; No. 3, 1200 ft. long; No. 4, 6000 ft. long, a vertical raise 313 ft. long connecting No. 3 and No. 4 tunnels; and a 100-ft. vertical shaft in No. 4 tunnel. **Plant:** Electrically driven 9x12 Sullivan compressor; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 5. **Remarks:** During the year the 100-ft. vertical shaft was sunk, and a large amount of crosscutting and drifting at the bottom of the shaft was done. This work uncovered a good showing of lead-silver ore. A stock assessment of 2c was levied on April 14.

INDEPENDENCE MINING CO., LTD.

Office: Wallace. **Officers:** Jessie E. Adam, Sec., Box 194, Wallace. **Inc.:** June 5, 1928. **Capital:** 1,500,000 shares; par value 10c; 758,500 shares issued. **Property:** 17 unpatented claims, Eagle dist.; Murray. **Ore:** Lead-silver. **Remarks:** Failed to file the reports required by law.

INLAND EMPIRE MINING & MILLING CO.

Office: 310 Ziegler Bldg., Spokane, Wash. **Officers:** A. C. Schirmer, Pres.-Mgr., Hibbing, Minn.; John H. Roche, Sec., Spokane, Wash. **Inc.:** June 18, 1910. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Never Sweat; 1 patented claim, Lelande dist.; Burke. **Development:** By 2 tunnels: No. 1, 350 ft. long; No. 2, 400 ft. long; and an inclined shaft 300 ft. deep. **Plant:** Electrically-driven compressor and complete mining equipment. **Ore:** Lead-silver.

INSPIRATION LEAD CO., INC.

Office: Wallace. **Officers:** L. K. Stratton, Pres.; W. J. Stratton, Sec.-Mgr., both of Wallace. **Inc.:** Aug. 14, 1929. **Capital:** 10,000,000 shares; par value 10c; 5,861,846 shares issued. **Property:** Moe and Troy groups; 4 patented, 30 unpatented claims; Moe group held under lease and option from Moe Mining Co.; Hunter dist.; Mullan. **Development:** By 3 tunnels: No. 1, 500 ft. long; No. 2, 1100 ft. long; No. 3, 2400 ft. long. **Plant:** 14x12 I-R compressor and hoist, both electrically driven; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** A small amount of work on the Moe group during the year. A stock assessment of 5 mills was levied on July 15.



SURFACE PLANT OF INSPIRATION LEAD CO., INC.

INTERNATIONAL MINES, LTD.

Office: Wallace. **Officers:** James White, Pres.; A. H. Featherstone, Sec., both of Wallace. **Inc.:** July 2, 1903. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** 13 patented claims, Lelande dist.; Burke. **Ore:** Lead-silver. **Remarks:** Idle for many years.

INTERNATIONAL MINING CO.

Office: Kellogg. **Officers:** C. A. May, Pres., Minneapolis, Minn.; Fred C. May, Mgr., Kellogg. **Inc.:** July 8, 1912. **Capital:** 1,000,000 shares; par value $1; shares issued, unknown. **Property:** International group; 7 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 2 tunnels: No. 1, 150 ft.; No. 2, 1500 ft. **Plant:** Gas-driven compressor; complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

IONE MINING CO.

Office: Wallace. **Officers:** O. M. Nordquist, Pres.-Mgr.; L. L. Brainard, Sec., both of Wallace. **Inc.:** Dec. 19, 1922. **Capital:** 1,500,000 shares; par value 10c; 300,000 shares issued. **Property:** Ione group; 3 unpatented claims, Summit dist.; Murray. **Ore:** Lead-silver. **Remarks:** Annual labor only.

IRON KING MINING CO., LTD.

Office: Wallace. **Officers:** Herman J. Rossi, Pres.; Otto A. Olsson, Sec., both of Wallace. **Inc.:** Jan. 8, 1904. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Iron King group; 4 unpatented claims,

Evolution dist.; Wallace. **Development:** Principally by 2 tunnels: No. 1, 2000 ft. long; No. 2, 150 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

ISAIAH MINING & MILLING CO.

Office: Kellogg. **Officers:** Wm. A. Hallead, Pres.; A. T. Combs, Sec., both of Kellogg. **Inc.:** Jan. 1, 1930. **Capital:** 2,000,000 shares; par value 25c; 5,000 shares issued.

IVANHOE MINING CO., LTD.

Office: Mullan. **Officers:** J. A. Bean, Pres., Los Angeles, Calif.; C. D. Miller, Sec., Mullan. **Inc.:** Oct. 18, 1906. **Capital:** 1,500,000 shares; par value $1; 1,494,950 shares issued. **Property:** 2 patented claims, Hunter dist.; Mullan. **Ore:** Lead-silver. **Remarks:** Idle for many years.

JACK WAITE MINING CO.

Office: P. O. Box 1832, Seattle, Wash. **Officers:** Robert S. Terhune, Pres.; G. W. Klinefelter, Jr., both of Seattle, Wash.; John R. Turner, Mgr., Murray. **Inc.:** Jan. 30, 1928, as Jack Waite Consolidated Mining Co.; reorganized, name changed, and filed in Idaho Sept. 4, 1930. **Capital:** 3,500,000 shares; par value $1; 3,000,000 shares issued. **Property:** Jack Waite group; 4 patented, 17 unpatented claims in Idaho; Silver King group: 30 unpatented claims in Montana; Eagle dist.; Prichard. **Development:** Jack Waite group: principally by 2 tunnels: No. 1, 2100 ft. long; No. 2, 4600 ft. long, in which is an inclined shaft 200 ft. deep. Silver King group: principally by 1 tunnel 1820 ft. long. **Plant:** MINE: 1 air-driven and 1 electrically driven hoist; 3 electrically driven compressors; electric trolley haulage; complete mining equipment and camp. MILL: 500-ton, fine-grinding, flotation concentrator. **Men employed:** Average, 172. **Ore:** Lead-silver-zinc. **Remarks:** After reorganization was completed, an extension of the railroad was graded for a distance of 3 miles, the principal haulage tunnel was entirely rehabilitated and relaid with heavier rails, a new I-R compressor was added to the mine plant, a new mill building was constructed, and the installation of entirely new milling equipment was started. It was expected to have the mill fully completed and ready for operation early in 1931. The expenditure for the mine development and new construction constituted one of the largest expenditures in the State. The new mine development work greatly increased the known ore reserves, and a large tonnage of crude ore and concentrate was marketed.



MILL: JACK WAITE MINING CO.

JIM BLAINE SILVER SYNDICATE, LTD.
Office: 323 Lindelle Blk., Spokane, Wash. **Officers:** Dan Krehbiel, Pres., Lind, Wash.; Matt Baumgartner, Sec.-Mgr., Spokane, Wash. **Inc.:** Apr. 12, 1920. **Capital:** 2,000,000 shares; par value 5c; 1,399,000 shares issued. **Property:** Jim Blaine group; 25 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 3 tunnels: No. 1, 500 ft. long; No. 2, 1000 ft. long; No. 3, 1290 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

JUPITER MINING CO.
Office: Wallace. **Officers:** Theodore Wellman, Pres.; Chas. E. Horning, Sec.; Robert Madzgalla, Mgr., all of Wallace. **Inc.:** Nov. 27, 1928. **Capital:** 2,500,000 shares; par value 10c; shares issued, unknown. **Property:** Jupiter group; 6 unpatented claims, Hunter dist.; Wallace. **Development:** By 2 tunnels: No. 1, 450 ft.; No. 2, 50 ft. **Ore:** Lead-silver. **Remarks:** Refused to file the reports required by law.

KELLOGG SILVER-LEAD MINES CO.
Office: 1200 Old Nat. Bank Bldg., Spokane, Wash. **Officers:** Sam A. McCoy, Pres.-Mgr.; Geo. W. Sommer, Sec., both of Spokane, Wash. **Inc.:** Feb. 24, 1930. **Capital:** 2,000,000 shares common, par value 10c; 200,000 shares preferred, par value $1; all shares issued. **Property:** 13 claims and 80 acres, all patented, Yreka dist.; Kellogg. **Development:** Total development approximately 3500 ft. **Plant:** Electrically driven hoist and compressor. **Ore:** Lead-silver-zinc. **Remarks:** This company is a reorganization of the Idaho American Mining & Milling Co.

KENNAN MINING CO.
Office: N. 1111 Hamilton St., Spokane, Wash. **Officers:** E. J. Roberts, Jr., Pres., Spokane, Wash. **Inc.:** Sept. 4, 1917. **Capital:** 250,000 shares; par value $1; 200,000 shares issued. **Property:** 14 unpatented claims, Beaver dist.; Murray. **Development:** Approximately 2800 ft. of tunnel. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Annual labor only.

KEYSTONE MINING CO.
Office: Kellogg. **Officers:** Clarence I. Paulsen, Pres.; Elizabeth Franks, Sec., both of Spokane, Wash.; Leonard E. Franks, Mgr., Kellogg. **Inc.:** July 22, 1929. **Capital:** 2,500,000 shares; par value 10c; 2,000,000 shares issued. **Property:** Lease and option on property of Florence Mining & Milling Co., Ltd. **Development:** Principally by 1 tunnel 1700 ft. long. **Plant:** Electrically driven I-R compressor; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 6. **Remarks:** 1200 ft. of diamond drilling and a small amount of mine development work during the year.

KING OF PINE CREEK MINING CO.
Office: Wallace. **Officers:** Andrew Anderson, Pres., Burke; C. A. Magnuson, Sec., Wallace. **Inc.:** Aug. 10, 1904. **Capital:** 1,500,000 shares; par value $1; 935.572 shares issued. **Property:** King of Pine Creek group; 6 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 2 tunnels: No. 1, 400 ft.; No. 2, 400 ft. **Ore:** Lead-zinc-silver. **Remarks:** Under lease and option to New Jersey Consolidated Mines Co.

LACLEDE MINING CO., LTD.
Office: Wallace. **Officers:** O. W. Lewis, Pres.; W. B. Heitfeld, Sec., both of Wallace. **Inc.:** Dec. 10, 1903. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Laclede group; 9 patented claims, Lelande dist.; Burke. **Development:** Principally by 1 tunnel, 2600 ft. long, and an inclined shaft 340 ft. long. **Ore:** Lead-silver. **Remarks:** Idle.

LANSING SILVER-LEAD MINING CO.
Office: Wallace. **Officers:** W. V. Stansfield, Pres.-Mgr., Wallace. **Inc.:** June 14, 1916. Charter forfeited Nov. 30, 1927. **Capital:** 1,000,000 shares; par value 25c; 41.000 shares issued. **Property:** 10 patented, 3 unpatented claims, Placer Center dist.; Wallace. **Development:** By 3 tunnels: No. 1, 300 ft. long; No. 2, 280 ft. long; No. 3, 1000 ft. long. **Plant:** 10x12 Sullivan gas-driven compressor; complete mining equipment. **Ore:** Lead-silver. **Remarks:** Annual labor only.

LATAH MINING CO., LTD.
Office: 728 Hutton Bldg., Spokane, Wash. **Officers:** J. O. Storey, Pres.; R. W. Sutliff, Sec., both of Spokane, Wash. **Inc.:** Dec. 23, 1929. **Capital:** 10,000,000 shares; par value 10c; 3,000,000 shares issued. **Property:** Giant Ledge group; 19 unpatented claims, held under lease and option, Summit dist.; Murray. **Development:** Approximately 5000 ft. **Ore:** Gold-silver-copper-lead.

LEAD BLOSSOM MINING & MILLING CO.
Office: Wallace. **Officers:** Walter H. Hanson, Pres.; Herman Marquardt, Sec., both of Wallace. **Inc.:** June 5, 1922, as Iron Blossom Mining & Milling Co.; name changed Nov. 2, 1922. **Capital:** 1,500,000 shares; par value 25c; all shares issued. **Property:** Iron Blossom group; 3 patented, 10 unpatented claims, Yreka dist.; Wardner. **Development:** By 2 tunnels: No. 1, 300 ft. long; No. 2, 600 ft. long; and an inclined shaft 360 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

LEAD CRYSTALS MINING CO., LTD.
Office: Wallace. **Officers:** Walter Keister, Pres., Murray; G. W. Dougherty, Sec., Wallace. **Inc.:** Dec. 11, 1911. **Capital:** 1,500,000 shares; par value $1; 1,447,996 shares issued. **Property:** 10 unpatented claims, Eagle dist.; Prichard. **Development:** By 3 tunnels: No. 1, 250 ft. long; No. 2, 1100 ft. long; No. 3, 750 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

LEROY GOLD & COPPER CO., LTD.
Office: Wallace. **Officers:** G. F. Damm, Pres.; C. E. Clarke, Sec., both of Wallace. **Inc.:** Aug. 2, 1897. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Leroy group; 5 patented claims, unorganized dist.; Adair.

LEWIS & CLARK MINING CO.
Office: Wallace. **Officers:** William Grismer, Pres., Coeur d'Alene; J. R. Bean, Sec., Wallace. **Inc.:** Apr. 18, 1907. **Capital:** 1,250,000 shares; par value $1; 430,000 shares issued. **Property:** 2 patented, 5 unpatented claims, Hunter dist.; Mullan. **Remarks:** Failed to file the reports required by law.

LEXINGTON MINING CO.
Office: Kellogg. **Officers:** J. E. Jones, Pres.; Lester S. Harrison, Sec., both of Kellogg. **Inc.:** Feb. 27, 1930. **Capital:** 2,000,000 shares; par value 5c; 500,000 shares issued. **Property:** 6 unpatented claims, Yreka dist.; Kellogg. **Development:** By 1 short tunnel. **Ore:** Lead-silver. **Remarks:** Annual labor only.

LIBERAL KING MINING CO.
Office: Kellogg. **Officers:** Magnus Cheyne, Pres.; Stella Brown, Acting Sec., both of Kellogg. **Inc.:** June 12, 1928. **Capital:** 1,500,000 shares; par value 10c; 949,048 shares issued. **Property:** Liberal King group; 10 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 2 tunnels: No. 1, 800 ft.; No. 2, 800 ft. **Ore:** Lead-zinc-silver. **Men employed:** Average, 4. **Remarks:** Press reports were to the effect that an electrically driven compressor was installed, that work was started on a new tunnel, and that stock was sold, all under the direction of Albert M. Nash.

LINCOLN MINING CO.
Office: Wallace. **Officers:** James Hamilton, Vice-Pres., Detroit, Mich.; Franklin Pfirman, Sec., Wallace. **Inc.:** July 9, 1923. **Capital:** 1,500,000 shares; par value 10c. Increased May 7, 1928, to 2,000,000 shares common, par value 10c; 30,000 shares preferred, par value $10; 1,512,630 shares common, 1,263 shares preferred issued. **Property:** Silverado group; 44 unpatented claims, Evolution dist.; Osburn. **Development:** Principally by 1 tunnel 6600 ft. long, and an inclined shaft 570 ft. long, giving a vertical depth of 550 ft. with 4 intermediate levels. **Plant:** MINE: 500-cu.-ft. electrically-driven compressor; complete mining equipment. MILL: 50-ton concentrator, including flotation. **Ore:** Lead-silver. **Remarks:** Small amount of work by lessees on a vein near the portal of the principal tunnel.

LINFOR COPPER CO.

Office: 745 Peyton Bldg., Spokane, Wash. **Officers:** W. A. Beaudry, Pres.; R. P. Woodworth, Sec., both of Spokane. **Inc.:** July 28, 1919. **Capital:** 1,500,000 shares; par value 10c; 500,000 shares issued. **Property:** 3 patented, 3 unpatented claims, unorganized dist.; Enaville. **Ore:** Copper-silver. **Remarks:** Annual labor only.

LITTLE BUTTE MINING CO.

Office: Wallace. **Officers:** Herman J. Rossi, Sec., Wallace. **Inc.:** Sept. 14. 1906. **Capital:** 1,500,000 shares; par value $1; 980,000 shares issued. **Property:** Little Butte group: 28 unpatented claims, Lelande dist.; Burke. **Ore:** Lead-silver. **Remarks:** Annual labor only.

LITTLE MINT MINING CO.

Office: Wallace. **Officers:** Jos. F. Whelan, Pres., Wallace. **Inc.:** Aug. 14, 1907. **Capital:** 1,500,000 shares; par value $1. **Remarks:** Has never filed the reports required by law.

LITTLE SUNSHINE MINING CO.

Office: 902 Second Ave., Seattle, Wash. **Officers:** John R. Moore, Pres.; H. S. Brown, Sec., both of Seattle, Wash.; C. A. Fay, Mgr., Wallace. **Inc.:** Nov. 3, 1906, as Elk Mining Co.; name changed Oct. 5, 1927. **Capital:** 1,000,000 shares, par value $1; increased on Oct. 5, 1927, to 1,750,000 shares; increased on Oct. 31, 1928, to 2,750,000 shares; shares issued, unknown. **Property:** Owns Elk group; 3 patented claims, Hunter dist.; Mullan. Lease and option on Palmer group; 14 unpatented claims, Big Creek, Yreka dist.; Kellogg. **Development:** On Palmer group: 4500-ft. crosscut, in which is a 300-ft. vertical shaft with two levels. **Plant:** On Palmer group: Electrically driven compressor and complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 10. **Remarks:** Another electrically driven compressor and an air-driven hoist were installed, and work was started on sinking a vertical shaft in April. The shaft is located in the principal tunnel at a distance of 4200 ft. from the portal. It was completed to a distance of 300 ft., and a large amount of exploratory work was done on two levels. The funds for this work were derived from the sale of stock. A stock assessment of 3c was levied on Aug. 27.

LOG CABIN MINING & MILLING CO., LTD.

Office: Wallace. **Officers:** O. H. Linn, Pres., Portland, Ore.; Otto A. Olson, Sec., both of Wallace. **Inc.:** Nov. 21, 1906. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Log Cabin group; 5 unpatented claims, Placer Center dist,; Wallace. **Development:** By 2 tunnels: No. 1, 200 ft. long; No. 2, 80 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

LOMBARDY MINING & MILLING CO.

Office: Kellogg. **Officers:** Peter Albinola, Pres., Kellogg; Herman J. Rossi, Sec., Wallace. **Inc.:** Mar. 17, 1899. **Capital:** 1,500,000 shares; par value 10c; all shares issued. **Property:** Lombardy group; 15 patented claims, Yreka dist.; Kellogg. **Development:** By 3 tunnels and 1 shaft. **Plant:** Hoist, compressor, and mining equipment. **Ore:** Lead-silver.

LON CHANEY MINING & MILLING CO.

Office: Kellogg. **Officers:** Z. Chaney, Pres.-Mgr.; A. E. Cowles, Sec., both of Kellogg. **Inc.:** March 8, 1930. **Capital:** 2,000,000 shares; par value 10c; 638,300 shares issued. **Property:** Lon Chaney group; 18 unpatented claims, Yreka dist.; Kellogg.

LOOKOUT MOUNTAIN MINING & MILLING CO.

Office: Kellogg. **Officers:** C. W. Simmons, Pres.; S. A. Germo, Sec., both of Kellogg; C. A. Fay, Mgr., Wallace. **Inc.:** June 2, 1916. **Capital:** 2,000,000 shares; par value 25c. Increased Sept. 25, 1928, to 3,000,000 shares; par value 25c; 2,520,000 shares issued. **Property:** Lookout Mountain group; 40 unpatented claims, Yreka dist.; Kellogg; part of which are held under lease and option. **Development:** Principally by 3 tunnels: No. 1, 100 ft. long; No. 2, 2500 ft. long; No. 3, 5000 ft. long; a vertical shaft in No. 3 tunnel 200 ft. deep; and a 500-ft. raise connect-

ing No. 2 and No. 3 tunnels. **Plant:** 2 electrically-driven Gardner compressors; complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** Annual labor only. A stock assessment of 1c was levied on Jan. 18.

LUCKY BOY MINES CORPORATION

Office: Kellogg. **Officers:** O. L. Plumtree, Pres.-Mgr.; Robert Skeman, Sec., both of Kellogg. **Inc.:** March 10, 1930. **Capital:** 2,000,000 shares; par value 5c; 1,420,000 shares issued. **Property:** 5 unpatented claims, Yreka dist.; Kellogg. **Development:** By 2 short tunnels. **Ore:** Lead-silver-copper **Men employed:** Average, 2. **Remarks:** A small amount of work during the year.

LUCKY BOY MINING & CONCENTRATING CO., LTD.

Office: Mullan. **Officers:** M. D. Needham, Pres.-Mgr.; Agnes Needham, Sec., both of Mullan. **Inc.:** Jan. 12, 1907. **Capital:** 1,000,000 shares; par value $1; 390,030 shares issued. **Property:** Lucky Boy group; 31 unpatented claims, Hunter dist.; Mullan. **Development:** By 8 tunnels, the principal of which is 2600 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

MCGREGOR MINING CO.

Officers: L. L. Ruthruff, Sec., Kellogg **Inc.:** Aug. 31, 1925. **Capital:** 700,000 shares; par value 50c. **Remarks:** Failed to file the reports required by law.

MACEDONIA MINING CO.

Office: Wallace. **Officers:** A. M. Mundell, Pres.-Mgr., Wallace; W. S. Leland, Sec., Prichard. **Inc.:** Oct. 8, 1921. **Capital:** 1,500,000 shares; par value 10c; 11,000 shares issued. **Property:** Macedonia group; 23 unpatented claims, at the head of West Fork of Slate Creek; St. Joe dist.; Wallace. **Remarks:** Active development work throughout the summer months by the president.

MAINE-STANDARD MINING CO., LTD.

Office: Wallace. **Officers:** Carlton Fox, Pres.; Otto A. Olsson, Sec.-Mgr., both of Wallace. **Inc.:** March 4, 1907. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Maine-Standard group; 5 unpatented claims, Moon Creek, Yreka dist.; Kellogg. **Development:** By 1 tunnel, 1200 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

MAJESTIC MINING CO., LTD.

Office: Wallace. **Officers:** James Dunne, Pres.-Mgr., Burke; Therrett Towles, Sec., Wallace. **Inc.:** Aug. 23, 1904. **Capital:** 1,500,000 shares; par value 25c; 994,306 shares issued. **Property:** Majestic group; 12 patented claims, Lelande and Summit dists.; Burke. **Development:** Principally by 1 tunnel 2000 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

MARSH MINES CONSOLIDATED

Office: Wallace. **Officers:** Edward Pohlman, Pres.; F. Wallace Rothrock, Sec., both of Spokane, Wash. **Inc.:** Filed in Idaho: Aug. 17, 1916. **Capital:** 2,000,000 shares, increased on Oct. 14, 1930, to 4,000,000 shares; par value 25c; shares issued, unknown. **Property:** Marsh group; 13 patented, 1 unpatented claim, Lelande dist.; Burke. **Development:** By 2 tunnels: No. 1, 300 ft. long; No. 2, 2000 ft. long; a vertical shaft 900 ft. deep with 5 intermediate levels; and an inclined shaft 400 ft. long. Total development, approximately 9900 ft. **Plant:** MINE: One I-R 1150-cu.-ft. compressor and one 690-cu.-ft. Franklin compressor, both electrically driven; complete mining equipment. MILL: 200-ton concentrator, including flotation. **Ore:** Lead-silver. **Remarks:** Idle.

MERGER MINES CO.

Office: Presumably Wallace. **Officers:** Stock certificates issued in 1930 bore the names of George H. Walters, secretary, and Morris Pearson, vice president. **Inc.:** Never filed in Idaho. Stock certificates give Arizona as the state of incorporation. **Capital:** Stock certificates show 3,000,000 shares, par value $1; shares issued, unknown. Stock salesmen represented that this company's property was located in Evolution district. **Remarks:** An active stock-selling campaign has been maintained for two years

and stock assessments have been levied during this period, two of 5 mills each having been levied in 1930; one on June 18, the other on October 24. It is not known whether any of the stockholders questioned the legality of the assessments or not. The newspaper notices of the June assessment were signed by George H. Walters, as secretary; notices of the October assessment were signed by L. A. White, as secretary.

MERRY WIDOW MINING CO.

Office: Wallace. **Officers:** Howard Hazeltine, Pres.-Mgr.; A. L. Strope, Sec., both of Wallace. **Inc.:** Nov. 5, 1924. **Capital:** 1,500,000 shares; par value 10c; 1,200,000 shares issued. **Property:** Merry Widow group; 2 unpatented claims, Placer Center dist.; Wallace. **Development:** By 2 tunnels: No. 1, 60 ft. long; No. 2, 400 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

METROPOLITAN MINES CORPORATION, LTD.

Office: Wallace. **Officers:** R. L. Brainard, Pres., Wardner; Roy H. Kingsbury, Sec., Wallace; Matt Baumgartner, Mgr., Spokane, Wash. **Inc.:** Nov. 21, 1929. **Capital:** 3,000,000 shares; par value 10c; 1,751,000 shares issued. **Property:** Sterling Silver group; 20 unpatented claims, Big Creek, Evolution dist.; Kellogg. **Development:** Principally by 1 tunnel 1000 ft. long. **Plant:** 12x12 G-D electrically driven compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 4. **Remarks:** The electric power line was extended to the mine and a new electrically driven compressor was installed, after which work in extending the tunnel was maintained without interruption. Stock assessments were levied during the year as follows: June 3, 3 mills; Aug. 5, 3 mills; Oct. 11, 3 mills; Dec. 5, 3 mills.

MILITARY MINING & MILLING CO., LTD.

Office: R. F. D. 4, Spokane, Wash. **Officers:** P. A. Renkert, Pres.; George K. Renkert, Sec.-Mgr., both of Spokane, Wash. **Inc.:** Apr. 30, 1907. **Capital:** 1,000,000 shares; par value $1; 567,000 shares issued. **Property:** 2 patented claims, Lelande dist.; Burke. **Development:** 2 tunnels: No. 1, 150 ft. long; No. 2, 100 ft. long. **Ore:** Copper.

MINERAL FARM MINING CO., LTD.

Office: Mullan. **Officers:** C. J. Carlson, Pres.-Mgr., 1215 Gem Ave., Spokane, Wash.; C. D. Miller, Sec., Mullan. **Inc.:** Aug. 28, 1903. **Capital:** 1,500,000 shares; par value $1; 798,676 shares issued. **Property:** Mineral Farm group; 8 patented claims, Hunter dist.; Mullan. **Development:** Principally by 1 tunnel 1200 ft. long. **Ore:** Lead-silver.

MINERAL POINT MINING CO.

Office: Wallace. **Officers:** H. E. Worstell, Pres.; Paul Leuschel, Sec., both of Wallace. **Inc.:** July 7, 1904. **Capital:** 1,200,000 shares; par value $1; 544,390 shares issued. **Property:** 1 patented, 7 unpatented claims, Evolution dist.; Osburn. **Ore:** Lead-silver. **Remarks:** Property under lease and option to Coeur d'Alene Mines Corporation.

MISSOULA COPPER MINING CO.

Office: Wallace. **Officers:** J. R. Bean, Sec., Wallace. **Inc.:** Nov. 4, 1901. **Capital:** 1,500,000 shares; par value $1. **Remarks:** Has not filed the reports required by law since 1927.

MOE MINING CO., LTD.

Office: Wallace. **Officers:** W. K. Moe, Pres.-Mgr.; G. W. Dougherty, Sec., both of Wallace. **Inc.:** Apr. 8, 1922. **Capital:** 1,000,000 shares; par value 10c; 718,527 shares issued. **Property:** Gold Creek group; 16 unpatented claims, Hunter dist.; Mullan. **Development:** 3 tunnels: No. 1, 500 ft. long; No. 2, 1100 ft. long; No. 3, 2400 ft. long. **Ore:** Lead-silver-copper. **Remarks:** Under lease and option to Inspiration Lead Co., Inc.

MOHAWK MINING CO.

Office: Kellogg. **Officers:** James G. Ferbrache, Pres.-Mgr.; M. A. Miller, Sec., both of Kellogg. **Inc.:** Sept. 8, 1927. **Capital:** 1,000,000 shares; par value 5c; 623,249 shares issued. **Property:** 5 unpatented claims, Yreka dist.; Kellogg. **Development:** By 3 tunnels: No. 1, 70 ft.; No. 2, 200 ft.; No. 3, 50 ft. **Plant:** Small water-driven compressor; complete mining equipment. **Ore:** Lead-silver. **Remarks:** Annual labor only.

MOONLIGHT MINING CO.
Office: Wallace. **Officers:** John F. Murphy, Pres., Wallace. **Inc.:** Apr. 27, 1903. **Capital:** 1,500,000 shares; par value $1; 1,185,297 shares issued. **Property:** Moonlight group; 9 patented claims, Lelande dist.; Burke. **Development:** By 3 tunnels: No. 1, 640 ft.; No. 2, 2270 ft.; No. 3, or Trade Dollar, 3900 ft. **Ore:** Lead-silver. **Remarks:** Idle.

MOUNTAIN CON MINING CO., INC.
Office: Wallace. **Officers:** W. H. Keating, Pres.-Mgr.; P. J. Conley, Sec., both of Wallace. **Inc.:** July 27, 1929. **Capital:** 1,500,000 shares; par value 50c; all shares issued. **Property:** 3 unpatented claims and 82 acres patented homestead land, Placer Center dist.; Wallace. **Development:** By 1 tunnel 220 ft. long. **Remarks:** Annual labor only.

MOUNTAIN QUEEN MINING CO.
Office: Murray. **Officers:** William Wylie, Pres.; Joe Lavergne, Sec., both of Murray. **Inc.:** Sept. 9, 1907. **Capital:** 1,000,000 shares; par value $1; 469,400 shares issued. **Property:** Mountain Queen group; 10 unpatented claims, Eagle dist.; Murray. **Development:** By 1 tunnel 300 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

MULLAN MINING CO.
Office: Wallace. **Officers:** L. L. Leighty, Sec., Wallace. **Inc.:** Nov. 10, 1899. **Capital:** 1,000,000 shares; par value 5c; 385,871 shares issued. **Property:** Mullan group; 2 patented, 1 unpatented claim, Hunter dist.; Mullan. **Development:** Approximately 2000 ft. of underground workings. **Ore:** Lead-silver. **Remarks:** Annual labor only.

MURRAY HILL MINING CO.
Office: Jamieson Blk., Spokane, Wash. **Officers:** C. E. Mallette, Pres.; A. Brownlow, Sec., both of Spokane, Wash. **Inc.:** Nov. 20, 1914. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Black Horse group; 8 unpatented claims, Summit dist.; Murray. **Remarks:** Property under option to Paragon Mining Co.

MUTUAL MINES DEVELOPMENT CO.
Office: 312 Old Nat'l Bank Bldg., Spokane, Wash. **Officers:** Harley Little, Pres.-Mgr.; Ben L. Collins, Sec., both of Spokane, Wash. **Inc.:** May 20, 1925. **Capital:** 2,000,000 shares; par value 10c; shares issued, unknown. **Property:** 24 patented, 30 unpatented claims, of which 20 are owned, the remainder are held under lease and option from the Formosa Lead Mining Co., Ltd., the Deep Wonder Mining Co., and Messrs. Gus Kallman and Ed. Johnson; Hunter and Lelande dists.; Wallace. **Development:** Principally by 1 tunnel 3000 ft. long. Total development, over 12,000 ft. **Plant:** Electrically-driven compressor and complete mining equipment. **Ore:** Lead-silver. **Remarks:** This company was active throughout the year and commenced building a new flotation concentrator. An active stock-selling campaign was maintained throughout the year, but as the company failed to file the reports required by law, although twice notified to do so, the amount of the stock issued, the number of men employed, and definite information as to the mill construction are unknown.

NABOB SILVER LEAD CO.
Office: Wallace. **Officers:** S. H. Tweedell, Pres., Spokane, Wash.; F. A. Billerbeck, Sec.-Treas., Coeur d'Alene. **Inc.:** June 29, 1923. **Capital:** 3,500,000 shares; par value 25c; 2,306,949 shares issued. **Property:** Nabob group; 3 patented, 24 unpatented claims. Yreka dist.; Kellogg. **Development:** By 4 tunnels: No. 1, 400 ft. long; No. 2, 700 ft. long; No. 3, 1500 ft. long; No. 4, 4700 ft. long; and a vertical shaft 300 ft. deep. **Plant:** 2 electrically driven compressors; electrically driven hoist; complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Remarks:** Idle. A stock assessment of 3 mills was levied on Oct. 6.

NATIONAL LEAD MINING CO.
Office: Wallace. **Officers:** Stanly A. Easton, Pres., Kellogg; Leo J. Hoban, Sec., Wallace. **Inc.:** Sept. 21, 1910. **Capital:** 1,000,000 shares; par value $1; 520,000 shares issued. **Property:** 7 patented claims, Hunter dist.; Mullan.

NEVADA STEWART MINING CO.

Office: Kellogg. **Officers:** Alfred Page, Pres., Spokane, Wash.; M. J. Sinclair, Sec.-Mgr., Kellogg. **Inc.:** Nov. 22, 1915. **Capital:** 1,500,000 shares; par value 10c; 1,252,438 shares issued. **Property:** Nevada Stewart group; 9 unpatented claims, Pine Creek, Yreka dist.; Masonia. **Development:** Principally by 1 tunnel 1100 ft. long. **Plant:** Electrically-driven 2-drill Sullivan compressor; complete mining equipment. **Ore:** Zinc-lead-silver. **Men employed:** Average, 4. **Remarks:** A small amount of work during the summer months. A stock assessment of ½ mill was levied on June 18.

NEW HOPE MINING CO., LTD.

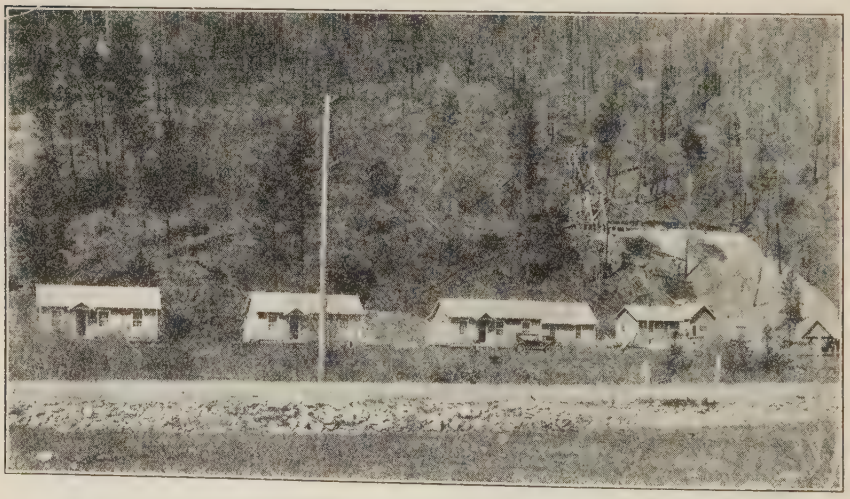
Office: Wallace. **Officers:** Eugene Thomas, Pres.-Mgr.; Otto A. Olsson, Sec., both of Wallace. **Inc.:** July 6, 1900. **Capital:** 1,000,000 shares; par value 5c; all shares issued. **Property:** New Hope group; 12 unpatented claims, Evolution dist.; Osburn. **Development:** By 3 tunnels: No. 1, 500 ft. long; No. 2, 1100 ft. long; No. 3, 800 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 1. **Remarks:** No. 3 tunnel was extended 200 ft. during the year. A stock assessment of 2 mills was levied on April 17, 1930.

NEW JERSEY CONSOLIDATED MINES CO.

Office: Wallace. **Officers:** L. K. Stratton, Pres.; Wm. J. Stratton, Sec., both of Wallace. **Inc.:** June 20, 1928. **Capital:** 5,000,000 shares; par value 10c; 3,732,758 shares issued. Stock assessments were levied as follows in 1930: Jan. 6, 1c; July 15, 5 mills.

KING OF PINE CREEK GROUP

Property: King of Pine Creek group; 9 unpatented claims and 160 acres patented land, held under lease and option from King of Pine Creek Mining Co., Yreka dist.; Kellogg. **Development:** By 2 tunnels: No. 1, 380 ft. long; No. 2, 350 ft. long; and a vertical shaft 300 ft. deep. **Plant:** Hoist and 2 I-R compressors, all electrically driven; complete mining equipment. **Ore:** Lead-zinc-silver. **Men employed:** Average, 12. **Remarks:** During the early part of the year the vertical shaft was completed to the 300-ft. level, and a large amount of drifting on the vein was done on this level. This work was hampered by an exceedingly large flow of water, which made it necessary to install powerful electrically driven pumps. The work on the 300-ft. level greatly enchanced the possibilities of this property.



SURFACE PLANT, KING OF PINE CREEK MINE OF NEW JERSEY CONSOLIDATED MINES CO.

NEW JERSEY GROUP

Property: New Jersey group; 6 patented claims held under lease and option from Dubois Mining Co., Big Creek, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel 1500 ft. long. **Remarks:** Idle.

NEW ROAD MINING CO.

Office: Mullan. **Officers:** Gust Lindroos, Pres.-Mgr.; D. R. Scott, Sec., both of Mullan. **Inc.:** May 1, 1922; charter forfeited Dec. 1, 1922. **Capital:** 1,000,000 shares; par value 10c; 509,000 shares issued. **Property:** New Road group; 2 unpatented claims, Hunter dist.; Mullan. **Ore:** Lead-silver. **Remarks:** Annual labor only.

NIAGARA PLACER MINING CO.

Office: N. 4707 Stone St., Spokane, Wash. **Officers:** A. H. Brown, Pres.; George Quick, Sec., both of Spokane, Wash. **Inc.:** March 26, 1930. **Capital:** 100,000 shares; par value $1; all shares issued. **Property:** 14 unpatented placer claims, 2 unpatented lode claims. St. Joe dist.; Superior, Mont. **Ore:** Placer gold. **Remarks:** Annual labor only. A stock assessment of 5c was levied on June 2.

NINE MILE MINING CO.

Office: Wallace. **Officers:** S. H. Linn, Pres., Kingston; Otto A. Olsson, Sec., Wallace. **Inc.:** Oct. 6, 1899. **Capital:** 2,000,000 shares; par value 10c; all shares issued. **Property:** Nine Mile group; 6 patented, 16 unpatented claims, Placer Center dist.; Wallace. **Development:** Approximately 5500 ft. of underground workings, the principal of which is No. 3 tunnel, 2000 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

NONPAREIL COPPER MINING CO.

Office: Wallace. **Officers:** Harry C. McAllister, Pres.-Mgr.; Herman J. Rossi, Sec., both of Wallace. **Inc.:** Nov. 1, 1906. **Capital:** 1,500,000 shares; par value $1; 1,200,000 shares issued. **Property:** Nonpareil; 3 patented claims, Hunter dist.; Mullan. **Development:** 2 tunnels: No. 1, 380 ft. long; No. 2, 100 ft. long. **Ore:** Lead-silver. **Remarks:** Idle since 1916.

NORTH AMERICAN MINING & MILLING CO., LTD.

Office: Wallace. **Officers:** Winnifred Presley, Pres.; J. Clarence Presley, Sec.-Mgr., both of Wallace. **Inc.:** June 8, 1903. **Capital:** 1,500,000 shares; par value $1; 1,034,000 shares issued. **Property:** North American group; 23 patented, 3 unpatented claims, Big Creek, Yreka dist.; Kellogg. **Development:** 1 tunnel 2100 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor.

NORTH BUNKER HILL MINING CO., LTD.

Office: Kellogg, Box 457. **Officers:** Elmer Brown, Pres.; N. T. Hardy, Sec.-Mgr., both of Kellogg. **Inc.:** Feb. 16, 1907. **Capital:** 1,250,000 shares; par value $1; all shares issued. **Property:** 4 patented claims, Yreka dist.; Wardner. **Development:** Over 10,000 ft. of underground workings. **Plant:** Electrically-driven I-R compressor; air-driven hoist and complete mining equipment. **Ore:** Lead-silver. **Remarks:** Idle.

NORTH FORK DEVELOPMENT CO.

Office: Wallace. **Officers:** Thure Olson, Pres.-Mgr., Enaville; Catharine Semenza, Sec., Wallace. **Inc.:** May 8, 1922. **Capital:** 1,000,000 shares; par value 10c; all shares issued. **Property:** 13 unpatented claims, Yreka dist.; Enaville. **Development:** Principally by 1 tunnel 3000 ft. long. **Ore:** Lead-silver. **Remarks:** Failed to file the reports required by law. A stock assessment of 1c was levied on Aug. 29.

NORTH IDAHO MINING CO.

Office: Wallace. **Officers:** George Champagne, Mgr., Saltese, Mont.; G. W. Dougherty, Sec., Wallace. **Inc.:** March 14, 1900. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** 3 patented claims, Beaver dist.; Wallace. **Development:** By 2 tunnels: No. 1, 700 ft. long; No. 2, 50 ft. long. **Ore:** Lead-silver.

NORTH STAR MINING CO.
Office: Wallace. **Officers:** John H. Hansen, Pres.; Chester A. Hansen, Sec., both of Wallace. **Inc.:** Mar. 16, 1899. **Capital:** 1,000,000 shares; par value $1; 199,080 shares issued. **Property:** North Star; 1 patented claim; St. Joe dist.; Falcon. **Development:** 2 tunnels: No. 1, 1500 ft. long; No. 2, 200 ft. long. **Ore:** Copper-gold-silver.

NORTH STAR MINING & DEVELOPMENT CO.
Office: Wallace. **Officers:** D. E. Wherry, Pres., Yakima, Wash.; G. W. Dougherty, Sec.-Mgr., Wallace. **Inc.:** April 20, 1920. **Capital:** 1,250,000 shares; par value $1; all shares issued. **Property:** 5 unpatented claims, Placer Center dist.; Wallace. **Development:** Principally by 1 tunnel 2000 ft. long. **Ore:** Lead-silver. **Remarks:** Tunnel extended 300 ft. A stock assessment of 1½ mills was levied on June 14.

NORTHERN LIGHT MINING & MILLING CO.
Office: 401 Court House, St. Paul, Minn. **Officers:** B. E. Harmon, Sec., St. Paul, Minn. **Inc.:** Feb. 26, 1915. **Capital:** 1,500,000 shares; par value 5c; 1,314,000 shares issued. **Property:** Northern Light; 1 patented claim, Pine Creek, Yreka dist.; Kellogg. **Remarks:** Idle since 1917.

NORTHWEST MINING & MILLING CO.
Office: Wallace. **Officers:** H. J. Rossi, Sec., Wallace. **Inc.:** Apr. 6, 1917. **Capital:** 1,000,000 shares; par value 5c; 791,000 shares issued. **Property:** 3 patented claims, Placer Center dist.; Wallace. **Development:** Principally by 1 tunnel 500 ft. long, and an inclined shaft 150 ft. deep. **Ore:** Lead-silver.

OASIS MINING CO.
Office: Kellogg. **Officers:** W. A. Smith, Pres., Wallace; Lester S. Harrison, Sec.-Mgr., Kellogg. **Inc.:** Aug. 15, 1925. **Capital:** 100,000 shares; par value $1; all shares issued. **Property:** Oasis group; 2 unpatented claims, Yreka dist.; Kellogg. **Ore:** River tailings: Lead-zinc-silver. **Remarks:** A stock assessment of 2c was levied on June 3. Failed to file the reports required by law.

OOM PAUL CONSOLIDATED MINING CO.
Office: Wallace. **Officers:** James F. McCarthy, Pres.-Mgr.; L. E. Hanley, Sec., both of Wallace. **Inc.:** April 29, 1907. **Capital:** 1,600,000 shares; par value $1; all shares issued. **Property:** Oom Paul group; 10 patented claims, Lelande dist.; Burke. **Development:** Over 5000 ft. of workings. **Plant:** Compressor and complete mining equipment. **Ore:** Lead-silver. **Remarks:** Idle throughout the year.

PACIFIC MINING AND MILLING CO.
Office: Wallace. **Officers:** A. H. Featherstone, Sec., Wallace. **Inc.:** April 13, 1898. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Remarks:** Owns no property.

PAPUREL & GRAHAM MOUNTAIN MINING CO.
Office: Wallace. **Officers:** Antone Papurel, Pres.-Mgr., Kellogg; Jos. Whelan, Sec., Wallace. **Inc.:** Sept. 2, 1924. **Capital:** 1,500,000 shares; par value 10c; 225,000 shares issued. **Property:** 18 unpatented claims, Yreka dist.; Kellogg. **Development:** By 1 tunnel 1100 ft. long. **Ore:** Lead-zinc-silver. **Men employed:** Average, 4. **Remarks:** Active during a small part of the year.

PARADISE MINES ASSOCIATION
Office: Wallace. **Officers:** Thomas Sheppard, Pres., Wallace. **Inc.:** A common-law trust. **Capital:** 10,000 shares; par value $10; 8,000 shares issued. **Property:** Paradise group; 5 unpatented claims, Placer Center dist.; Wallace. **Development:** By 2 tunnels: No. 1, 941 ft. long; No. 2, 900 ft. long. **Plant:** Gas-driven compressor and complete mining equipment. **Ore:** Lead-silver. **Remarks:** Under lease and option to Paradise Mining Co., Inc.

PARADISE MINING CO., INC.
Office: 510 Hyde Bldg., Spokane, Wash. **Officers:** Len Lussier, Pres.; S. W. Lazier, Sec.; John A. Walker, Mgr., all of Spokane. **Inc.:** Jan. 29, 1926. **Capital:** 1,000,000 shares; par value 10c; 500,000 shares issued.

Property: Paradise group; 5 unpatented claims, Placer Center dist.; Wallace. Held under lease and option from the Paradise Mines Association. **Development:** By 2 tunnels: No. 1, 941 ft. long; No. 2, 900 ft. long. **Plant:** Laidlaw-Dunn-Gordon gas-driven compressor. **Men employed:** Average, 2. **Ore:** Lead-silver. **Remarks:** Annual labor only.

PARAGON MINING CO.

Office: Commerce Bldg., St. Paul, Minn. **Officers:** George S. Monson, Pres.; F. O. Hammer, Sec., both of St. Paul, Minn.; Mrs. Theo. Furst, Mgr., Murray. **Inc.:** Sept. 20, 1901. **Capital:** 150,000 shares; par value $10; 130,125 shares issued. **Property:** Paragon group; 19 patented, 34 unpatented claims, Summit dist.; Murray. **Development:** Total development, approximately 19,000 ft. **Plant:** MINE: Electrically-driven compressor; air-driven hoist; complete mining equipment and camp. MILL: 100-ton concentrator. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

PARAMOUNT MINES CORPORATION

Office: 1200 Old Nat. Bank Bldg., Spokane, Wash. **Officers:** Samuel A. McCoy, Pres., Beverly, Wash.; Geo. W. Sommer, Sec., Spokane, Wash. **Inc.:** Sept. 24, 1929. **Capital:** 5,000,000 shares; par value 10c; all shares issued. **Property:** High Grade group; 5 patented, 5 unpatented claims, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel 1200 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only. This company is either a reorganization of or absorbed the properties of the High Grade Mining Co. and the Kellogg Galena Mining Co.

PARK COPPER & GOLD MINING CO., LTD.

Office: Wallace. **Officers:** O. W. Lewis, Pres.-Mgr.; N. J. Stockbridge, Sec., both of Wallace. **Inc.:** Aug. 25, 1899. **Capital:** 1,500,000 shares; par value 10c; 1,373,316 shares issued. **Property:** 6 patented claims; Stevens Peak, Hunter dist.; Mullan. **Ore:** Copper.

PATUXENT MINING CO.

Office: Wallace. **Officers:** Donald A. Callahan, Wallace. **Inc.:** May 11, 1915. **Capital:** 1,500,000 shares; par value 5c. **Remarks:** Has failed to file the reports required by law since 1921.

PEARSON MINING CO.

Office: Wallace. **Officers:** John F. Ferguson, Sec.; Harry P. Pearson, Mgr., both of Wallace. **Inc.:** April 26, 1920. **Capital:** 500,000 shares; par value $1; 320,561 shares issued. **Property:** 4 patented, 70 unpatented claims, St. Joe dist.; Falcon. **Development:** Principally by 3 tunnels: No. 1, 500 ft. long; No. 2, 4000 ft. long; and No. 3, 4300 ft. long. **Plant:** Water-driven Sullivan compressor; complete mining equipment and camp. **Ore:** Copper-gold. **Men employed:** Average, 3. **Remarks:** Mining operations, which consisted of extending No. 3 tunnel, were conducted without interruption throughout the year.

PINE CREEK CONSOLIDATED MINING CO.

Office: 706 Old Nat. Bank Bldg., Spokane, Wash. **Officers:** T. E. Coleman, Pres.-Mgr.; R. W. Sutliff, Sec., both of Spokane, Wash. **Inc.:** June 4, 1929. **Capital:** 3,500,000 shares common, par value 5c; 30,000 shares preferred, par value $1; 2,318,106 shares issued. **Property:** Amy-Matchless and Olympic groups; 5 patented, 41 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 3 tunnels: No. 1, 3500 ft.; No. 2, 650 ft.; No. 3, 275 ft.; and 2 inclined shafts 400 ft. long. **Plant:** 2 electrically driven compressors; 1 electrically driven and 1 air-driven hoist; complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Remarks:** This company is a consolidation of the Amy Matchless Mining & Milling Co. and Olympic Mines. Company in legal difficulties.

PINE CREEK LEAD-ZINC MINING CO.

Office: Wallace. **Officers:** M. L. Savage, Pres.-Mgr., Kellogg; Herman J. Rossi, Sec., Wallace. **Inc.:** Nov. 8, 1929. **Capital:** 1,000,000 shares; par value 10c; 110,000 shares issued. **Property:** Little Pittsburg group; 5 patented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 3 tunnels: No. 1, 220 ft. long; No. 2, 480 ft. long; No. 3, 1600 ft. long. **Plant:**

MINE: Electrically driven 10-drill I-R compressor; complete mining equipment and camp. MILL: 200-ton fine-grinding flotation concentrator. **Ore:** Lead-zinc-silver. **Men employed:** Average, 8. **Remarks:** Construction of the new mill, which was started late in 1929, was completed; No. 3 tunnel was rehabilitated; and the mine and mill were placed in condition for production when the price of metals will permit profitable operation. This company's expenditures were one of the largest made in the Pine Creek section during the year.

PIONEER MINING CO., LTD.

Office: Wallace. **Officers:** Herman Marquardt, Sec., Wallace; S. H. Linn, Mgr., Kingston. **Inc.:** Nov. 22, 1916. **Capital:** 1,500,000 shares; par value 25c; all shares issued. **Property:** Pioneer group; 12 unpatented claims, Beaver dist.; Wallace. **Ore:** Lead-silver. **Remarks:** Annual labor only.

PLAINVIEW MINING CO., INC.

Office: Wardner. **Officers:** A. H. Moe, Pres., Coeur d'Alene; S. S. Gundlach, Sec., Wallace. **Inc.:** Jan. 29, 1927. **Capital:** 1,500,000 shares; par value 10c; 929,500 shares issued. **Property:** Plainview group; 6 unpatented claims held under lease and option, Evolution dist.; Osburn. **Development:** By 1 tunnel 800 ft. long.

POLARIS DEVELOPMENT & MINING CO.

Office: Wallace. **Officers:** Harry W. Woodward, Pres.-Mgr.; Eleanor Sylva, Sec., both of Lynn, Mass. **Inc.:** Dec. 10, 1915. **Capital:** 1,500,000 shares; par value $1; July 28, 1930, increased to 2,000,000 shares; Aug. 30, 1930, decreased to 500,000 shares, par value 25c; shares issued, unknown. **Property:** 3 patented claims, Yreka dist.; Wallace. **Development:** Principally by 1 tunnel 2500 ft. long. **Plant:** Electrically driven compressor and complete mining equipment. **Ore:** Lead-silver.

PONTIAC MINING CO.

Office: Insurance Bldg., Wallace. **Officers:** Arthur J. Schanck, Pres., Metamora, Mich.; Herman J. Rossi, Sec., Wallace. **Inc.:** June 21, 1929. **Capital:** 1,500,000 shares; par value $1; shares issued, unknown. **Remarks:** Failed to file the reports required by law, although twice notified to do so.

PROGRESS GOLD MINING CO.

Office: Murray. **Officers:** Harry Clark, Pres., Sprague, Wash.; T. E. Damrell, Sec., Cheney, Wash.; D. M. Stairs, Mgr., Murray. **Inc.:** Aug. 17, 1920. **Capital:** 1,000,000 shares; par value 10c; 503,004 shares issued. **Property:** Progress group; 17 unpatented claims, Summit dist.; Prichard. **Development:** By 6 short tunnels. **Ore:** Lead-silver. **Remarks:** Annual labor only.

PURITAN MINING CO., LTD.

Office: Wallace. **Officers:** Theodore Anderson, Pres., Lindsay, Calif.; C. A. Solberg, Sec., Wallace. **Inc.:** Sept. 30, 1905. **Capital:** 1,500,000 shares; par value $1; 1,335,000 shares issued. **Property:** Puritan group; 6 patented claims, Placer Center dist.; Wallace. **Development:** Approximately 5000 ft. of crosscuts and drifts. **Remarks:** Idle throughout the year.

RAINBOW MINING & MILLING CO., LTD.

Office: 303 Mohawk Bldg., Spokane, Wash. **Officers:** Geo. Austin, Pres.-Mgr., Spokane, Wash.; T. W. Schmidt, Sec., Coeur d'Alene. **Inc.:** June 20, 1907. **Capital:** 2,000,000 shares; par value 25c; 1,418,426 shares issued. **Property:** 22 patented claims, Little North Fork dist., Kootenai County; and Evolution dist.; Osburn; and 15 unpatented claims, Medimont dist.; Benewah County. **Development:** 1350-ft. crosscut on property in Shoshone County. **Plant:** Gas-driven I-R compressor, and complete mining equipment. **Ore:** Lead-silver. **Remarks:** See Benewah County.

RAMONA MINING CO.

Office: Kellogg. **Officers:** R. A. Brockman, Pres.-Mgr.; R. J. Coats, Sec., both of Kellogg. **Inc.:** Nov. 24, 1924. **Capital:** 1,000,000 shares; par value 25c; 783,216 shares issued. **Property:** Ramona group; 12 unpatented claims, Evolution dist.; Osburn. **Ore:** Lead-silver. **Remarks:** Annual labor only.

RAVEN MINING CO., LTD.
Office: Wallace. **Officers:** T. B. Gilmore, Pres., Spokane, Wash.; Art Partch, Sec., Pasco, Wash. **Inc.:** Nov. 13, 1907. **Capital:** 1,500,000 shares; par value $1; 642,765 shares issued. **Property:** 5 unpatented claims, Summit dist.; Murray. **Development:** Principally by 1 tunnel 1280 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

RAY JEFFERSON MINING CO.
Office: Wallace. **Officers:** D. C. Smith, Pres., Missoula, Mont.; P. J. Maggy, Sec., Wallace. **Inc.:** Mar. 31, 1910. **Capital:** 2,000,000 shares; par value 25c; all shares issued. **Property:** Ray Jefferson group; 32 patented, 9 unpatented claims, Beaver dist.; Wallace. **Developments:** Total development, 13,000 ft., consisting principally of a 3100-ft. crosscut. **Ore:** Lead-zinc-silver. **Men employed:** 1 watchman. **Remarks:** Annual labor only on unpatented claims. A stock assessment of 2½ mills was levied on May 19.

RED CLOUD MINING CO.
Office: Wallace. **Officers:** A. L. Honeker, Pres.; H. J. Rossi, Sec., both of Wallace. **Inc.:** Sept. 1, 1896. **Capital:** 500,000 shares; par value $1; 263,396 shares issued. **Property:** 1 patented claim, Yreka dist.; Kellogg.

REINDEER-QUEEN MINING CO.
Office: Wallace. **Officers:** Harry P. Pearson, Pres.; Julius P. Hall, Mgr., both of Wallace. **Inc.:** Sept. 27, 1913. **Capital:** 2,000,000 shares; par value 10c; 316,000 shares issued. **Property:** Reindeer-Queen group; 3 patented, 12 unpatented claims, Hunter dist.; Mullan. **Development:** Principally by 5 tunnels: No. 1, 3100 ft. long; No. 5, 7700 ft. long. **Plant:** Water-driven compressor and complete mining equipment. **Ore:** Copper-lead-silver. **Remarks:** Annual labor only. Stock assessments were levied as follows in 1930: June 2, 1c; Sept. 11, 1c.

REVENUE CONSOLIDATED MINING CO.
Officers: H. V. Edwards, Pres., Wallace. **Remarks:** Name gleaned from the press.

REVETT MINING CO.
Office: 225 South Wall St., Spokane, Wash. **Officers:** W. W. Russell, Pres.; J. F. Arnold, Sec.-Mgr., both of Spokane, Wash. **Inc.:** Feb. 7, 1925. **Capital:** 2,500,000 shares; par value 20c; all shares issued. **Property:** Great Western group; 7 patented claims, Lelande dist.; Burke. **Development:** By 1 tunnel 2000 ft. long. **Ore:** Lead-silver. **Remarks:** Idle. Property formerly owned by Great Western Mining Co., Ltd.

REX LEASING & DEVELOPMENT CO.
Officers: M. H. Hebble, Sec., Wallace. **Inc.:** Name gleaned from the press; it is evidently a local lesseees' organization working at the Rex mine of the Delaware Mines Corporation. A stock assessment of 5c was levied on April 1.

RHODE ISLAND MINING CO., LTD.
Office: Wallace. **Officers:** Chas. Bollinger, Pres.; C. E. Clarke, Sec., both of Wallace. **Inc.:** July 13, 1900. **Capital:** 1,000,000 shares; par value 5c; all shares issued. **Property:** Rhode Island group; 4 unpatented claims, Evolution dist.; Wallace. **Development:** Approximately 900 ft. of workings. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only. A stock assessment of ¾ mill was levied on May 31.

RICHMOND CONSOLIDATED MINING CO.
Office: 824 Old National Bank Bldg., Spokane. **Officers:** John B. White, Pres.; E. E. Alverson, Sec., both of Spokane. **Inc.:** June 29, 1923. **Capital:** 2,500,000 shares; par value 10c; all shares issued. **Property:** Richmond group; 7 patented claims, St. Joe dist.; Adair. **Development:** Approximately 8000 ft. of underground workings. **Ore:** Copper-gold. **Remarks:** During 1926, mine plant was dismantled and all operations were suspended.

ROANOKE MINING CO., LTD.
Office: Wallace. **Officers:** Henry L. Day, Pres., Wallace. **Inc.:** Jan. 2, 1907. **Capital:** 1,500,000 shares; par value $1; 1,125,750 shares issued. **Property:** Roanoke group; 7 patented claims, Big Creek, Yreka dist.; Kellogg. **Development:** By 3 tunnels; No. 3, 650 ft. long; and an inclined shaft 340 ft. long, in which are 3 intermediate levels. **Plant:** Electrically driven hoist. **Ore:** Lead-silver. **Remarks:** Idle.

ROBERTS COEUR D'ALENE M. & M. CO.
Office: E. 101 Nora Ave., Spokane, Wash. **Officers:** T. W. Roberts, Pres.-Mgr.; Dorothy Roberts, Sec., both of Spokane, Wash. **Inc.:** Nov. 16, 1927. **Capital:** 100,000 shares; par value $1; 54,589 shares issued.

ROB ROY MINING CO.
Office: Wallace. **Officers:** John A. McLeod, Pres., Mullan; G. W. Dougherty, Sec., Wallace. **Inc.:** Feb. 16, 1907. **Capital:** 1,500,000 shares; par value $1; 892,576 shares issued. **Property:** 9 unpatented claims, Beaver dist.; Sunset. **Development:** By 1 tunnel 900 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

ROCKFORD MINING CO., LTD.
Officers: W. H. Hanson, Wallace. **Inc.:** Sept. 9, 1907. **Capital:** 1,500,000 shares; par value 25c. **Remarks:** Has failed to file the reports required by law since 1922.

RUTH CONSOLIDATED MINING & MILLING CO.
Office: 605 Realty Bldg., Spokane, Wash. **Officers:** C. M. Crego, Pres.; G. D. Crego, Sec., both of Spokane, Wash. **Inc.:** Sept. 15, 1906. **Capital:** 1,500,000 shares; par value $1, decreased May 8, 1930, to 10c; all shares issued. **Property:** Ruth group; 7 patented claims, Placer Center dist.; Wallace. **Development:** By 2 tunnels: No. 1, 1440 ft. long; No. 2, 1915 ft. long. **Plant:** Electrically driven Laidlaw-Dunn-Gordon compressor; complete mining equipment. **Ore:** Lead-silver. **Remarks:** Idle.

SABINA MINES CO.
Office: Wallace. **Officers:** James A. Wayne, Sec., Wallace. **Inc.:** July 14, 1920. **Capital:** 1,000,000 shares; par value 10c. **Remarks:** Has never filed the reports required by law.

ST. JOE LEAD & SILVER MINES CO.
Office: Wallace. **Officers:** Charles Oster, Pres.-Mgr.; Therrett Towles, Sec., both of Wallace. **Inc.:** July 6, 1928. **Capital:** 1,000,000 shares; par value 25c; 740,000 shares issued. **Property:** St. Joe group; 9 unpatented claims, Evolution dist.; Osburn. **Development:** By 4 tunnels: No. 1, 800 ft.; No. 2, 900 ft.; No. 3, 700 ft.; No. 4, 1091 ft. **Ore:** Lead-silver. **Remarks:** During the year 221 ft. of tunnel driven under contract.

SAINT LOUIS & IDAHO MINING & MILLING CO.
Office: Wallace. **Officers:** Russell F. Collins, Pres.-Mgr.; S. B. Collins, Sec., both of Wallace. **Inc.:** June 24, 1903. **Capital:** 1,000,000 shares; par value $1; 840.251 shares issued. **Property:** Saint Louis & Idaho group; 3 unpatented claims, Lelande dist.; Burke. **Development:** By 2 tunnels: No. 1, 1000 ft. long; No. 2, 2000 ft. long. **Ore:** Lead-silver.

SAMSON MINING & DEVELOPMENT CO., LTD.
Office: Wardner. **Officers:** D. W. Raines, Pres., Spokane; R. L. Brainard, Sec., Wardner. **Inc.:** Aug. 15, 1904. **Capital:** 1,000,000 shares; par value $1; 900,000 shares issued. **Property:** Samson group; 8 unpatented claims, Eagle dist.; Prichard. **Development:** Principally by 1 tunnel 1000 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

SAVAGE MINING CO.
Office: Wallace. **Officers:** M. L. Savage, Pres.-Mgr., Kellogg; Herman J. Rossi, Sec., Wallace. **Inc.:** Jan. 12, 1929. **Capital:** 1,500,000 shares; par value 25c; 250,000 shares issued. **Property:** Savage group; 23 unpatented claims, Nine Mile Creek, Placer Center and Beaver dists.; Wallace. **Development:** By 3 tunnels, the principal one being 1560 ft. long. **Plant:** Electrically driven 5-drill compressor and complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** Annual labor only.

SHADOW PEAK MINING CO.

Office: Wallace. **Officers:** John L. Fitzgerald, Wallace. **Inc.:** Sept. 15, 1930. **Capital:** 2,500,000 shares; par value 50c. **Remarks:** Failed to file the reports required by law.

SHERMAN LEAD CO.

Office: Wallace. **Officers:** Jerome J. Day, Pres.; P. J. Maggy, Sec.; Henry L. Day, Mgr., all of Wallace. **Inc.:** Nov. 4, 1918. **Capital:** 3,500,000 shares; par value 25c. Increased Aug. 27, 1928, to 3,675,000 shares; par value 25c; all shares issued. **Property:** Sherman and Oreano groups; 9 patented claims, Lelande dist.; Burke. **Development:** Total development, over 27,000 ft., consisting principally of Sherman No. 5 tunnel, 5660 ft. long; Sherman No. 6 tunnel, 2000 ft. long; Oreano No. 2 tunnel, 5000 ft. long; and 2 1000-ft. inclined raises connecting Sherman No. 6 tunnel and Oreano No. 2 tunnel, in which are 7 intermediate levels. **Plant:** 2 electrically driven hoists; trolley locomotive haulage and all mining equipment, furnished by Hercules Mining Co. **Ore:** Lead-silver. **Men employed:** Average, 100. **Remarks:** One of the principal mines in the Coeur d'Alene district to be placed on a profitably operating basis in 1929 and the only addition to the list of dividend paying mines in the State during 1930. The mine is connected with No. 5 tunnel of the Hercules Mining Co., through which it is operated, and the ore is sold to the Hercules custom mill at Wallace. Production was maintained until March, when the low price of metals caused a suspension. However, development work was continued, and over 2500 ft. of raises and drifts were run. This work exposed a large amount of new ore, which greatly increased the known resources of the mine. Control of this company is owned by the Tamarack & Custer Consolidated Mining Co.

SHRINE MINING CO.

Office: Kellogg. **Officers:** A. C. Beal, Pres., Spokane, Wash.; Lester S. Harrison, Sec., Kellogg. **Inc.:** May 29, 1926. **Capital:** 2,000,000 shares; par value 5c; all shares issued. **Property:** 7 unpatented claims on Pine Creek, Yreka dist.; Masonia. **Development:** Principally by 2 tunnels: No. 3, 1350 ft. long; No. 4, 1100 ft. long. **Ore:** Lead-silver, antimony. **Remarks:** The property is being operated by the Commercial Traveler Mining Co. under a lease and option.

SIDNEY LEASING CO.

Office: Kellogg. **Officers:** J. B. Cox, Pres.; W. T. Simons, Sec., both of Kellogg. **Inc.:** Feb. 27, 1925. **Capital:** 25,000 shares; par value $1; 7215 shares issued. **Property:** Lease on property of the Sidney Mining Co. **Plant:** 4½-mile aerial tramway; a 538-cu.-ft. I-R and an 1170-cu.-ft. I-R electrically-driven compressor; electrically-driven hoist; Waugh drill sharpener; complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Men employed:** Average, 68. **Remarks:** The inclined shaft was extended 200 feet, a large amount of development work was performed, and production was maintained until July, when the low price of metals forced a suspension of operations. The new development work was successful in greatly increasing the known ore reserves. The fact that this mine located on Pine Creek, is being operated at a substantial profit and that its ore is improving in grade and extent as depth is gained, is significant in proving that this section of the Coeur d'Alene district is not without merit; and the success of this enterprise is greatly stimulating mine development in this part of the district.

SIDNEY MINING CO.

Office: Kellogg. **Officers:** H. M. Ross, Pres., Seattle, Wash.; W. T. Simons, Sec., Kellogg. **Inc.:** June 20, 1910. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Sidney group; 7 patented, 11 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 6 tunnels; No. 1, 550 ft.; No. 3, 775 ft.; No. 5, 875 ft.; No. 6, 1000 ft.; and an inclined shaft 445 ft. deep. **Ore:** Lead-zinc-silver. **Remarks:** Under lease to Sidney Leasing Co., which see.

SIERRA NEVADA CONSOLIDATED MINING CO.
Office: Kellogg. **Officers:** Stanly A. Easton, Pres.-Mgr.; C. W. Simmons, Sec., both of Kellogg. **Inc.:** May 21, 1887. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Sierra Nevada group; 5 patented claims, Yreka dist.; Kellogg. **Development:** Principally by 4 tunnels: No. 1, 4550 ft. long; No. 2, 275 ft. long; No. 3, 700 ft. long; No. 4, 625 ft. long. Total development, approximately 10,000 ft. **Ore:** Lead-silver. **Remarks:** Property under operation throughout the year by lessees, who produced and marketed a small tonnage of ore.

SILVER BASIN CONSOLIDATED MINING CO.
Office: 341 Peyton Bldg., Spokane, Wash. **Officers:** L. O. Tollefson Pres.; Geo. R. Noble, Sec.-Mgr., both of Spokane, Wash. **Inc.:** As Silver Cable Consolidated Mining Co. on Sept. 27, 1927; name changed March 18, 1930. **Capital:** 5,000,000 shares; par value 25c; 1,812,065 shares issued. **Property:** 23 unpatented claims, held under lease and option, Evolution dist.; Osburn. **Development:** 1 tunnel 2800 ft. long. Ore: Lead-silver. **Remarks:** An active stock-selling campaign through the greater part of the year.

SILVER CLIFF GOLD & COPPER MINING CO., LTD.
Office: Wallace. **Officers:** Sidney L. Shonts, Pres.; Ed. C. Young, Sec.-Mgr., both of Wallace. **Inc.:** Oct. 6, 1900. **Capital:** 1,500,000 shares; par value $1; 719,218 shares issued. **Property:** Silver Cliff group; 13 unpatented claims, Hunter dist.; Mullan. **Development:** Over 2 miles of underground workings. **Plant:** An old water-driven compressor. **Ore:** Copper-silver. **Men employed:** Average, 2. **Remarks:** Annual labor only.

SILVER CLOUD MINES, INC.
Officers: Henry N. Conover, Waitsburg, Wash. **Inc.:** June 18, 1930. **Capital:** 5,000,000 shares; par value 25c. **Remarks:** The Bell of the West Mining Co. reported that its property was under lease and option to this company, which has failed to file the reports required by law.

SILVER CRESCENT MINING CO.
Office: Wallace. **Officers:** James Mohr, Pres.-Mgr.; D. M. Faires, Sec., both of Wallace. **Inc.:** Oct. 19, 1911, as Placer Creek Silver-Lead Mining & Milling Co.; name changed Aug. 31, 1922. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Silver Crescent group; 9 unpatented claims, on Moon Creek, Yreka dist.; Kellogg. **Development:** By 5 tunnels, the principal one of which is 1000 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

SILVER DALE & BIG HILL MINING CO.
Office: Kellogg. **Officers:** D. W. Knudson, Kellogg. **Inc.:** Sept. 10, 1917. **Capital:** 1,000,000 shares; par value 1c; increased Oct. 25, 1927, to 25c. **Remarks:** This company has refused to file the reports required by law since 1927, although each year it has levied stock assessments. During 1930 two assessments of 5 mills each were levied on Feb. 22 and August 4.

SILVER EAGLE MINING CO., LTD.
Office: Wallace. **Officers:** John J. Hogus, Pres.; C. W. Betts, Sec., both of Wallace. **Inc.:** Nov. 12, 1906. **Capital:** 1,000,000 shares; par value $1; 656,110 shares issued. **Property:** Silver Eagle group; 11 patented claims, Placer Center dist.; Wallace. **Development:** 3 tunnels; No. 1, 300 ft. long; No. 2, 400 ft. long; No. 3, 1100 ft. long. **Ore:** Lead-silver. **Remarks:** Idle.

SILVER MOON MINING CO., LTD.
Office: Palmerston Hotel, Spokane, Wash. **Officers:** H. C. Lambach, Pres.; Gus Ehrenberg, Sec., both of Spokane, Wash. **Inc.:** Aug. 31, 1906. **Capital:** 1,500,000 shares; par value $1; 708,394 shares issued. **Property:** Silver Moon group; 9 unpatented claims, Leland dist.; Gem. **Development:** Principally by 1 tunnel 2850 ft. long. **Plant:** Electrically-driven 200-cu.-ft. compressor; complete mining equipment. **Ore:** Lead-silver. **Remarks:** Annual labor only. Under lease and option to West Mammoth Mining Co.

SILVER REEF MINING CO.
Officers: W. J. Buhler, Pres., Port Townsend, Wash.; H. C. Buhler, Sec., Mullan. **Inc.:** April 6, 1920. **Capital:** 1,500,000 shares; par value 10c; 1,200,000 shares issued. **Property:** 1 patented, 4 unpatented claims, Hunter dist.; Mullan. **Development:** By 2 tunnels: No. 1, 1500 ft. long; No. 2, 2000 ft. long. **Plant:** Electrically driven compressor; complete mining equipment. **Ore:** Lead-silver. **Remarks:** Annual labor only.

SILVER STANDARD MINING CO.
Office: E. 604 Heroy Ave., Spokane, Wash. **Officers:** S. L. Shaw, Pres.; Mrs. C. M. Shaw, Sec., both of Spokane. **Inc.:** Unknown; never filed in Idaho. **Capital:** 2,000,000 shares; par value 25c; 296,740 shares issued. **Property:** 11 unpatented claims, Evolution dist.; Osburn. **Development:** By 2 tunnels: No. 1, 411 ft. long; No. 2, 560 ft. long. **Plant:** Water-driven Sullivan compressor. **Ore:** Lead-silver. **Remarks:** Annual labor only.

SILVER SUMMIT MINING CO.
Office: Wallace. **Officers:** Harry P. Pearson, Pres.-Mgr., Wallace. **Inc.:** Mar. 7, 1927. **Capital:** 1,500,000 shares; par value $1; shares issued, unknown. **Property:** Coeur d'Alene-Jumbo group; 31 unpatented claims, Evolution dist.; Osburn. **Remarks:** Under option to Stratton Silver Summit, Inc., which see.

SISTER MINING & MILLING CO., LTD.
Office: 1160 Winston Ave., San Marino, Calif. **Officers:** Frank P. Markwell, Pres., Los Angeles, Calif.; Isabel M. Pattison, Acting Sec., San Marino, Calif. **Inc.:** Dec. 12, 1899. **Capital:** 1,500,000 shares; par value 10c; 783,993 shares issued. **Property:** Sister group; 7 patented claims, Placer Center dist.; Wallace. **Development:** By 4 tunnels: No. 1, 108 ft.; No. 2, 1069 ft.; No. 3, 2500 ft.; No. 4, 209 ft.; a 210-ft. raise, and a 264-ft. vertical shaft. **Ore:** Lead-zinc-silver. **Remarks:** Idle.

SLAVONIAN MINING CO.
Office: Wallace. **Officers:** John Lucas, Vice-Pres.; G. W. Dougherty, Sec., both of Wallace. **Inc.:** Nov. 26, 1910. **Capital:** 1,500,000 shares; par value $1; 584,360 shares issued. **Property:** 4 unpatented claims, Yreka dist.; Wardner. **Development:** Principally by 1 tunnel 1200 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of ¾ mill was levied on June 5.

SMUGGLER CONSOLIDATED MINING CO.
Office: 8 Germond Bldg., Spokane, Wash. **Officers:** J. A. Reubens, Sec.; Frank Murphy, Mgr., both of Spokane. **Inc.:** June 29, 1927. **Capital:** 1,000,000 shares; par value 10c; 338,500 shares issued. **Property:** Smuggler group; 5 patented claims, Lelande dist.; Burke. **Ore:** Lead-silver. **Remarks:** Idle.

SNOWSHOE MINING CO.
Office: Wallace. **Officers:** Walter H. Hanson, Pres.; Herman Marquardt, Sec., both of Wallace. **Inc.:** Sept. 30, 1903. **Capital:** 2,000,000 shares; par value $1; 260,000 shares issued. **Property:** Snowshoe; 8 patented claims, Hunter dist.; Mullan. **Development:** Approximately 4000 ft. of workings, the principal of which are No. 2 tunnel, 3000 ft. long, and No. 1 tunnel, 900 ft. long. **Plant:** Electrically-driven 3-drill compressor. **Ore:** Copper-silver. **Remarks:** Idle.

SNOWSTORM SILVER LEAD CO.
Office: 417 Peyton Bldg., Spokane, Wash. **Officers:** Leo Greenough, Pres.; E. J. Armstrong, Sec., both of Spokane, Wash. **Inc.:** Nov. 15, 1922. **Capital:** 2,000,000 shares; par value $1; 1,627,110 shares issued. **Property:** Snowstorm group; 20 patented claims, Hunter dist.; Mullan. **Remarks:** Idle.

SONORA MINING & MILLING CO.
Office: Wallace. **Officers:** Otto Dubach, Pres., Gem; G. L. Richardson, Sec.-Mgr., Wallace. **Inc.:** Nov. 5, 1897. **Capital:** 1,000,000 shares; par value $1; 743,339 shares issued. **Property:** Sonora group; 11 patented,

4 unpatented claims, Lelande dist.; Burke. **Development:** Principally by 1 tunnel 5120 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** The principal tunnel was extended a short distance. Stock assessments were as follows in 1930: May 27, 3 mills; Nov. 3, 2 mills.

SPOKANE TUNNEL MINING CO.

Office: Wallace. **Officers:** A. B. Livingston, Pres.-Mgr.; Otto A. Olsson, Sec., both of Wallace. **Inc.:** Oct. 29, 1906. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** 3 unpatented claims, Placer Center dist.; Wallace. **Development:** Approximately 1350 ft. of workings. **Ore:** Lead-silver. **Remarks:** Annual labor only.

SQUARE DEAL MINING & MILLING CO., LTD.

Office: Wallace. **Officers:** A. H. Featherstone, Pres.; M. K. Howes, Sec., both of Wallace. **Inc.:** Oct. 29, 1906. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Square Deal group; 11 patented claims, Hunter dist.; Wallace. **Development:** By 3 tunnels: No. 1, 150 ft.; No. 2, 900 ft.; No. 3, 100 ft. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Under option to Golconda Lead Mines.

STANLEY MINING CO.

Office: Wallace. **Officers:** John H. Wourms, Pres., Wallace. **Inc.:** Apr. 16, 1926. **Capital:** 1,500,000 shares; par value 10c; 1,262,727 shares issued. **Property:** Stanley group; 13 patented, 2 unpatented claims, Lelande dist.; Burke. **Development:** By 3 tunnels: No. 1, 290 ft. long; No. 2, 950 ft. long; No. 3, 1630 ft. long. **Ore:** Antimony-gold. **Remarks:** A reorganization of the Stanley Consolidated Mining & Milling Co. Annual labor on unpatented claims.

STERLING MINING CO., LTD.

Office: Wallace. **Officers:** Mrs. Winnefred Presley, Pres.; J. Clarence Presley, Sec.-Mgr., both of Wallace. **Inc.:** Feb. 21, 1903. **Capital:** 1,500,000 shares; par value $1; 970,000 shares issued. **Property:** 13 unpatented claims, Evolution dist.; Wallace. **Development:** 1 tunnel, 600 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

STRATTON SILVER SUMMIT, INC.

Office: Wallace. **Officers:** L. K. Stratton, Pres.; Wm. J. Stratton, Sec., both of Wallace. **Inc.:** Feb. 6, 1929. **Capital:** 10,000,000 shares; par value 10c; 9,513,292 shares issued. **Property:** Jumbo group, Silver Summit Mining Co.; held under lease and option. **Development:** Principally by 1 tunnel 4716 ft. long. **Plant:** Electrically driven G. D. compressor and complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average. 12. **Remarks:** One of the principal development enterprises in the Coeur d'Alene district which maintained work throughout the year. The crosscut was extended 1676 ft. to a total distance of 4716 ft. and 540 ft. of a drift was driven west from the crosscut at a point 4300 ft. in from the portal. The drift encountered ore minerals containing good values in silver. This encouragment greatly increased the attractiveness of the enterprise. Stock assessments were levied during 1930 as follows: April 14, 1c; Sept. 16, 5 mills.

SUCCESS MINING CO., LTD.

Office: Wallace. **Officers:** Dan P. Mahoney, Pres., Perma, Mont.; H. H. Miller, Sec., Wallace. **Inc.:** April 7, 1905. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Success group; 8 patented claims, Placer Center dist.; Wallace. **Development:** Principally by 3 tunnels: No. 1, 1320 ft. long; No. 2, 4585 ft. long; No. 3, 3360 ft. long; and a vertical shaft 1070 ft. deep, with 8 intermediate levels; total development, approximately 25,700 ft. **Plant:** MINE: Electrically-driven double-drum hoist; 2 electrically-driven compressors; complete mining equipment. MILL: 300-ton concentrator, including flotation and magnetic separation. **Ore:** Lead-zinc-silver. **Remarks:** In July, 1926, all operations were suspended, underground equipment was removed, and part of the mining and milling equipment was disposed of. A small tonnage was produced and marketed during 1930 by lessees.

SULLIVAN MINING CO.

Office: Kellogg. **Officers:** Stanly A. Easton, Pres., Kellogg; C. W. Simmons, Sec., Kellogg. **Inc.:** May 22, 1917. **Capital:** 500,000 shares; par value $3; 37,448 shares issued. **Property:** Star group; 23 patented claims, Hunter and Lelande dists.; Burke. **Development:** By a crosscut tunnel known as "Star crosscut", over 4000 ft. of drifting on vein, and two 2300 ft. vertical raises. The Star crosscut is on the 2000-ft. level of the Hecla mine and it is 8900 ft. long. **Plant:** MINE: All mine equipment furnished by Hecla Mining Co. MILL: All ore is milled by Bunker Hill & Sullivan M. & C. Co. in its South mill at Kellogg. ELECTROLYTIC PLANTS: See Twenty-ninth Ann. Rept. of Mining Industry of Idaho, Engineering & Mining Journal of Dec. 1, 1928, and Mining Congress Journal of January, 1929, for complete illustrated description of zinc plant, and page 43 of this report for a complete description of cadmium plant. **Ore:** Lead-zinc-silver. **Men employed:** Average, 125 at mine and 140 at zinc plant.

REMARKS

In 1916 the Bunker Hill & Sullivan M. & C. Co. secured an option on the Star mine from the Star Mining Co.; as the most feasible method of opening this mine was through the Hecla mine, the Hecla Mining Co. was offered and accepted a 50 per cent interest in the option.

The Sullivan Mining Co. was then formed to take over the Star option and to operate the mine. After litigation to perfect title to the Star vein system was settled in favor of the Star Mining Co., the Star crosscut was started and continued without interruption, excepting the time lost from July 13, 1923, to March 1, 1924, as a result of the Burke fire.

On November 13, 1925, the Star ore body was encountered at a point 1650 ft. west of the east end-line, and at a depth of 4000 ft. below the apex of the vein. After encountering the ore body development work continued, and during 1925 it was opened the entire distance of 1650 ft. and a connection was made with the 2250 level of the Morning mine of the Federal Mining & Smelting Co. On account of the great depth of the Star crosscut, the development work necessary to open the mine for the extraction of ore involved a large amount of drifting and raising. This work progressed throughout 1929 and the principal raises were extended to the Star tunnel. The Star crosscut is 4000 ft. below the apex and about 70 ft. below the 2250-ft. level of the Morning mine; the Morning vein has been proved to the 3650-ft. level, and as the Morning and Star veins are conceded to be the same, it is evident that the Star mine contains an ore body of tremendous size. An authorized statement made during 1926 was to the effect that: "At the present capacity (475 tons per day) there is sufficient proven ore in the Star mine to assure it a life of 50 years."

Production, which was suspended in 1928 pending completion of the zinc plant, was resumed in February, 1929, and maintained at the rate of approximately 450 tons per day until April, 1930, when the low price of metals caused a suspension. Development work, which consisted principally of extending the two main operating raises and of mine repair work, was conducted throughout the year. Construction of the cadmium recovery plant, which was started in 1929, was completed, and the plant was put into operation in May. In April the zinc plant was put on a greatly curtailed basis. The zinc and cadmium produced by the electrolytic plants of this company are of an especially high grade and are finding a ready market, the zinc selling at an increase in price over that of any other zinc metal. The electrolytic plants of this company now constitute one of the largest and most important enterprises in the Pacific Northwest, and one which insures the permanence of the mining industry in Shoshone County.

SUNRISE MINES CO.

Office: 801 Realty Bldg., Spokane, Wash. **Officers:** C. Fred Kratzer, Sec., Spokane, Wash. **Inc.:** Sept. 17, 1928. **Capital:** 1,500,000 shares; par value

10c. **Remarks:** Refused to file the reports required by law, although twice notified to do so. Statements appearing in the press were to the effect that this company was developing a property on Sunset Peak.

SUNSET MINING CO.
Office: 781 Corbett St., Portland, Ore. **Officers:** A. H. Ruedy, Pres., Oakland, Calif.; E. G. Ruedy, Sec., Portland, Ore. **Inc.:** Filed in Idaho: Mar. 3, 1926. **Capital:** 500,000 shares; par value $1; 355,278 shares issued. **Property:** 9 patented, 2 unpatented claims, Placer Center and Beaver dists.; Wallace. **Development:** By 2 tunnels: No. 1, 810 ft. long; No. 2, 220 ft. long. **Plant:** 10x10 electrically driven compressor. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only. The president of this company submitted the report as "President of the Sunset Mining Co. of Oregon and Idaho." The latter company has never filed articles of incorporation in Idaho.

SUNSHINE MINING CO.
Office: Yakima, Wash. **Officers:** John Sawbridge, Pres.; R. B. Kenyon, Sec., both of Yakima, Wash.; C. C. Samuels, Mgr., Kellogg. **Inc.:** Jan. 3, 1921. **Capital:** 1,500,000 shares; par value 10c; 1,488,822 shares issued. **Property:** Yankee group; 15 patented claims, Big Creek, Yreka dist.; Kellogg. **Development:** Principal development by 5 tunnels: No. 1, 100 ft. long; No. 2, 170 ft. long; No. 3, 800 ft. long; No. 4, 1000 ft. long; No. 5, 3000 ft. long, in which is a vertical shaft 500 ft deep, and an inclined shaft connecting No. 5 tunnel level and the 1700-ft. level. **Plant:** MINE: 2 I-R compressors, 1 Worthington compressor, 2 hoists, all electrically driven; complete mining equipment, buildings, and camp. MILL: 500-ton concentrator, including fine grinding and flotation. **Ore:** Lead-silver. **Men employed:** Average, 210.

REMARKS

The extensive improvement campaign, started in 1929, which consisted of rebuilding the principal haulage tunnel, No. 5, of constructing a new hoist station and skip pockets, new inclined shaft, and new buildings, of installing a new hoist and compressor, and of enlarging the mill to 500-ton capacity, was completed early in 1930, and capacity production was maintained throughout the year. The inclined shaft was sunk from the 1300 to the 1700-ft. level, and a large amount of drifting on the 1300-ft. level and the levels above it was done. This work greatly increased the ore reserves of the mine. The ore on the 1300-ft. level was found to be of higher grade and greater extent than on any of the upper levels. This company is one of the largest producers and dividend payers in the Coeur d'Alene district, although the low price of silver caused a reduction in the dividend rate. For a complete description of the new hoist see page 45.

SUNSHINE MINING CO., LTD.
Office: Wallace. **Officers:** D. C. Smith, Pres., Missoula, Mont.; H. J. Hull, Sec., Wallace. **Inc.:** Jan. 5, 1907. **Capital:** 2,700,000 shares; par value $1; 1,327,309 shares issued. **Property:** Sunshine group; 4 patented. 10 unpatented claims, Beaver dist.; Wallace. **Development:** Over 6000 ft. of underground workings. **Plant:** Electrically-driven I-R 5-drill compressor; complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

SYNDICATE MINING & EXPLORATION CO., LTD.
Office: Kellogg. **Officers:** Ed. Lagerstrom, Pres.; J. L. Moore, Sec., both of Kellogg. **Inc.:** June 24, 1907. **Capital:** 1,500,000 shares; par value 25c; 712,000 shares issued. **Property:** 7 unpatented claims, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel, 1700 ft. long. **Ore:** Lead-silver. **Remarks:** Principal tunnel was extended a short distance during the year. A stock assessment of 1 mill was levied on April 15.

TAMARACK & CUSTER CONSOLIDATED MINING CO.
Office: Wallace. **Officers:** Jerome J. Day, Pres.-Mgr.; Harry L. Day, Sec., both of Wallace. **Inc.:** Aug. 6, 1912. **Capital:** 5,000,000 shares; par value $1; all shares issued. **Property:** Tamarack & Custer; 56 patented, 2 unpatented claims, Lelande and Placer Center dists.; Gem. **Development:** The three principal tunnels are: No. 5, 12,300 ft. long; No. 6 (400-ft. level), 8900 ft. long; and No. 7 (1200-ft. level), 11,300 ft. long. The principal shaft is a 3-compartment, vertical shaft, 600 ft. deep; and a 3-compartment raise 800 ft. long connecting No. 6 and No. 7 tunnels. Total development, approximately **14** miles. **Plant:** MINE: 100-h. p. electrically-driven hoist; 3 1300-cu.-ft. electrically-driven compressors; storage battery haulage on intermediate levels and trolley locomotive haulage on main levels. Complete mining equipment. Modern and complete machine shop. Modern hotel, change houses, and camp. **Ore:** Lead-silver-zinc. **Men employed:** Average, 225. **Remarks:** Production and an extensive mine development campaign were maintained until late in March, when production was entirely suspended on account of the low price of metals. A crew of 12 men was retained on development work, which consisted of sinking a 200-ft. winze on the vein in No. 7 tunnel. It was reported that this work indicated the existence of a new ore body. The development and exploratory work performed during the year amounted to over 2400 ft. The company's ore is transported in railroad cars to the Hercules mill, which buys the entire output. This mine has been one of the principal producers in the Coeur d'Alene district for many years.

TEDDY MINING & MILLING CO., LTD.
Office: Kellogg. **Officers:** T. R. Mason, Pres.; F. Wm. Voigtlander, Sec., both of Kellogg. **Inc.:** Dec. 1, 1904. **Capital:** 1,000,000 shares; par value $1; increased on April 26, 1930, to 1,500,000 shares; 951,328 shares issued. **Property:** Teddy group; 7 unpatented claims, Yreka dist.; Kellogg. **Development:** Over 1800 ft. of tunnels, the principal one of which is approximately 1400 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** Principal tunnel extended under contract throughout the year. A stock assessment of 1 mill was levied on July 24.

TIBERIUS MINING CO.
Office: Moscow. **Officers:** S. H. Knepper, Pres.; Samuel Owings, Treas., both of Moscow. **Inc.:** Mar. 9, 1916. **Capital:** 1,000,000 shares; par value 10c; 611,450 shares issued. **Property:** 40 acres of patented land on Pine Creek, Yreka dist.; Kellogg. **Ore:** Lead-zinc-silver.

TORINO MINING CO.
Office: Wallace. **Officers:** Jos. F. Whelan, Wallace. **Inc.:** July 10, 1911. **Capital:** 1,000,000 shares; par value $1. **Remarks:** Has never filed the reports required by law.

TRADE DOLLAR MINING CO., LTD.
Office: 1160 Winston Ave., San Marino, Calif. **Officers:** Isabel M. Pattison, Acting Sec., San Marino, Calif. **Inc.:** Oct. 18, 1901. **Capital:** 1,000,000 shares; par value 10c; 605,097 shares issued. **Property:** Trade Dollar group; 6 patented claims, Lelande dist.; Burke.

TRAPPER MINING & SMELTING CO., LTD.
Office: Insurance Bldg., Wallace. **Officers:** Herman J. Rossi, Pres.-Mgr.; R. C. Russell, Sec., both of Wallace. **Inc.:** Dec. 14, 1906. **Capital:** 1,500,000 shares; par value $1; 861,047 shares issued. **Property:** 7 patented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 1 tunnel 700 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** Failed to file the reports required by law.

TREASURE VAULT MINING CO., LTD.
Office: Wallace. **Officers:** P. J. Maggy, Pres.; W. A. Devan, Sec., both of Wallace. **Inc.:** Oct. 29, 1906. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Treasure Vault group; 4 patented claims, Placer Center dist.; Sunset. **Ore:** Lead-silver. **Remarks:** Idle.

TUCKER MINING & MILLING CO.
Office: Wallace. **Officers:** Peter Bahn, Pres.-Mgr.; W. R. Turner, Sec., both of Wallace. **Inc.:** Mar. 30, 1907. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Tucker group; 6 unpatented claims, Hunter dist.; Mullan. **Development:** Principally by 1 tunnel which is 1300 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

TUSCUMBIA MINING CO., LTD.
Office: Wallace. **Officers:** D. A. Callahan, Pres., Wallace. **Inc.:** Aug. 14, 1911. **Capital:** 1,500,000 shares; par value 50c. **Remarks:** Has failed to file the reports required by law since 1926. A stock assessment of ½ mill was levied on Nov. 21.

UNITED AMERICAN MINES CO., LTD.
Office: Wallace. **Officers:** Mrs. Isabel M. Pattison, Acting Sec.-Mgr., 1160 Winston Ave., San Marino, Calif. **Inc.:** Jan. 24, 1908. **Capital:** 3,000,000 shares; par value $1; all shares issued. **Remarks:** Company holds stock in Trade Dollar Mining Co., Ltd. and in Sister Mining & Milling Co.

UNITED METALS CO.
Office: Wallace. **Officers:** John J. Hamlyn, Pres., San Francisco, Calif.; A. G. Kennedy, Sec., Wallace. **Inc.:** Sept. 2, 1924. **Capital:** 1,000,000 shares common, no par value; 100,000 shares preferred, par value $5; 746,950 shares common issued. **Property:** 61% of stock of Black Bear Mines Co.; property of Western Pacific Mining Co., Goodenough Mining Co., and Bell Mining Co. held under 50-yr. lease: 37 patented, 13 unpatented claims, Lelande and Hunter dists.; Wallace. **Development:** Principally by 2 tunnels: No. 1, 800 ft. long; No. 2, or Black Bear, 4000 ft. long. **Plant:** Electrically-driven 3-drill compressor; complete mining equipment. **Ore:** Lead-zinc-silver. **Men employed:** Average, 7. **Remarks:** The principal tunnel was extended 900 ft. during six months of the year.

UNITED STATES SILVER LEAD MINES CO.
Office: W. 2011 Sinto Ave., Spokane, Wash. **Officers:** N. J. Jacobs, Pres., Ellensburg, Wash.; R. J. Toner, Sec., Spokane, Wash. **Inc.:** Sept. 24, 1917. **Capital:** 1,000,000 shares; par value 10c; shares issued, unknown. **Property:** 21 unpatented claims, held under lease and option, Eagle dist.; Prichard. **Remarks:** Failed to file the reports required by law. Two stock assessments were levied during the year. The manner of levying and collecting the assessments is unknown.

VENDETTA CHIEF MINING CO.
Office: Murray. **Officers:** John Lillie, Pres., Murray; Mrs. H. McPhee, Sec., Wallace. **Inc.:** March 13, 1924. **Capital:** 1,000,000 shares; par value 10c; 700,000 shares issued. **Property:** Vendetta Chief group; 3 unpatented claims, Summitt dist.; Murray. **Development:** By 2 tunnels, each 300 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** No. 2 tunnel was extended 100 ft. during the year.

VERDE MAY MINING CO., LTD.
Office: Wallace. **Officers:** Walter H. Hanson, Sec., Wallace. **Inc.:** Nov. 21, 1906. **Capital:** 1,000,000 shares; par value $1. **Remarks:** Has refused to file the reports required by law since 1924.

VIENNA-INTERNATIONAL MINING & MILLING CO., LTD.
Office: Wallace. **Officers:** A. H. Featherstone, Pres.; R. A. Marshall, Sec., both of Wallace. **Inc.:** Sept. 10, 1906. **Capital:** 1,500,000 shares; par value $1; 1,326,408 shares issued. **Property:** Vienna International; 4 patented claims, Placer Center dist.; Wallace. **Development:** Approximately 1300 ft. of tunnels. **Ore:** Lead-silver. **Remarks:** Idle for several years.

VINDICATOR MINING CO.
Office: 2122 Dwight Way, Berkeley, Calif. **Officers:** Kathryn Powers, Pres.; Grace Powers, Sec., both of Berkeley, Calif. **Inc.:** June 9, 1902. **Capital:** 1,000,000 shares; par value 10c; 549,650 shares issued. **Property:** 4 unpatented claims, Hunter dist.; Mullan. **Development:** By 1 tunnel 1100 ft. long. **Remarks:** Annual labor only by lessees.

WALLACE IDAHO LEAD MINES, INC.
Office: 411 Second St., Wallace. **Officers:** L. W. Defenbach, Pres.-Mgr.; Paul H. Batzle, Sec., both of Wallace. **Inc.:** July 25, 1929. **Capital:** 2,000,000 shares; par value 25c; 1,400,000 shares issued. **Property:** Eastern Star group; 8 unpatented claims, Evolution dist.; Osburn. **Development:** By 2 tunnels: No. 1, 500 ft.; No. 2, 1300 ft. **Ore:** Lead-silver. **Remarks:** Annual labor only.

WALLACE SILVER-LEAD MINES CO.
Office: Wallace. **Officers:** Walter H. Hanson, Pres.; Chas. Horning, Sec., both of Wallace. **Inc.:** Aug. 17, 1927. **Capital:** 5,000,000 shares; par value 10c. **Remarks:** Has never filed the reports required by law, although many times requested to do so. Statements appearing in the newspapers were to the effect that this company did a small amount of work during the year.

WALL STREET MINING CO.
Office: Wallace. **Officers:** Wm. O. Bradley, Pres., Spokane, Wash.; L. R. Loomis, Sec., Wallace. **Inc.:** Apr. 20, 1907. **Capital:** 1,250,000 shares; par value $1; 1,241,263 shares issued. **Property:** 17 unpatented claims, Hunter dist.; Mullan. **Development:** Principally by 3 tunnels, the longest of which is 1400 ft. **Plant:** Electrically-driven compressor; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Annual labor only.

WASHINGTON-IDAHO MINING CO.
Office: 707 Hutton Bldg., Spokane, Wash. **Officers:** Dr. James Murray, Pres., Hayden Lake; A. B. Thomson, Sec.; Thos. Murray, Mgr., both of Spokane, Wash. **Inc.:** Oct. 21, 1927. **Capital:** 2,500,000 shares; par value 10c; 1,500,000 shares issued. **Property:** Crescent group; 22 unpatented claims, 5 of which are held under lease and option from the Crescent Mining & Milling Co.; Moon Creek, Yreka dist.; Kellogg. **Development:** By 3 tunnels, the principal one of which is 1200 ft. long. **Plant:** Electrically driven I-R compressor and complete mining equipment. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

WASHINGTON MINING CO.
Office: Wallace. **Officers:** Paul Leuschel, Sec., Wallace. **Inc.:** Jan. 14, 1911. **Capital:** 1,500,000 shares; par value $1. **Remarks:** Has failed to file the reports required by law since 1927. A stock assessment of 3 mills was levied on July 2.

WEIGLE MINING & MILLING CO.
Office: Pasco, Wash. **Officers:** G. S. Weigle, Pres.-Mgr.; W. N. Jones, Sec., both of Pasco, Wash. **Inc.:** July 15, 1929. **Capital:** 1,250,000 shares; par value 5c; 910,000 shares issued. **Property:** Weigle group; 15 unpatented claims, Yreka dist.; Kellogg; 6 of which are held under lease and option from the Northside Mining Co. **Development:** By 4 short tunnels. **Ore:** Lead-zinc-silver. **Men employed:** Average, 3. **Remarks:** Small amount of work. Dissatisfied stockholders advised that the office had been moved to Spokane, Wash.

WEST BELL MINING CO., LTD.
Office: Wallace. **Officers:** J. O. Nordquist, Pres., Spokane, Wash.; Otto A. Olsson, Sec., Wallace. **Inc.:** May 8, 1899. **Capital:** 1,000,000 shares; par value 5c; all shares issued. **Property:** West Bell group; 5 patented claims, Lelande dist.; Black Bear. **Development:** 1 tunnel, 2300 ft. long. **Ore:** Lead-silver. **Remarks:** Idle.

WEST GEM MINING CO.
Officers: Frank P. Markwell, Pres., Los Angeles, Calif.; J. Fred Markwell, Sec., P. O. Box 282, Sanger, Calif. **Inc.:** Feb. 1, 1912. Charter forfeited Nov. 30, 1927. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** 14 unpatented claims, Lelande dist.; Wallace.

WEST HECLA MINING CO.
Office: Spokane, Wash., Box 1620. **Officers:** Dr. T. A. Russell, Pres.; J. V. Pohlman, Sec., both of Spokane, Wash. **Inc.:** Feb. 18, 1907. **Capital:** 1,500,000 shares; par value $1; 1,450,000 shares issued. **Property:** 3 patented claims, Lelande dist.; Burke. **Development:** Principally by 1 tunnel 1650 ft. long. **Ore:** Lead-silver.

WEST HUNTER MINING CO., LTD.
Office: Wallace. **Officers:** Ray Morrison, Pres., Kellogg; Herman Marquardt, Sec., Wallace. **Inc.:** July 29, 1915. **Capital:** 1,500,000 shares; par value 10c; all shares issued. **Property:** 1 patented, 9 unpatented claims, Hunter dist.; Mullan. **Development:** About 2700 ft. of tunnels. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of 1c was levied on Oct. 30.

WEST MAMMOTH MINING CO.
Office: 2404 W. 2d Ave., Spokane, Wash. **Officers:** H. C. Lambach, Pres., Seattle, Wash.; A. A. Booth, Sec., Spokane. **Inc.:** July 30, 1926. **Capital:** 1,500,000 shares; par value 25c; 263,000 shares issued. **Property:** Lease and option on property owned by Headlight Mining Co., Ltd., and Big Divide Mining Co., Ltd. **Development:** By 2 tunnels: Headlight, 1300 ft long; Silvermoon, 2190 ft. long. **Plant:** Electrically-driven compressor; complete mining equipment. **Ore:** Lead-silver. **Remarks:** Annual labor only.

WESTERN MINES, LTD.
Office: Wallace. **Officers:** J. B. Ellis, Pres.-Mgr., Wallace; C. E. Collier, Sec., Spokane, Wash. **Inc.:** Mar. 16, 1928. **Capital:** 5,000,000 shares; par value $1; 2,159,595 shares issued. **Property:** Lease and option on property of Bell of the West Mining Co. was forfeited on July 1. **Men employed:** Average, 10. **Remarks:** A stock assessment of 2c was levied on June 16.

WESTERN UNION MINING CO.
Office: Wallace. **Officers:** Harry L. Day, Pres.-Mgr.; W. B. Heitfield, Sec., both of Wallace. **Inc.:** Jan. 27, 1916. **Capital:** 2,000,000 shares; par value 10c; 1,997,656 shares issued. **Property:** Western Union group; 11 patented, 19 unpatented claims, Evolution dist.; Wallace. **Development:** Principally by 4 tunnels: No. 3, 3000 ft. long, and No. 4, 7000 ft. long; and a vertical shaft 477 ft. deep, with 4 intermediate levels. Total development, approximately 18,000 ft. **Plant:** I-R and Gardner-Ricks electrically-driven compressors; air-driven hoist; complete mining equipment and camp. **Ore:** Lead-silver. **Remarks:** Annual labor only.

WILLOW CREEK MINING CO.
Office: 303 Hyde Blk., Spokane, Wash. **Officers:** Andrew Hedin, Pres.-Mgr.; John E. Hoppe, Sec., both of Spokane, Wash. **Inc.:** Jan. 25, 1924. **Capital:** 1,500,000 shares; par value 5c; 1,000,000 shares issued. **Property:** 23 unpatented claims, Hunter dist.; Mullan. **Development:** Principal tunnel 1800 ft. long. **Plant:** A water-driven compressor and complete mining equipment. **Ore:** Silver-lead. **Remarks:** Annual labor only.

WISCONSIN MINING CO.
Office: Kellogg. **Officers:** W. W. Papesh, Pres.-Mgr.; S. A. Germo, Sec., both of Kellogg. **Inc.:** Mar. 13, 1913. **Capital:** 1,500,000 shares; par value $1; 450,000 shares issued. **Property:** Wisconsin group; 5 unpatented claims Yreka dist.; Kellogg. **Development:** 1 tunnel 700 ft. long and a vertical shaft 100 ft. deep. **Plant:** Water-driven compressor; hoist; and complete mining equipment. **Ore:** Lead-silver. **Remarks:** Failed to file the reports required by law. A stock assessment of 2 mills was levied on Oct. 2.

WOLVERINE MINING CO., LTD.
Office: 304 Lindelle Bldg., Spokane, Wash. **Officers:** P. C. Harrington, Pres.-Mgr.; Harold M. Gleeson, Sec., both of Spokane, Wash. **Inc.:** Aug. 4, 1909. **Capital:** 1,250,000 shares; par value $1; increased on July 11, 1928, to 2,000,000 shares; 1,600,000 shares issued. **Property:** Wolverine group; 7 unpatented claims, Big Creek, Yreka dist.; Kellogg. **Development:** By

3 tunnels: No. 1, 450 ft. long; No. 2, 315 ft. long; No. 3, 87 ft. long; and an inclined shaft 400 ft. long. **Plant:** Hoist, 1 Sullivan and 1 I-R compressor, all electrically driven; complete mining equipment. **Ore:** Lead-silver. **Remarks:** Annual labor only.

WONDERFUL MINING CO., LTD.

Office: Wallace. **Officers:** H. E. Howes, Vice-Pres.; A. H. Featherstone, Sec., both of Wallace. **Inc.:** Oct. 15, 1906. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Wonderful group; 4 patented claims, St. Joe dist.; Mullan. **Remarks:** Idle for a number of years.

WYOMING MINING & MILLING CO., LTD.

Office: Wallace. **Officers:** Alfred Page, Pres., Spokane, Wash.; A. W. Hoover, Sec.; Frederick Burbidge, Mgr., both of Wallace. **Inc.:** May 3, 1901. **Capital:** 1,000,000 shares; par value 10c; 935,554 shares issued. **Property:** Wyoming group; 11 patented claims, Yreka dist.; Kellogg. **Development:** Principally by 2 tunnels: Ranger, 2150 ft. long; Wyoming, 500 ft. long. Total development, approximately 5400 ft. **Ore:** Lead-zinc-silver. **Remarks:** Idle.

YAKIMA-SHOSHONE MINING CO.

Office: Standard Stock Exchange Bldg., Spokane, Wash. **Officers:** E. S. Crane, Pres.; W. J. Crane, Mgr., both of Kellogg; A. P. Grommesch, Sec., Yakima, Wash. **Inc.:** Oct. 11, 1928. **Capital:** 1,500,000 shares; par value 10c; increased on Apr. 2, 1930, to 2,000,000 shares; shares issued, unknown. **Remarks:** In 1929 this company held the Nellie and Plainview groups under lease and option. The 1930 activities of the company are unknown, as the reports required by law were not filed.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
American Placer	Summit	Joseph Laveigne	Murray
Anchor et al.	Summit	Mike Melley	Murray
Ancient Gravel	Yreka	George H. Heller	Kellogg
Birthday Group	St. Joe	Wes. J. Horsky	Falcon
Bismark Lode	Eagle	Robt. T. Horn Est.	Murray
Blackhawk Group	Hunter	Chas. M. Baillie	Mullan
Black Hill	Beaver	John Thiard	Delta
Blue Eagle Gr.	Yreka	Walter Owens	Kellogg
Blue Grouse	Evolution	C. M. Patterson	Wallace
Bonanza	Eagle	Jas. Boland	Murray
Boulder Placer	Eagle	Clay Giles	Murray
Bull Pine	Evolution	O. J. Holtz	Kellogg
Carney Copper	Hunter	James Carney	Mullan
Carruthers Placer	Eagle	E. N. Harwood	Billings, Mont.
Castle Rock et al.	Placer Center	A. C. Livingston	Wallace
Comstock Group	Lelande	J. H. Smith	Wallace
Corby Group	Yreka	John Steffes	Kellogg
Cornucopia	Eagle	Francis Frohling	Murray
Cougar Gr.	Yreka	Geo. Smith	Kellogg
Creighton Gr.	Hunter	Mrs. S. P. Domer	Spokane, Wash.
Daddy Mining Co.		Robert T. Horn	Murray
Eagle Placer	Eagle	Archie Smith	Murray
Eldorado Gr.	Eagle	James Leary et al.	Wallace
Eldorado	Summit	R. B. Lundy	Wallace
Eleventh Hour	Evolution	Victor Langley	Wallace
Empress	Beaver	Hugh Mabin	Wallace
Enterprise Group	Yreka	Fred G. Donaldson	Kellogg
Fahey Gr.	Evolution	John Fahey	Spokane, Wash.
Fay et al.	Yreka	Fred G. Donaldson	Kellogg
Ferguson Gr.	Summit	C. B. Ferguson	Murray
Florence Group	Eagle	Frank Rose	Murray
Frances Jeanne	Eagle	W. A. Taylor	Murray
Freeman Gr.	Evolution	Jesse Freeman et al.	Wallace
Friday	Beaver	E. M. Smith	Murray
Galena	Lelande	A. W. McCune	Salt Lake City, U.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Gilbert Placer	Beaver	W. A. Mather	Murray
Gold Back	Eagle	J. D. Stoltman	Murray
Gold Circle	Summit	William Wylie	Murray
Golden Chest	Beaver	Vivian Green	45 W. 34th St., New York City
Golden Gate	St. Joe	E. A. Patrick	Spokane, Wash.
Great Western &	Summit	Dunlap & Smith	Murray
Highland Chief	Yreka	H. T. Gilbert	Kellogg
Homestake Gr.	Lelande	L. J. Oatman et al.	Burke
Horseshoe Pl.	Beaver	Charles H. Wilson	Murray
Indicator	Yreka	Chas. Kaufman	Wallace
Ionia Lode	Summit	Albert Otto	Murray
Iron Clad	Yreka	Henry Lamb	Kellogg
Jewel Gulch	Evolution	Jasper Allamno	Osburn
Joyce Gr.	Beaver	C. B. Ferguson	Murray
Jumbo Gr.	Eagle	Chas. J. Johnson	Murray
Kellida Gr.	Yreka	W. F. Ide	Kellogg
Liberal King Gr.	Yreka	Leslie Lamb	Kellogg
Lion Gr.	Summit	Wm. Wylie	Murray
Little Pittsburgh	Yreka	Gus Smith	Kellogg
Lonesome Pine Gr.	Evolution	H. L. Jaynes	Osburn
Lucky Bill Gr.	Eagle	Chas. T. Johnson	Murray
Lucky Boy	Summit	D. A. Finlayson	Murray
Lucky Strike	Summit	M. E. Lewis	Moscow
McLean Gr.	Placer Center	C. H. McLean	Wallace
Midas Gr.	Placer Center	Henry Lalonde	Wallace
Midnight	Hunter	Forest Clark	Mullan
Midnight Pl.	Beaver	W. A. Mather	Murray
Morning Star	Eagle	Mike Franks	Murray
Mother Lode	Eagle	John F. Murphy	Wallace
Nellie Potter	Eagle	David Goodman	Murray
Ninety Seven	Hunter	H. Thompson	Wallace
Old Timber	Eagle	Louis Feldman	Murray
Olympia	Lelande	A. G. Kerns Est.	Wallace
Olympia Gr.	Yreka	Armond McKinnis	Kellogg
Orofino	Summit	Harry L. Day	Wallace
Omaha Group	Lelande	August Paulsen Est.	Spokane, Wash.
Osakis Gr.	Placer Center	A. L. Fisher	Wallace
Ostrog Gr.	Yreka	N. Petrinovich	Wardner
Panama Gr.	Evolution	Mrs. Mary Crowley	Wallace
Paradox	Summit	Charles Nordquist	Murray
Paymaster	Yreka	Jas. E. Hoskins	Kellogg
Peerless Gr.	Placer Center	E. M. Burt et al.	Wallace
Peterson Gr.	Hunter	Chris Peterson	Mullan
Petoria	Hunter	John H. Hauser	Wallace
Pilot Group	Eagle	J. D. Stoltman	Murray
Prudent	Summit	P. R. Kimball	Murray
Renown Gr.	Placer Center	A. D. Marshall	Wallace
St. Joe	Evolution	C. M. Patterson	Osburn
Sargent	Evolution	C. Sargeant	Osburn
Senator Gr.	Hunter	Jennie Gribble	Mullan
Seward Camp	Eagle	James R. Wood	Murray
Sherlock Group	St. Joe	Frank M. Rose	Wallace
Shipka	Eagle	Godfrey Kohl	Murray
Silver King	Yreka	Hector McRae	Kellogg
Silver Reef	Yreka	Herman J. Rossi	Wallace
Silver Star	Beaver	E. R. Oxley	Murray
Slim Show	St. Joe	Nels Dahlberg	Iron Mt., Mont.
Spokane Central	Yreka	Sam Orlandini	Kellogg
Spokane Gr.	Yreka	Robt. F. Schneider	Kellogg
Steve Corcoran Gr.	Yreka	Chas. Gullickson	Wallace

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Tam O'Shanter	Evolution	David C. Coates	Spokane, Wash.
Toledo Group	Lelande	M. J. Farrell	Burke
Tommy Hawk	Yreka	Alex Vouchard	Kellogg
Troy Group	Hunter	L. E. Hanley	Wallace
Uncle Sam Gr.	Hunter	Joe Huber et al.	Mullan
Victor	Lelande	A. D. Marshall	Wallace
Vindicator Group	Yreka	Charles Kaufman	Kellogg
Virgo et al.	Evolution	Sigurd Thorkelson	Wallace
Vulcan Gr.	Yreka	J. C. Bennington	Kellogg
Waddell Group	Summit	Frank Hall	Murray
Wallace Group	Evolution	Jos. Peila	Wallace
Wardner Gr.	Yreka	John Bogovich	Wardner
Whipsaw Placer	St. Joe	Frank A. Heller	Bonners Ferry
Wild & Wooley	Beaver	J. A. Prichard	Prichard
Williams Gr.	Evolution	Jesse Freeman	Wallace
Winnie	Eagle	W. M. Smith	Murray
Yankee Group	Evolution	Dennis Blake	Kellogg

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

The Coeur d'Alene silver-lead mines, by J. C. Clayton: Eng. and Min. Jour., vol. 45, pp. 108-109, Feb. 11, **1888.**§

Bitterroot Forest Reserve, by R. U. Goode: Nat. Geog. Mag., vol. 9, pp. 387-400, **1898.**§

Coeur d'Alene mining region by W. C. Clarke: Mines and Minerals. vol. 20, pp. 561-562, July, **1900.***

Survey of the boundary line between Idaho and Montana from the international boundary to the crest of the Bitterroot Mountains, by R. U. Goode: U. S. Geol. Survey Bull. 170, **1900.**‡

Coeur d'Alene mining region, by Arthur Lakes: Mines and Minerals, vol. 20, pp. 303-304, February, **1900.***

Ore deposits of Yreka district, Idaho, by E. McCormick: Eng. and Min. Jour., vol. 69, p. 404, Apr. 7, **1900.**§

Geology and water resources of Nez Perce County, Idaho, by I. C. Russell: U. S. Geol. Survey Water-Supply Papers 53 and 54, **1901.**‡*

Mining and milling in the Coeur d'Alene, Idaho, by J. R. Finlay: Eng. and Min. Jour., vol. 75, p. 87, Jan. 10, **1903.**§

Mining industry of the Coeur d'Alene, by J. R. Finlay: Am. Inst. Min. Eng. Trans., vol. 33, pp. 235-271, **1903**§; Mines and Minerals, vol. 24, p. 497, May, **1904.***

A geological reconnaissance across the Bitterroot Range and Clearwater Mountains in Montana and Idaho, by Waldemar Lindgren: U. S. Geol. Survey Prof. Paper 27, pp. 108-111, **1904.***

Economic features of northern Idaho and northwestern Montana, by D. F. MacDonald: U. S. Geol. Survey Bull. 285, pp. 41-52, **1905.***

Coeur d'Alene district, by F. L. Ransome: Min. Mag., vol. 12, pp. 26-32, July, **1905.***

Ore deposits of the Coeur d'Alene district, Idaho, by F. L. Ransome: U. S. Geol. Survey Bull. 260, pp. 274-303, **1905.***

Ore deposits in the St. Joe River Basin, Idaho, by A. J. Collier: U. S. Geol. Survey Bull. 285, pp. 129-139, **1905.***

The Coeur d'Alene in 1905, by S. A. Easton: Eng. and Min. Jour., vol. 81, p. 11, Jan. 6, **1906.**§

The Murray gold belt, Idaho, by T. L. Lammers: Min. and Sci. Press, vol. 94, pp. 636-637, May 18, **1907.***

The north side of the Coeur d'Alene district, by H. S. Auerbach: Eng. and Min. Jour., vol. 86, pp. 65-70, July 11, **1908.**§

Tungsten ore deposits of the Coeur d'Alene, by H. S. Auerbach: Eng. and Min. Jour., vol. 86, pp. 1146-1148, Dec. 12, **1908.**§

The relation between certain ore-bearing veins and gangue fissures, by F. L. Ransome: Econ. Geology, vol. 3, pp. 331-337, June-July, **1908.**§

The geology and ore deposits of the Coeur d'Alene district, Idaho, by F. L. Ransome and F. C. Calkins: U. S. Geol. Survey Prof. Paper 62, **1908.***

Coeur d'Alene mining district, by J. P. Rowe: Min. World, vol. 29, pp. 739-740, Nov. 14, **1908**; vol. 29, pp. 777-778, Nov. 21, **1908**; vol. 29, pp. 843-845, Dec. 5, **1908.***

Mining in the Coeur d'Alene district, by J. P. Rowe: Mines and Minerals, vol. 28, pp. 549-551, July, **1908.***

The geology and ore deposits of the Coeur d'Alene district, by F. L. Ransome and F. C. Calkins, reviewed by E. R. Buckley: Econ. Geology, vol. 4, pp. 178-186, **1909.**§

Geology and ore deposits of the Coeur d'Alene, by F. C. Calkins, discussion of review by E. R. Buckley: Econ. Geology, vol. 4, pp. 258-261, April, **1909.**§

Microstructure of a complex ore from Frisco mine, by William Campbell: Eng. and Min. Jour., vol. 87, pp. 260-261, Jan. 30, **1909.**§

A geological reconnaissance in northern Idaho and northwestern Montana, by F. C. Calkins, with notes on the economic geology by D. F. MacDonald: U. S. Geol. Survey Bull. 384, **1909.***

Notes on geology of Snowstorm mine, Idaho, by George Huston: Eng. and Min. Jour., vol. 90, pp. 1109-1110, Dec. 3, **1910.**§

Geology and mineralization of the upper St. Joe River Basin, Idaho, by J. T. Pardee: U. S. Geol. Survey Bull. 470, pp. 39-61, **1910.***

Geology of the St. Joe-Clearwater region, Idaho, by F. C. Calkins and E. L. Jones, Jr.: U. S. Geol. Survey Bull. 530, pp. 75-86, **1911.***

Economic geology of the region around Mullan, Idaho, and Saltese, Montana, by F. C. Calkins and E. L. Jones, Jr.: U. S. Geol. Survey Bull. 540, pp. 167-211, **1912.***

Genesis of the silver-lead ores in the Wardner district, Idaho, by O. H. Hershey: Min. and Sci. Press, vol. 104, June 1, pp. 750-753; June 8, pp. 786-790; June 15, pp. 825-827, **1912.** (Published later as a pamphlet by Min. and Sci. Press.)**

Reply to Hershey's paper on Wardner district, by F. L. Ransome: Min. and Sci. Press, vol. 105, pp. 143-144, Aug. 3, **1912.***

The Coeur d'Alene mining district, by F. R. Ingalsbe: Eng. and Min. Jour., vol. 96, pp. 156-158, July 26, **1913.**§

Secondary enrichment in the Caledonia mine, Coeur d'Alene district, Idaho, by E. V. Shannon: Econ. Geology, vol. 8, pp. 565-570, Sept. **1913.**§

Origin of lead, zinc, and silver in the Coeur d'Alene, by O. H. Hershey: Min. and Sci. Press, vol. 107, Sept. 27 and Oct. 4, **1913.***

New developments in the Coeur d'Alene, by H. I. Ellis: Eng. and Min. Jour., vol. 100, pp. 337-340, Aug. 28, **1915.**§

The application of the apex law at Wardner, Idaho, by F. T. Greene: Am. Inst. Min. Eng. Trans., vol. 52, pp. 555-562, September, **1915.**§

The copper beds of the Coeur d'Alene, by George Huston: Min. and Sci. Press, vol. 110, pp. 145-147, Jan. 23, **1915.***

Metallurgy in the Coeur d'Alene, by H. A. Megraw: Eng. and Min. Jour., vol. 100, pp. 827-830, Nov. 20, **1915.**§

Origin and distribution of ore in the Coeur d'Alene, by O. H. Hershey, published for the author as a pamphlet by the Min. and Sci. Press, 32 pp., **1916.****

Tungsten, Murray, Idaho, Am. Inst. Min. Eng. Bull. 128, p. 1173, **1917**: Am. Inst. Min. Eng. Trans., vol. 58, p. 224, **1917.**§

Genesis of the Success zinc-lead deposit, Coeur d'Alene district, Idaho, by J. B. Umpleby: Econ. Geology, vol. 12, pp. 138-153, Feb.-March, **1917.**§

Flotation in the Coeur d'Alene, by C. T. Rice: Eng. and Min. Jour., vol. 105, pp. 707-716, April 20, **1918.**§

Differential flotation of lead and zinc, by W. L. Ziegler: Eng. and Min. Jour., vol. 105, pp. 741-742, April 20, **1918.**§

Recovering caved stopes in narrow veins, by C. T. Rice: Eng. and Min. Jour., vol. 105, pp. 1069-1075, June 15; vol. 106, pp. 1-7, July 6; vol. 106, pp. 243-248, Aug. 10, **1918.** (Hecla mine.)§

Differential flotation at Wallace, by C. T. Rice: Eng. and Min. Jour., vol. 106, p. 482, Sept. 14, **1918.**§

Driving and timbering transfer chutes, by C. T. Rice: Eng. and Min. Jour., vol. 106, pp. 881-993, Dec. 7, **1918.** (Hecla mine.)§

The mining districts of northern Idaho, by E. K. Soper: Min. and Sci. Press, vol. 116, pp. 122-124, **1918.***

Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****

A reconnaissance of the Pine Creek district, Idaho, by E. L. Jones, Jr.: U. S. Geol. Survey Bull. 710, pp. 1-36, **1919.**‡

Linarite and leadhillite from Idaho, by E. V. Shannon: Am. Mineralogist, vol. 4, No. 8, pp. 93-94, August, **1919.**§

A preliminary report on the clays of Idaho, by F. H. Skeels: Idaho Bureau of Mines and Geology Bull. 2, **1920.***

The Bunker Hill Enterprise, by T. A. Rickard: Min. and Sci. Press, vol. 120, Jan. 3, Jan. 10, Jan. 24, Feb. 7, Feb. 21, March 6, April 3, April 10, May 15, and May 29, **1920**; vol. 121, Aug. 14, Sept. 4, Sept. 18, **1920.** Also issued in pamphlet form.*

Petrography of some lamprophyric dike rocks of the Coeur d'Alene mining district, Idaho, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 57, pp. 475-495, Sept. 2, **1920.**‡

The Bunker Hill Smelter, by T. A. Rickard: Min. and Sci. Press, vol. 122, Jan. 8, **1921.***

Coeur d'Alene Lake, Idaho, and the overflow lands, by R. W. Davenport: U. S. Geol. Survey Water-Supply Paper 500, **1921.***

Mining methods of Hecla Mining Co., by J. F. McCarthy and C. H. Foreman: Mining and Metallurgy, vol. 4, No. 195, March, **1923**; Am. Inst. Min. Eng. Trans., vol. 72, pp. 319-340, **1925.**§

Mining methods at Bunker Hill & Sullivan mines, by H. M. Childs and S. A. Easton: Mining and Metallurgy, vol. 4, No. 195, March, **1923**; Am. Inst. Min. Eng. Trans., vol. 72, pp. 305-318, **1925.**§

Geology and ore deposits of Shoshone County, Idaho, by J. B. Umpleby and E. L. Jones, Jr.: U. S. Geol. Survey Bull. 732, **1923.**‡

Summary of Hecla reconstruction, by E. L. Wood: Mining and Metallurgy, vol. 5, No. 210, June, **1924.**§

Reconstruction methods at the Hecla mine, by A. C. Stevenson: Mining and Metallurgy, vol. 5, No. 210, June, **1924.**§

History of the Hecla mine, Burke, Idaho, by J. F. McCarthy: Mining and Metallurgy, vol. 5, No. 210, June, **1924.**§

Hindered settling classification in relation to table concentration of Idaho lead-zinc ores, by A. W. Fahrenwald: U. S. Bureau of Mines, R. I. No. 2618, June, **1924.****

The Osburn fault, Idaho, by J. B. Umpleby: Jour. Geology, vol. 32, No. 7, October-November, **1924.**§

The Bunker Hill smelter, by F. M. Smith: Mining Truth, vol. 9, pp. 2-4, Dec. 1, **1924.**§

Notes on western lead smelters, by A. B. Parsons: Eng. and Min. Jour., vol. 119, pp. 876-883, May 30, **1925.** (Bunker Hill smelter.)§

Deformation in ores, Coeur d'Alene district, Idaho, by W. A. Waldschmidt: Econ. Geology, vol. 20, pp. 573-586, September-October, **1925.**§

Big silver-lead producer in Idaho (Hecla mine), by W. E. Carr: Compressed Air Mag., vol. 30, pp. 1375-1379, September, **1925.**§

Mining methods of the Morning mines, by Frederick Burbidge: Am. Inst. Min. Eng. Trans., vol. 72, pp. 341-344, **1925.**§

Bunker Hill & Sullivan M. & C. Co.'s South mill, by R. S. Handy: Idaho Twenty-seventh Ann. Rept. Min. Industry, **1925.****

Hecla Mining Company's mill, by W. L. Zeigler: Idaho Twenty-seventh Ann. Rept. Min. Industry, **1925.****

Tamarack & Custer Cons. Min. Co.'s mill: Idaho Twenty-seventh Ann. Rept. Min. Industry, **1925.****
Gold Hunter Mines, Inc., mill, by J. E. Quinlan: Idaho Twenty-seventh Ann. Rept. Min. Industry, **1925.****
Federal Mining & Smelting Co., Morning mill: Idaho Twenty-seventh Ann. Rept. Min. Industry, **1925.****
Constitution M. & M. Co.'s mill, by W. P. White: Idaho Twenty-seventh Ann. Rept. Min. Industry, **1925.****
Federal Mining & Smelting Co., Page mill, by H. G. Washburn: Idaho Twenty-eighth Ann. Rept. Min. Industry, **1926.****
Callahan Zinc-Lead Co., Galena mill: Idaho Twenty-eighth Ann. Rept. Min. Industry, **1926.****
Concentrating lead-silver ore at Hecla mine, by W. L. Zeigler: Eng. and Min. Jour., vol. 122, pp. 444-450, Sept. 18, **1926.**§
The conduct and value of mine rescue stations, by K. T. Sparks: Min. Con. Jour., vol. 12, No. 6, pp. 452-456, June, **1926.**§
Solving a problem in silver-lead ore concentration (Wardner), by E. W. Ellis: Eng. and Min. Jour., vol. 122, pp. 815-816, Nov. 20, **1926.**§
Some Coeur d'Alene geology, by J. E. Berg: Mining and Metallurgy, vol. 8, July, **1927.**§
Operating methods at the Morning mine, by C. E. Wethered and S. H. Fairweather: Mining and Metallurgy, vol. 8, July, **1927.**§
Milling practice at Morning mill, by M. P. Dalton and G. S. Price: Mining and Metallurgy, vol. 8, July, **1927.**§
The Hecla flotation plant, by W. L. Ziegler: Mining and Metallurgy, vol. 8, August, **1927.**§
Concreting the Morning shaft, by J. H. Johnson: Eng. and Min. Jour., vol. 124, pp. 285-288, Aug. 20, **1927.**§
The Federal Mining and Smelting Company Page mill, by H. G. Washburn: Min. Con. Journal, vol. 13, pp. 729-730, September, **1927.**§
Galena flotation concentrator, Lake Gulch, Idaho, by W. L. Ziegler: Am. Inst. Min. Eng. Technical Publication No. 8-B. 7, August, **1927;** Flotation practice, Am. Inst. Min. Eng., pp. 182-184, **1928.**§
Flotation practice in the Coeur d'Alene district, Idaho, by A. W. Fahrenwald: Am. Inst. Min. Eng. Technical Publication No. 1-B. 1, July, **1927;** Min. Con. Jour., vol. 13, pp. 699-704, September, **1927;** Flotation practice, Am. Inst. Min. Eng., pp. 107-132, **1928.**§
Concentration of lead-silver ore at Hecla mine, Gem, Idaho, by W. L. Ziegler: Am. Inst. Min. Eng. Technical Publication No. 7-B. 6, August, **1927;** Min. Con. Jour., vol. 13, pp. 683-684, **1927;** Flotation practice, Am. Inst. Min. Eng., pp. 175-181, **1928.**§
The Sullivan electrolytic zinc plant of Sullivan Mining Co., by U. C. Tainton: Idaho Twenty-ninth Ann. Rept. Min. Industry, **1927.***
Safety first at the Bunker Hill mine, by H. M. Childs: Min. Con. Journal, vol. 14, pp. 51-56, January, **1928.**§
Mining methods of the Hecla mine, by C. H. Foreman: Min. Con. Journal, vol. 14, pp. 381-383, June, **1928.**§
History of the Hecla mine; pt. 1, by J. F. McCarthy, Compressed Air Mag., vol. 33, pp. 2447-2449, June, **1928;** pt. 2, by E. L. Wood, Compressed Air Mag., vol. 33, pp. 2473-2475, July, **1928;** pt. 3, by A. C. Stevenson, Compressed Air Mag., vol. 33, pp. 2507-2509, August, **1928.**§
The Sullivan electrolytic zinc plant, by U. C. Tainton: Eng. and Min. Jour., vol. 126, pp. 856-860, Dec. 1, **1928.**§
New electrolytic zinc plant of Sullivan Mining Company, by R. M. Miller: Min. Con. Journal, vol. 15, pp. 70-74, January, **1929.**§
Mining practice at Bunker Hill & Sullivan, by U. E. Brown: Min. Con. Journal, vol. 16, pp. 21-24, January, **1930.**§
Milling practice at the Morning mill, by M. P. Dalton and G. S. Price: Min. Con. Journal, vol. 16, pp. 25-26, January, **1930.**§
Mining methods and costs at the Hecla and Star mines, Burke, Idaho, by C. H. Foreman: U. S. Bureau of Mines I. C. 6232, February, **1930.****

Mining methods at the Morning mine of the Federal Mining and Smelting Company, Mullan, Idaho, by C. E. Wethered and L. J. Coady: U. S. Bureau of Mines I. C. 6238, February, **1930.****
Sequence of ore deposition in north Idaho, by A. L. Anderson: Econ. Geology, vol. 25, pp. 160-175, March-April, **1930.****
Vertical transportation in the Coeur d'Alenes, by A. C. Stevenson: Mining and Metallurgy, vol. 11, pp. 243-246, May, **1930.****
Timbering at the Hecla mine, by A. S. Corsun: Mining and Metallurgy, vol. 11, pp. 382-384, August, **1930.****
Milling methods and costs at the northern Idaho mills of the Bunker Hill and Sullivan Mining and Concentrating Co., by R. S. Handy: U. S. Bureau of Mines I. C. 6314, August, **1930.****
Mining methods at the Page mine of the Federal Mining and Smelting Co., Page, Idaho, by J. E. Berg: U. S. Bureau of Mines I. C. 6372, November, **1930.****
Mine ventilation in the Coeur d'Alene mining district, by G. E. McElroy: U. S. Bureau of Mines I. C. 6382, January, **1931.****
Mining methods of the Bunker Hill and Sullivan Mining and Concentrating Co., Kellogg, Idaho, by U. E. Brown: U. S. Bureau of Mines I. C. 6407, January, **1931.****

TETON COUNTY

Teton is one of the southeastern counties, being bounded on the east by the State of Wyoming, on the south by Bonneville County, on the west by Madison County, and on the north by Fremont County. Containing an area of but 463 square miles, it is the second smallest county in the State. The 1930 census accredited it with a population of 3,573 or 7.7 persons to the square mile, the larger part of which is located in the Teton River valley. Practically all the county is farming land, and the principal industries are wheat, potato and stockraising.

The county is served by the Teton State highway, good county roads, and the Ashton-Victor branch of the O. S. L. Railroad. Driggs is the largest town and county seat.

The principal mineral resources of Teton County are coal, phosphate rock, natural gas, limestone, and asbestos; and there are excellent possibilities for the discovery of petroleum. This county is one of the few in the State in which coal occurs in commercial quantity. Compared with the coal produced at Rock Springs, Wyoming, it is equal in quality and similar in appearance. As well as being of excellent quality for domestic and industrial purposes, it is especially adaptable for powdered coal.

The principal coal-bearing area is the Horseshoe district, seven miles west of Driggs. This district has never been sufficiently developed to prove the number or extent of the coal beds. Those which have been proved vary from one to eleven feet in thickness and repose at an angle of approximately 45 degrees. The Horseshoe district has been examined by the U. S. Geological Survey and by the U. S. Bureau of Mines in cooperation with the Idaho Bureau of Mines and Geology. The reports issued by these organizations are listed in the bibliographies, to which the reader is referred for complete descriptions, analyses, and tonnage estimates.

1930 Activities

The most active enterprise in this county during 1930 was the Grand Teton Oil Co., which, in 1929, acquired the holdings and equipment of the Tieton Land & Leasing Co. and a large additional acreage, installed additional well-drilling equipment, and started sinking two wells known as Blevins No. 1 and Bevan No. 1. During 1930 Blevins No. 1 was extended 1,500 feet, to a total depth of 3,300 feet; and Bevan No. 1 was extended 100 feet, to a total depth of 1,465 feet.

GRAND TETON OIL CO.

Office: Earl Bldg., Idaho Falls. **Officers:** Geo. W. Edgington, Pres., Idaho Falls; Leo F. Smith, Sec., Seattle, Wash. **Inc.:** Aug. 9, 1928. **Capital:** 250,000 shares; par value $1; April 12, 1930, increased to 1,000,000 shares; 786,000 shares issued. **Property:** Oil and gas lease on 13,000 acres patented and government land lying 11 miles west of Driggs. **Development:** Blevins No. 1 well, 3300 ft. deep; Bevan No. 1 well, 1465 ft. deep. **Plant:** 2 complete well-drilling rigs and equipment. **Mineral sought:** Oil and gas. **Men employed:** Average, 11. **Remarks:** This organization, in 1929, acquired the holdings of the Tieton Land & Leasing Co. and its equipment and a large additional acreage, installed additional well-drilling equipment, and started sinking two wells known as Blevins No. 1 and Bevan No. 1. During 1930 Blevins No. 1 was extended 1500 ft. and Bevan No. 1, 100 ft. This company was one of the most active oil prospecting enterprises in the State during the year.

IDAHO COAL MINING CO.

Office: Driggs. **Officers:** Peter Mickelsen, Pres., Rexburg; J. F. Miller, Sec., Rigby; John R. Cluff, Mgr., Driggs. **Inc.:** Aug. 13, 1926. **Capital:** 100,000 shares; par value $1. **Remarks:** Failed to file the reports required by law.

SUPERIOR COAL MINING CO.

Office: Pocatello. **Officers:** Roy L. Black, Pres.; S. Hansen, Sec., both of Pocatello. **Inc.:** Dec. 24, 1924. **Capital:** 1,000,000 shares; par value $1; 170,000 shares issued. **Property:** Assignment of prospecting permits and applications for lease on 2400 acres; Horseshoe dist.; Sam. **Development:** By 8 short tunnels, the longest being 520 ft., all of which are drifts on coal veins; and an inclined shaft 158 ft. long. **Plant:** Steam-driven hoist. **Mineral sought:** Coal. **Men employed:** Average, 3. **Remarks:** The principal tunnels were extended a distance of 100 ft. during the year.

TIETON VALLEY LAND & LEASING CO.

Office: Astoria, Ore. **Officers:** Theo. Brown, Pres.; Charles Anet, Sec., both of Astoria, Ore.; F. J. Johnston, Mgr., Driggs. **Inc.:** Aug. 11, 1923. **Capital:** 100,000 shares; par value $1; 95,253 shares issued. **Property:** Oil and gas lease on 6000 acres of patented land lying west of Driggs. **Development:** 1325-ft. well. **Plant:** No. 26 Star drilling rig and complete drilling equipment. **Mineral sought:** Oil and gas. **Remarks:** Equipment used and property developed on a royalty basis throughout the year by the Grand Teton Oil Co.

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

A reconnaissance of the phosphate deposits in western Wyoming, by Eliot Blackwelder: U. S. Geol. Survey Bull. 470, pp. 452-481, **1910.***

The Horseshoe Creek district of the Teton Basin coal field, by E. G. Woodruff: U. S. Geol. Survey Bull. 541, pp. 379-388, **1912.***

A geological reconnaissance for phosphate and coal in southeastern Idaho and western Wyoming, by A. R. Schultz: U. S. Geol. Survey Bull. 680, **1918.**‡

A preliminary report on the mining districts of Idaho, by Thomas Varley and others: U. S. Bureau of Mines Bull. 166, pp. 90-103, **1919.**‡

Oil shale in western Montana, southeastern Idaho, and adjacent parts of Wyoming and Utah, by D. D. Condit: U. S. Geol. Survey Bull. 711, pp. 15-40, **1920.**‡

Coal in eastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 716, **1920.**‡

Petroleum possibilities of certain anticlines in southeastern Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Bull. 4, **1922.***

The Horseshoe Basin area of the Teton coal field in southeastern Idaho, by G. W. Evans: Idaho Bureau of Mines and Geology Pamphlet 10, **1924.***

VALLEY COUNTY

Valley County occupies the geographical center of the State. It is bounded on the north by Idaho, on the east by Lemhi and Custer, on the south by Boise, and on the west by Gem and Adams counties. It contains an area of 3,779 square miles, and was accredited with a population of 3,488 in the 1930 census, or 0.9 persons to the square mile. The principal industries are farming, stockraising, lumbering and mining. Cascade is the county seat.

The State highway, Payette, extending from Boise to Cascade, McCall, and New Meadows, is the principal highway; the Forest Service highways from Cascade to Landmark and Yellow Pine, and from Landmark into Deadwood Basin and Bear Valley, connecting with the Sawtooth Park and Payette highways, are practically completed and opened to travel. The Nampa-McCall branch of the O. S. L. Railroad is the only railroad in the county.

Isolation and lack of transportation have prevented mineral development and compelled many valuable properties to lie idle, but the system of forest roads which has been designated and partly constructed, is making many of the various sections accessible to travel, and is stimulating mining. When these roads are completed the largest undeveloped mineralized area in the State will become available to profitable development and exploitation. The fact that this county had the largest increase (38.2 per cent) in population of any county in the State during the interim from the 1920 to the 1930 census verifies this prediction.

The principal mineral resources of Valley County are gold (placer and lode), lead, silver, zinc, antimony, mercury, copper, tungsten, molybdenum, and monazite. Many mines containing these minerals are undeveloped but justify the finances to prove their possibilities, and many others warrant investigation. These properties and the possibilities in undiscovered veins present many opportunities to the investor, prospector, and development company.



WINTER TRANSPORTATION: OLD METHOD

1930 Activities

The expenditure made by the Yellow Pine Co. for power plant construction and installation, for new mining equipment, erection of new buildings, road construction, and mine development work was the largest in southern Idaho during 1930. This company has inaugurated one of the larg-

est mine development campaigns ever undertaken in the history of the State, and the expenditures it has made indicate that a new mining district of magnitude is being established. During the year the Monday tunnel camp was selected as the principal base of operations and was established as a post office with the name of Stibnite, having a mail service three times a week.

The Monday and Cinnabar tunnels, on each side of Meadow Creek, are at the same elevation and the portals are connected with a long trestle, thus making all equipment and camp facilities accessible to both tunnels. The Cinnabar tunnel is projected to develop the gold and mercury deposits of the Cinnabar group. Its total length when completed will be about 10,000 feet, and it will intersect the ore zones approximately 1,600 feet below the upper levels. The Monday tunnel, which is practically a drift on the Meadow Creek vein, has projected length of 8,000 feet and a depth of 410 feet below the Meadow Creek tunnel. In the Meadow Creek tunnel there is approximately 4,500 feet of crosscuts, drifts, and raises that open the ore bodies 400 feet below the surface. New buildings erected in Stibnite were: assay office, post office, machine shop and compressor house, change house, large barn, warehouse, woodsheds, oil house, metal house, large cellar, large bunkhouse. New equipment installed: Two large electrically driven compressors, electrically driven ventilator blower, steel sharpener, oil furnaces, lathes and machine tools, storage battery locomotive haulage, and complete mining equipment. At the Meadow Creek camp a new slaughter house, corrals, an additional residence and a warehouse were erected. The compressor was converted to electrically driven. An electrically driven hoist, complete equipment for shaft sinking and for fire protection were added. A new 525-kw. hydroelectric power plant was installed on Meadow Creek. The generator is driven by a Pelton water wheel operating under a 520-foot head. The water is delivered through an 11,000-foot, 28-inch, redwood-stave pipe and a 1,620-foot, 24-inch steel penstock. Construction work was started on the 1st of June, and the plant was completed and in operation on the 1st of November. This work involved also the clearing of a right-of-way for the pipe line and transmission lines through heavy forest for a width of 200 feet. Mine develop-



WINTER TRANSPORTATION: NEW METHOD

ment work was maintained throughout the year in the Meadow Creek tunnel and in extending Monday and Cinnabar tunnels. A station and skip pockets were cut in Meadow Creek tunnel, hoist and sinking equipment were installed therein, and all arrangements were completed for sinking a 410-foot vertical shaft on the ore. When completed, Monday tunnel will connect with this shaft. This company is the one mining enterprise in the State to use an airplane for the delivery of mail during the winter. Prior to 1930, mail was delivered by dog team from Cascade. The airplane mail service started in November and continued during the remainder of the year, requiring about an hour from Cascade, as compared with three days by dog team. Plane service included also the transportation of men and light supplies.

Throughout the year the Bunker Hill & Sullivan M. & C. Co., at the Hall Interstate and Lost Pilgrim mines, continued to be one of the most outstanding enterprises in south-central Idaho. Mining and milling were conducted throughout the year, and a substantial tonnage of lead-silver and zinc concentrates was produced and shipped to the company's plant at Kellogg. New camp buildings and concentrate bins were erected, additional mining equipment was installed, and a large amount of mine development work was performed.

The Amalgamated Red Metals Mines Co. and the Profile-Tamarack Mines Co., operating in the Profile section, and the Keystone Gold Mines, Inc., at the Werdenhoff group in the Edwardsburg district, all conducted active exploratory work throughout the summer months.

In the Thunder Mountain district, McRae and Davis maintained work at the Sunnyside mine throughout the summer months and operated their mill intermittently. This district received a large amount of investigation from those seeking new gold-mining enterprises. A project of importance to the Yellow Pine, Profile, Big Creek, and Edwardsburg sections is the construction of the highway from the junction of the present Yellow Pine Meadow Creek highway to the mouth of Profile Creek. Construction of this road was started during the year.

AMALGAMATED RED METALS MINES CO.

Office: 217 Symons Bldg., Spokane, Wash. **Officers:** P. A. Summerland, Pres.; H. W. Power, Sec., both of Spokane, Wash. **Inc.:** Filed in Idaho: Apr. 4, 1929. **Capital:** 1,500,000 shares; par value $1; 874,070 shares issued. **Property:** Red Metals group; 8 unpatented claims, Profile Gap, Yellow Pine dist.; Yellow Pine. **Development:** By 4 short tunnels. **Plant:** MINE: Small water-driven compressor; complete mining equipment and camp. MILL: 25-ton concentrator. **Ore:** Silver. **Men employed:** Average, 7. **Remarks:** 350 ft. of tunnels and crosscuts were driven during the year.

BIG CREEK GOLD MINES, INC.

Office: 618 Idaho Bldg., Boise. **Officers:** C. B. Faraday, Pres., Mountain Home; C. E. Winstead, Sec.; B. F. Goldman, Mgr., both of Boise. **Inc.:** June 9, 1928. **Capital:** 3,000,000 shares; no par value; 2,000,000 shares issued. **Property:** 10 unpatented claims held under lease and option, Edwardsburg dist.; Edwardsburg. **Remarks:** Idle throughout the year.

BUNKER HILL & SULLIVAN MINING & CONCENTRATING CO.

(See Shoshone County.)

Officers: F. W. Bradley, Pres., 1022 Crocker Bldg., San Francisco, Calif.; Stanly A. Easton, Mgr., Kellogg; C. Y. Garber, Local Mgr., Bernard, Via Cascade. **Property:** Lease and option on mines owned by Hall Interstate Mining Co. and Lost Pilgrim Mining Co., Deadwood dist.; Cascade, 52 miles; Bernard. **Development:** Principally by the Independence tunnel 7000 ft. long, in which is a 700-ft., 3-compartment raise with 4 intermediate levels; total development, over 13,000 ft. on both groups. **Plant:** MINE: 160-kw. hydroelectric power plant operating under a 520-ft. head; 375-kw. hydroelectric power plant operating under a 180-ft. head; 385-cu.-ft. I-R compressor; storage battery locomotive haulage; saw-

mills; complete mining equipment and camp. MILL: 100-ton flotation concentrator. **Ore:** Lead-silver-zinc. **Men employed:** Average, 45. **Remarks:** This enterprise is one of the largest and most important in south-central Idaho. The surface plants were further enlarged and improved, and mining and milling operations were conducted without interruption throughout the year. For a complete description, see pages 32 to 40 of this report.



MEADOW CREEK CAMP: YELLOW PINE CO.

CASCADE VALLEY CORPORATION

Office: Fulton Nat'l Bank Bldg., Atlanta, Ga. **Officers:** N. S. Turner, Pres., Covington, Ga.; Ronald Ransom, Sec., Atlanta, Ga. **Inc.:** Apr. 27, 1925. **Capital:** 600 shares; par value $100; all shares issued. **Property:** Sunday group: 7 patented claims, Edwardsburg dist.; Edwardsburg.

COPPER CAMP MINING CO.

Office: Edwardsburg. **Officers:** W. H. Brittain, Pres., Atlanta, Ga.; Mrs. Annie Edwards, Sec.; Wm. A. Edwards, Mgr., both of Edwardsburg. **Inc.:** Oct. 19, 1928. **Capital:** 2,500,000 shares; par value $1; 1,453,000 shares issued. **Property:** Copper Camp group; 18 unpatented claims, Edwardsburg dist.; Edwardsburg. **Development:** By 1 tunnel 140 ft. long. **Ore:** Copper-gold.

DEADWOOD MINING CO., LTD.

Office: Boise. **Officers:** C. B. Steunenberg, Sec., Boise. **Inc.:** June 10, 1921. **Capital:** 1,000,000 shares; par value 10c; 307,504 shares issued. **Property:** Deadwood group; 8 unpatented claims, Deadwood dist.; Knox. **Development:** Principally by 1 tunnel, 600 ft. long. **Ore:** Lead-silver. **Remarks:** A small amount of development work during the year, funds for which were derived from a stock assessment of 5 mills, levied on March 12.

GOLD FORK MINING CO.

Office: 320 Idaho Bldg., Boise. **Officers:** W. E. Pierce, Pres.; W. Clyde Cox, Sec., both of Boise. **Inc.:** Jan. 18, 1916. **Capital:** 2000 shares; par value $100; all shares issued. **Property:** 1520 acres patented placer ground, Gold Fork dist.; Roseberry. **Ore:** Placer gold. **Remarks:** Idle throughout the year.

GREAT NORTHERN MINES CO.

Officers: Albert Hennessy, Pres., Yellow Pine. **Inc.:** Feb. 7, 1924. Charter forfeited Nov. 30, 1928. **Capital:** 100,000 shares; par value $1; all shares issued. **Property:** 13 quartz and 2 placer claims, unpatented, Yellow Pine dist.; Yellow Pine. **Development:** By 2 tunnels. **Ore:** Gold. **Remarks:** Property under option to and operated by Yellow Pine Co.

HALL INTERSTATE MINING CO.

Office: Boise. **Officers:** Chas. W. Mack, Sec., Boise. **Inc.:** Oct. 30, 1915. **Capital:** 1,000,000 shares; par value 25c; 155,500 shares issued. **Property:** Hall group; 5 unpatented claims, Deadwood dist.; Knox. **Development:** By 2 tunnels: Independence, 7000 ft. long; Anderson, 3000 ft. long. **Ore:** Lead-silver. **Remarks:** Under lease and option to Bunker Hill & Sullivan M. & C. Co.

HOLCOMB CO., LTD.

Office: Boise. **Officers:** Ario Pardee, Sec., 1600 Walnut St., Philadelphia; Chas. W. Mack, Mgr., Boise. **Inc.:** Apr. 20, 1908. **Capital:** 500,000 shares; par value $1; 169,280 shares issued. **Property:** 16 patented claims, Thunder Mountain dist.; Yellow Pine. **Ore:** Gold.

HURLEY CREEK MINING & MILLING CO.

Office: Cascade. **Officers:** Chas. C. Smith, Pres., Smiths Ferry; Forest E. Robb, Sec., Cascade. **Inc.:** Aug. 21, 1923. **Capital:** 1,000,000 shares; par value 10c; 697,776 shares issued. **Property:** Maloney group; 10 unpatented claims, unorganized dist.; Cabarton. **Development:** By 3 tunnels: No. 1, 450 ft. long; No. 2, 200 ft. long; No. 3, 1400 ft. long. **Ore:** Silver-gold-copper. Remarks: Failed to file the reports required by law.

IDAHO CENTRAL MINES CO.

Office: Mabton, Wash. **Officers:** A. L. Livingston, Pres.; W. T. Livingston, Sec, both of Mabton, Wash. **Inc.:** May 12, 1927. **Capital:** 3,000,000 shares; par value $1; 1,645,500 shares issued. **Property:** Idaho Central group; 22 unpatented claims, Thunder Mountain dist.; Clover. **Development:** By 6 short tunnels. **Ore:** Copper-gold.

INDEPENDENCE MINES & POWER CO.

Office: Topeka, Kan. **Officers:** W. H. Davis, Pres.; L. Biscoe, Sec., both of Topeka, Kan. **Inc.:** Apr. 27, 1906. **Capital:** 500,000 shares; par value 5c; 250,000 shares issued. **Property:** 10 patented claims, Big Creek dist.; Yellow Pine. **Development:** By 1 tunnel 500 ft. long. **Ore:** Copper-silver-gold. **Remarks:** Idle for many years.

KEYSTONE GOLD MINES, INC.

Office: 415 Mutual Life Bldg., Seattle, Wash. **Officers:** J. B. Mason, Pres., Seattle, Wash.; C. W. Mason, Sec., Tacoma, Wash. **Inc.:** Feb. 25, 1929. **Capital:** 2,000,000 shares; par value $1; 1,287,105 shares issued. **Property:** Werdenhoff group; 21 unpatented claims, Edwardsburg dist.; Warren; held under lease and option. **Development:** By 7 tunnels, the principal one of which is over 900 ft. long. **Ore:** Gold. **Men employed;** Average, 7. **Remarks:** Active development work for a period of seven months.

LOST PILGRIM MINING CO.

Office: Boise. **Officers:** Chas. W. Mack, Sec., Boise. **Inc.:** Nov. 22, 1921. **Capital:** 600,000 shares; par value $1; 355,144 shares issued. **Property:** Lost Pilgrim group; 8 unpatented claims, Deadwood dist.; Knox. **Development:** By 2 tunnels: No. 1, 400 ft. long; No. 2, 300 ft. long; and 1 vertical shaft 40 ft. deep, at the bottom of which is a 70-ft. drift; also by Independence tunnel. Total development, approximately 2500 ft. **Ore:** Silver-lead-zinc. **Remarks:** Under lease and option to Bunker Hill & Sullivan M. & C. Co.

MERRY BLUE MINES CORPORATION

Office: 411 State Tower Bldg., Syracuse, N. Y. **Officers:** Cornelius Dorr, Jr., Pres.; Daniel Denison, Sec., both of Syracuse, N. Y.; Lee Bunch, Mgr., Boise. **Inc.:** Nov. 14, 1930. **Capital:** 250,000 shares; par value $1; all shares issued. **Property:** Merry Blue group; 8 unpatented claims, held under lease and option from Thomas McMillan et al.; Deadwood dist.; Lowman. **Ore:** Gold. **Remarks:** A small amount of work during the summer months.

NATIONAL MERCURY CORPORATION

Office: 927 Market St., Wilmington, Del. **Officers:** Benjamin C. Warnick, Pres.-Mgr., Philadelphia, Pa.; Geo. W. Smith, Sec., Twin Falls. **Inc.:** Filed in Idaho, Dec. 9, 1929. **Capital:** 50,000 shares Class A stock, par value $10; 100,000 shares Class B stock, no par value. **Remarks:** Failed to file the reports required by law.

PROFILE-TAMARACK MINES CO.

Office: Yellow Pine. **Officers:** Geo. Weber, Pres.; Emil P. Slovarp, Sec., both of Henry Bldg., Portland, Ore.; H. T. Abstein, Mgr., Yellow Pine. **Inc.:** June 18, 1926. **Capital:** 20,000 shares, no par value; increased Apr. 23, 1930, to 5,000,000 shares, par value 25c; 1,250,000 shares issued. **Property:** 36 unpatented claims, Missouri and Profile creeks, Yellow Pine dist.; Yellow Pine. **Development:** By 7 tunnels, the longest of which is 450 ft. **Ore:** Lead-silver, copper-gold. **Men employed:** Average, 4. **Remarks:** Active development work throughout the summer.

PROSPECTORS MINING & DEVELOPING CO., LTD.

Office: Kuna. **Officers:** John R. Clark, Pres., Escalon, Calif.; Oliver G. Clark, Sec.-Treas., Boise. **Inc.:** April 12, 1906. **Capital:** 50,000 shares; par value $1; 26,725 shares issued. **Property:** Golden Ibex group; on Wilson Creek, Thunder Mountain dist.; Meyers Cove. **Development:** Approximately 525 ft. of workings, the principal one of which is a tunnel 125 ft. long. **Ore:** Gold. **Men employed:** Average, 1. **Remarks:** Annual labor only.

RAPID CREEK MINING CO., LTD.

Office: Cascade. **Officers:** F. M. Kerby, Pres., Cascade; E. J. Geelan, Sec., McCall. **Inc.:** Nov. 1, 1928. **Capital:** 1,000,000 shares; par value 10c; 465,000 shares issued. **Property:** Rapid Creek group; 41 unpatented claims; McCall. **Ore:** Lead-silver-copper. **Remarks:** Annual labor only.



PARTIAL VIEW MONDAY CAMP, YELLOW PINE CO.



VIEW OF PIPE LINE MEADOW CREEK POWER PLANT: YELLOW PINE CO.

SMITH CREEK HYDRAULIC MINING CO., INC.

Office: 308 McCarty Bldg., Boise. **Officers:** H. A. Griffiths, Pres., Caldwell; H. M. Nelson, Sec., Boise. **Inc.:** Sept. 11, 1928. A reorganization of the Smith Creek Hydraulic Mining Co. **Capital:** 750,000 shares; no par value; 403,827 shares issued. **Property:** Smith Creek group; 15 unpatented placer claims, Edwardsburg dist.; Edwardsburg. **Ore:** Placer gold. **Remarks:** Small amount of work.

SOUTH SALMON PLACER MINING CO.

Office: Nampa. **Officers:** C. G. Halliday, Pres.; Windsor J. Lloyd, Sec., both of Nampa. **Inc.:** Jan. 4, 1929. **Capital:** 100,000 shares; par value $1; 65,157 shares issued. **Property:** 190 acres of patented farm land. **Remarks:** Idle.

UNITED MERCURY MINES CO.

Office: 605 Eastman Bldg., Boise. **Officers:** J. J. Oberbillig, Pres.-Mgr.; J. F. Koelsch, Sec., both of Boise. **Inc.:** Jan. 20, 1921. **Capital:** 5,000,000 shares; par value 10c; 4,500,000 shares issued. **Property:** 11 patented, 426 unpatented claims, consisting of 3 groups: Hermes, principal ore, cinnabar; Meadow Creek, principal ore, gold; Babbitt Metal, principal ore, antimony; Yellow Pine dist.; Yellow Pine. **Remarks:** All properties under option to Yellow Pine Co., which see.

YELLOW PINE CO.

Office: 1022 Crocker Bldg., San Francisco, Calif. **Officers:** Fred W. Bradley, Pres.; E. A. Griffin, Sec., both of San Francisco; Geo. W. Worthington, Supt., Stibnite. **Inc.:** Filed in Idaho May 25, 1928. **Capital:** 200,000 shares; par value $1; 62,605 shares issued. **Property:** Cinnabar, Meadow Creek, and Babbitt Metals groups, 11 patented, 426 unpatented claims, held under lease and option from United Mercury Mines Co.; 13 quartz and 2 placer claims, unpatented, held under lease and option from Great Northern Mines Co. **Development:** Meadow Creek group: Meadow Creek tunnel, over 3000 ft. long, 2 inclined raises in which are 3 intermediate levels, total development over 4500 ft.; Monday tunnel, 1500 ft. long; Cinnabar group: Cinnabar tunnel 1100 ft. long. **Plant:** POWER: South Meadow Creek: hydroelectric, 75-kw., driven by Pelton water wheel under a 422-ft. head. Meadow Creek: hydroelectric, 525-kw., driven by

Pelton water wheel under a 520-ft. head; 11,000 ft. 28-inch redwood pipe; 1620 ft. 24-inch steel penstock; 5 miles of transmission lines. MINE: Meadow Creek Camp: 12x10 I-R compressor and Ottumwa hoist, both electrically driven; steel sharpener; oil furnaces; sawmill; complete mining equipment and camp. Monday Camp: One 300 cu. ft. 12x10 I-R compressor; one 620 cu. ft. Imperial type I-R compressor, Roots positive blower, all electrically driven; steel sharpeners; oil furnaces; storage battery locomotive haulage; complete mining equipment and machine shop; complete and modern mine and camp buildings. **Ore:** Mercury, gold-silver, antimony. **Men employed:** Average, 90.

REMARKS

The expenditure made by this company for power plant construction and installation, for new mining equipment, erection of new buildings, road construction, and mine development work was the largest in southern Idaho during 1930. The Monday tunnel camp was selected as the principal base of operations and was established as a post office with the name of Stibnite, having a mail service three times a week. The Monday and Cinnabar tunnels, on each side of Meadow Creek, are at the same elevation and the portals are connected with a long trestle, thus making all equipment and camp facilities accessible to both tunnels. The Cinnabar tunnel is projected to develop the gold and mercury deposits of the Cinnabar group. Its total length when completed will be about 10,000 ft., and it will intersect the ore zones approximately 1,600 ft. below the upper levels. The Monday tunnel, which is practically a drift on the Meadow Creek vein, has a projected length of 8,000 ft. and a depth of 410 ft. below the Meadow Creek tunnel. In the Meadow Creek tunnel there is approximately 4,500 ft. of crosscuts, drifts, and raises that open the ore bodies 400 ft. below the surface. New buildings erected in Stibnite were: assay office, post office, machine shop and compressor house, change house, large barn, warehouse, woodsheds, oil house, meat house, large cellar, large bunkhouse. New equipment installed: Two large electrically driven compressors, electrically driven ventilator blower, steel sharpener, oil furnaces, lathes and machine tools, storage battery locomotive haulage, and complete mining equipment. At the Meadow Creek camp a new slaughter house, corrals, an additional residence and a warehouse were erected. The compressor was converted to electrically driven. An electrically driven hoist, complete equipment for shaft sinking and for fire protection were added. A new 525-kw. hydroelectric power plant was installed on Meadow Creek. The generator is driven by a Pelton water wheel operating under a 520-ft. head. The water is delivered through an 11,000-ft., 28-inch, redwood-stave pipe and a 1620-ft., 24-inch steel penstock. Construction work was started on the 1st of June, and the plant was completed and in operation on the 1st of November. This work involved also the clearing of a right-of-way for the pipe line and transmission lines through heavy forest for a width of 200 ft. Mine development work was maintained throughout the year in the Meadow Creek tunnel and in extending Monday and Cinnabar tunnels. A station and skip pockets were cut in Meadow Creek tunnel, hoist and sinking equipment were installed therein, and all arrangements were completed for sinking a 410-ft. vertical shaft on the ore. When completed, Monday tunnel will connect with this shaft. This company has inaugurated one of the largest mine development campaigns ever undertaken in the history of the State, and the expenditures it has made indicate that a new mining district of magnitude is being established. This company is the one mining enterprise in the State to use an airplane for the delivery of mail during the winter. Prior to 1930, mail was delivered by dog team from Cascade. The airplane mail service started in November and continued during the remainder of the year, requiring about an hour from Cascade, as compared with three days by dog team. Plane service included also the transportation of men and light supplies.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Baker Pl.	Deadwood	Wm. Baker	Cascade
Boyle Gr.	Yellow Pine	Cy Boyle	Yellow Pine
Buckeye et al.	Edwardsburg	Wm. Mitchell	Meyers Cove
Call Gr.	Yellow Pine	Ray Call	Yellow Pine
Cascade	Yellow Pine	Mike Popovich	Yellow Pine
Copper King	Yellow Pine	Crosby Brewer	Warren
Crater Lake	Yellow Pine	Wm. Lockpitch	Yellow Pine
Dewey	Thunder Mt.	R. A. Davis, Jr.	Nampa
Ellis Gr.	Deadwood	Jas. Ellis	Knox
Gold Fork Meadows Gr.	Unknown	W. H. Shane	Emmett
Gold Reef	Deadwood	Edw. Moran	Knox
Gold Ridge et al.	Yellow Pine	H. B. Abstein	Yellow Pine
Golden Gate Gr.	Yellow Pine	Mark Campbell	Yellow Pine
Golden Way Gr.	Big Creek	Geo. W. Laufer	Yellow Pine
Gum Boot et al.	Edwardsburg	E. M. Hussey et al.	Cascade
Hard Rock Gr.	Deadwood	Clay Kalfus	Knox
Hill Top et al.	Unorganized	Nick Randa	Donnelly
Homestake	Yellow Pine	Albert Hennessy	Cascade
Independence	Edwardsburg	J. B. Eldridge	Boise
Jensen Gr.	Edwardsburg	Jensen Bros.	Clover
Keystone Gr.	Deadwood	Mitchell Jeannott	Pioneerville
Lake City Pl.	Lake City	Jacob Storer	McCall
Link	Deadwood	Bedan Davis	Cascade
Lucky Strike	Hurdy Cr.	D. J. Cain	Cascade
Ludwig Gr.	Edwardsburg	Anthony Ludwig	Edwardsburg
Maxwelton	Yellow Pine	Boyle & Holum	Yellow Pine
Merry Blue Gr.	Deadwood	J. Goecke	Cascade
Muck Flats et al.	Unorganized	J. H. Schlehuber	Cambridge
.....	Edwardsburg	Mattie Mahan	Clover
Pathfinder Gr.	Profile	Crosby Brewer	Warren
Pioneer	Yellow Pine	A. C. Behne	Yellow Pine
Profile Gap Gr.	Profile	Sam Wilson	Yellow Pine
Ramey Ridge	Edwardsburg	James Hand	Clover
Red Metal	Profile	Chas. Ellison Est.	Yellow Pine
Rubarbe Pl.	Yellow Pine	Vernon White	Yellow Pine
Ruby Hill	Lake City	L. L. Alsager	Emmett
Silver Blossom Gr.	Unknown	E. T. Horine	Cascade
Silver Shield	Hurdy Cr.	Charles Hardin	Cabarton
Smith Cr. Gr.	Edwardsburg	John Routsen	Warren
Snow Shoe	Big Creek	Jacob Jensen	Clover
Sparkling Spgs. Gr.	Unorganized	O. D. Bradbury	Yellow Pine
Stadium	Yellow Pine	Kennedy and Elliott	Yellow Pine
Sunday et al.	Edwardsburg	Wm. A. Edwards	Yellow Pine
Sunnyside	Thunder Mt.	Dan McRae	McCall
Taylor Ramby 1, 2, 3	Deadwood	Harold Taylor	Cascade
Thomson et al.	Edwardsburg	W. G. Thomson	Vale, Ore.
Union Gr.	Unorganized	J. L. Tyson et al.	Cabarton
Valley Gr.	Deadwood	Lee Bunch et al.	Boise
Warm Spring	Unorganized	E. H. Heller	Cascade

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey Twentieth Ann. Rept., pt. 3, pp. 75-256, **1900.***

Thunder Mountain and Mackay, Idaho, by R. N. Bell: Min. and Sci. Press, vol. 84, p. 62, Feb. 1, **1902.***

Geology of Thunder Mountain and central Idaho, by R. N. Bell: Eng. and Min. Jour., vol. 73, pp. 791-793, June 7, **1902.**§
Facts about Thunder Mountain, by R. N. Bell: Eng. and Min. Jour., vol. 74, pp. 273-275, Aug. 30, **1902.**§
Thunder Mountain, by W. E. L'Hame: Mines and Minerals, vol. 21, p. 558, July, **1901**; and vol. 24, pp. 207-209, December, **1903.***
Central Idaho gold district, by S. P. Jellum: Northwest Min. News, vol. 3, pp. 83-91, 107-114, 134-139, **1908**; vol. 4, pp. 2-6, 31-37, 66-73, **1909.***
Big Creek gold district, Idaho, by R. N. Bell: Eng. and Min. Jour., vol. 94, pp. 891-892, Nov. 9, **1912.**§
Quicksilver and antimony discoveries in central Idaho, by R. N. Bell: Idaho Mining Dept. Bull. 1, **1918.****
Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****
Geology of the Yellow Pine cinnabar mining district, Idaho, by E. S. Larsen and D. C. Livingston: U. S. Geol. Survey Bull. 715, **1920.***
A reconnaissance in south-central Idaho embracing Thunder Mountain, Big Creek, Stanley Basin, Sheep Mountain, and Seafoam districts, by J. B. Umpleby and D. C. Livingston: Idaho Bureau of Mines and Geology Bull. 3, pp. 3-12, **1920.****
Antimony and quicksilver deposits in the Yellow Pine district, Idaho, by F. C. Schrader and C. P. Ross: U. S. Geol. Survey Bull. 780, pp. 137-167, **1926.**‡
Ore deposits in Tertiary lava in the Salmon River Mountains, Idaho, by C. P. Ross: Idaho Bureau of Mines and Geology Pamphlet 25, **1927.****

WASHINGTON COUNTY

Washington is one of the southwestern counties, adjoining and lying north of Payette and Gem counties, east of Gem, and east and south of Adams County. The Snake River, which flows north, forms the entire western boundary. The county contains an area of 1,479 square miles, and was accredited with a population of 7,962 in the 1930 census. It is primarily an agricultural and stockraising community; that part which occupies the Snake River Valley is intensively cultivated, and is the location of the larger part of the population. Weiser is the county seat.

The North and South highway extends from the southern to the northern boundary and is situated about in the geographical center. Branch roads leading to all the settlements are maintained by the county; these are kept in good repair and open to travel the larger part of the year. The county is served by three railroads, the Pacific and Idaho Northern, which extends from Weiser to New Meadows; the main line of the O. S. L. Railroad, and the Huntington-Robinette, Oregon, branch of the same road.

The principal mineral resources are silver, copper, gold, lead, zinc, manganese, diatomaceous earth, pyrites, gypsum, clay, and garnet, practically all of which occur in the three mining districts—Washington, Cuddy Mountain, and Heath—the principal of which is the Washington, or Mineral, district; and natural gas near Weiser. At one time the Mineral district was a large producer of silver; two blast furnaces were in operation, and the camp of Mineral was a goodsized town; but it has been deserted for many years, the smelters have been dismantled, and the district has almost reverted to its primitive condition. Nearly all the deposits are high-grade silver-copper ores, rather complex, and in some mines partly oxidized, but amenable to modern flotation methods. Many of the deposits in this district are extensive, a large tonnage of ore is available, and there appears to be no reason why the district should not be receiving more attention than it has during the past few years, as there are many properties that are worthy of investigation and development. Large deposits of pyrites and disseminated copper ore also occur in this district.

1930 Activities

An event of importance to this county and to southern Idaho was the entry of the Idaho Mineral Mining Co., a subsidiary of the Goldfield Deep Mines Co. of Nevada, into the Mineral district late in 1929. This company acquired practically all of the principal properties adjacent to the old town of Mineral and consisting of three groups on each side of Dennett Creek; a small gas-driven compressor and complete mining equipment were installed; active development work was commenced and was continued throughout 1930.

The Crystal Dome Oil & Gas Co., whose property lies between the towns of Payette and Weiser, erected an 84-foot derrick, installed a standard steam-driven drilling rig, and commenced operations in sinking a 12½-inch well in November, 1929, and completed the well to a depth of 1,470 feet in 1930. On Sept. 28, 1930, at a depth of 1,865 feet, a showing of natural gas was encountered. In November this company entered into an operating agreement with the Mountain States Oil & Gas Co., which has conducted all subsequent operations.

The Cuddy Mountain district received a small amount of attention during the summer months, and G. T. Hamill produced and shipped a carload of high-grade lead-silver ore.

CRYSTAL DOME OIL & GAS CO.

Office: Box 1573, Boise. **Officers:** B. P. Kramlich, Pres.; Charles F. Reddoch, Sec., both of Boise. **Inc.:** Aug. 8, 1929. **Capital:** 6000 shares; par value $25; 3702 shares issued. **Property:** Oil and gas leases on 23,000 acres near Weiser. **Development:** By a 12-in. well 1865 ft. deep. **Plant:** 84-ft. wooden derrick; standard steam-driven rig; complete drilling equipment. **Mineral sought:** Oil and gas. **Men employed:** Average, 4. The company states: "Crystal Dome Oil & Gas Co. has an operating agreement with the Mountain States Oil & Gas Co. and is no longer in the active development itself. The company began its operations in November, 1929, and drilled one well to a depth of 1470 ft., which was lost by reason of two joints of 12½-inch pipe getting lost at the bottom of the well. Another well was commenced about June 14, 1930, and a showing of gas was struck on Sept. 28, 1930. (at a depth of 1865 ft.) * * * * Operations since about Nov. 1 have been by the Mountain States Oil & Gas Co."

CUDDY MOUNTAIN GOLD MINING CO.

Office: 103 Park Ave., New York City. **Officers:** J. N. Bishop, Pres.; W. S. Gordon, Sec., both of New York City; W. E. Freehafer, Mgr., Council. **Inc.:** Mar. 27, 1926. **Capital:** 300,000 shares; par value $1; shares issued, unknown. **Property:** Cuddy Mountain group; 20 unpatented claims, Cuddy Mountain dist.; Council. **Development:** By 2 tunnels: No. 1, 600 ft. long; No. 2, 250 ft. long. **Plant:** Sawmill; small steam-driven amalgamation mill; complete mining equipment and camp. **Ore:** Gold. **Remarks:** Annual labor only.

EDNA MAY MINES CO., INC.

Office: Cambridge. **Officers:** Geo. Larsen, Pres., Ustick; J. A. Boone, Sec., Cambridge. **Inc.:** Aug. 13, 1926. **Capital:** 1,200,000 shares; par value 25c. **Remarks:** Failed to file the reports required by law.

IDAHO MINERAL MINING CO.

Office: Goldfield, Nev. **Officers:** A. I. D'Arcy, Pres.-Mgr.; H. G. McMahon, Sec., both of Goldfield, Nev. **Inc.:** Nov. 22, 1929. **Capital:** 1,000,000 shares; par value 10c; 5000 shares issued. **Property:** Darris, Silver Still, and Enterprise groups; 2 patented, 21 unpatented claims held under lease and option, Mineral dist.; Home, Ore. **Development:** Darris group: Principally by 1 tunnel 350 ft. long. **Plant:** Gas-driven compressor; complete mining equipment. **Ore:** Silver. **Men employed:** Average, 3. **Remarks:** This company is a subsidiary of the Goldfield Deep Mines Co. of Nevada. Active development work for a period of nine months.

IDAHO-OREGON COAL MINING CO.
Office: 1018 Idaho St., Boise. **Officers:** A. E. Price, Pres.-Mgr.; A. Affleck, Sec., both of Boise. **Inc.:** Nov. 5, 1920. **Capital:** 100,000 shares; par value $1; 62,000 shares issued. **Property:** Government prospecting permit on 1282 acres near Cobb Siding, Weiser. **Development:** By 1 tunnel 500 ft. long. **Mineral sought:** Coal.

INDIAN HEAD CALCITE CO.
Office: Ontario, Ore. **Officers:** W. J. Weese, Pres.; Ontario, Ore.; M. A. Biggs, Sec.; M. P. Tonning, Mgr., all of Ontario, Ore. **Inc.:** May 3, 1930. **Capital:** 200,000 shares; par value $1; no shares issued. **Property:** 3 unpatented claims, unorganized dist.; Cobb. **Plant:** An oil-driven compressor and complete mining equipment. **Mineral sought:** Calcite. **Remarks:** The equipment was installed and a road was constructed during the year.

LIME PHOSPHATE PRODUCTS CORPORATION
Office: Weiser. **Officers:** Jess D. Watson, Weiser. **Inc.:** Dec. 2, 1930. **Capital:** 100 shares; par value $100.

MOUNTAIN STATES OIL & GAS CO.
Office: Weiser. **Officers:** Willard Scowcroft, Pres., Ogden, Utah; Charles F. Reddoch, Asst. Sec., Boise; John Sandburg, Mgr., Weiser. **Inc.:** Oct. 14, 1930. **Capital:** 2,000,000 shares; par value $1; 466,300 shares issued. **Property:** Oil and gas leases near Weiser, and an operating agreement with the Crystal Dome Oil & Gas Co.

SILVER STILL MINING CO.
Office: Weiser. **Officers:** John G. Still, Pres., Huntington, Ore.; E. R. Coulter, Sec., Weiser. **Inc.:** Aug. 21, 1924. **Capital:** 10,000 shares; par value $1; all shares issued. **Property:** 10 unpatented claims, Mineral dist.; Home, Ore. **Development:** 6 short tunnels, 1 shaft. **Ore:** Silver-copper. **Remarks:** Under option to Idaho Mineral Mining Co.

WEISER GAS & PETROLEUM CO.
Office: Weiser. **Officer:** Ed. R. Coulter, Weiser. **Inc.:** Jan. 17, 1928. **Capital:** 5,000 shares; par value $1. **Remarks:** Has never filed the reports required by law.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Alcorn Gr.	Cuddy Mt.	J. I. Burden	Council
Bay Horse et al.	Washington	U. S. Metals Co.	Huntington, Ore.
Copper Bell Gr.	Washington	J. R. Weaver	Home, Ore.
Copper King Ext.	Heath	H. H. Mack	Baker, Ore.
Cuddy Mt. Gr.	Cuddy Mt.	W. E. Freehafer	Council
Darius Gr.	Washington	Mrs. J. G. Burnham	Home, Ore.
Eagle Gr.	Washington	John G. Still	Huntington, Ore.
Edna May	Heath	Roy Howland	Homestead, Ore.
Egan Gr.	Washington	Emil Melzer Est.	Baker, Ore.
Enterprise Gr.	Washington	Shane & McCorkle	Home, Ore.
Fernwood	Heath	Wm. Ulrich	Huntington, Ore.
Iron Mt. Gr.	Washington	John Seigwein	Weiser
Jonsail	Heath	E. C. Jones	Huntington, Ore.
Keystone	Cuddy Mt.	G. T. Hamill	Fruitvale
Last Chance Gr.	Cuddy Mt.	Frank Peck	Council
L. T. Claim	Cuddy Mt.	L. J. Thibault	Council
Magdalene Gr.	Washington	J. R. Weaver	Home, Ore.
No Business Canon	Cuddy Mt.	Howland & Levander	Fruitvale
Oro Hondo Gr.	Cuddy Mt.	J. M. DeLay	Weiser
Pin Money Gr.	Mineral	F. J. Kennedy	Council
Porcupine Gr.	Cuddy Mt.	J. T. Morris	Council
Raymond	Heath	Paul Raymond, Sr.	Heath
Rinehart Gr.	Cuddy Mt.	Rinehart & Bloomfield	Council
River Bank Gr.	Cuddy Mt.	Earl Kerr	Council
S. & R. Gr.	Cuddy Mt.	Summercamp & Riley	Payette
Sunshine Idaho Gr.	Cuddy Mt.	H. A. Arnold	Council
View of the Valley	Heath	J. H. Schlehuber	Cambridge

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey Twentieth Ann. Rept., pt. 3, **1900.***

The gold belt of the Blue Mountains of Oregon, by Waldemar Lindgren: U. S. Geol. Survey Twenty-second Ann. Rept., pt. 2, pp. 562, 568, 579, 585, 592, 626, 629, 638, 641 and 752-756, **1901.***

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Oil and gas prospects near Vale, Oregon, and Payette, Idaho, by C. W. Washburne: U. S. Geol. Survey Bull. 431, pp. 26-55, **1909.***

The I. X. L. copper prospect, by R. N. Bell: Eng. and Min. Jour., vol. 108, p. 400, Sept. 6, **1919.**§

Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****

A preliminary report on the clays of Idaho, by F. H. Skeels: Idaho Bureau of Mines and Geology Bull. 2, **1920.***

The copper deposits of the Seven Devils and adjacent districts, by D. C. Livingston and F. B. Laney: Idaho Bureau of Mines and Geology Bull. 1, **1920.***

Gypsum deposits of the United States, by R. W. Stone and others: U. S. Geol. Survey Bull. 697, pp. 99-100, **1920.**‡

Oil and gas possibilities of eastern Oregon, by J. P. Buwalda: Oregon Bureau of Mines and Geology, vol. 3, No. 2, **1921.***

A preliminary reconnaissance of the gas and oil possibilities of southwestern and south-central Idaho, by J. P. Buwalda: Idaho Bureau of Mines and Geology Pamphlet 5, **1923.***

A geologic reconnaissance of the Mineral and Cuddy Mountain mining district, Washington and Adams counties, Idaho, by D. C. Livingston: Idaho Bureau of Mines and Geology Pamphlet 13, **1925.****

UNKNOWN MINING AND OIL COMPANIES

Companies whose corporate charters are in good standing, for which information is entirely lacking, and which are not mentioned elsewhere in this report, because they failed to file with the inspector of mines the reports required by law:

COMPANY NAME	OFFICER	P. O. ADDRESS
Black Hawk Mining Co., Inc.	O. A. Giles	Freewater, Ore.
Blue Mt. Mining & Dev. Co.	U. G. Stevens	Payette
El Rio del Oro Mining Co.	U. F. Powell	Boise
Golden Dream Mining Co.	C. M. Williams	Boise
Oregon-Idaho Lime Products Co.	----------	1042 Pacific Bldg., Portland, Ore.
Pacific Gas & Oil Co.	W. R. Teller	Boise
Western States All Metals Corp.	Claude Huffman	Lewiston

GENERAL BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

For production statistics, discussions on geology, description of mines and mining districts (location and production), see all volumes of: U. S. Geol. Survey Mineral Resources, U. S. Bureau of Mines Mineral Resources, Reports of Idaho Inspector of Mines, and the Annual Reports of the Director of the United States Mint.

GENERAL REFERENCES

Contributions to economic geology, by S. F. Emmons and E. C. Eckel: U. S. Geol. Survey Bull. 285, **1906.***

Retracement of the boundary line between Idaho and Washington from the junction of Snake and Clearwater rivers northward to the international boundary, by R. B. Marshall: U. S. Geol. Survey Bull. 466, **1911.**‡

An old erosion surface in Idaho, by J. B. Umpleby: Jour. Geology, vol. 20, pp. 139-147, **1912.**§

The mining districts of the western United States, by J. M. Hill, with a geological introduction, by Waldemar Lindgren: U. S. Geol. Survey Bull. 507, **1912.***

Useful minerals of the United States, by Samuel Sanford and R. W. Stone: U. S. Geol. Survey Bull. 585, pp. 63-68, **1914.***

Useful minerals of the United States, by F. C. Schrader et al.: U. S. Geol. Survey Bull. 624, pp. 115-121, **1917.***

Gold dredging in the United States, by Charles Janin: U. S. Bureau of Mines Bull. 127, **1918.***

An old erosion surface in Idaho: Is it Eocene? by J. L. Rich: Econ. Geology, vol. 13, pp. 120-136, March, **1918.**§

The Idaho peneplain, by Waldemar Lindgren (Discussion): Econ. Geology, vol. 13, pp. 486-488, September, **1918.**§

An old erosion surface in Idaho, by D. C. Livingston (Discussion of Mr. Rich's article): Econ. Geology, vol. 13, pp. 488-492, September, **1918.**§

A preliminary report on the mining districts of Idaho, by Thomas Varley et al.: U. S. Bureau of Mines (in cooperation with the Univ. of Idaho) Bull. 166, **1919.***

Types of Rocky Mountain structure in southeastern Idaho (abstract with discussion by G. W. Stose): Geol. Soc. America Bull., vol. 31, No. 1, pp. 126-127, Mar. 31, **1920.**§

Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon, No. 2398: U. S. Nat. Museum Proc., vol. 60, art. 3, pp. 1-133, **1921.**‡

Igneous geology of southeastern Idaho, by G. R. Mansfield: Geol. Soc. America Bull., vol. 32, pp. 249-266, **1921.**§

Boundaries, areas, geographic centers and altitudes of the United States and the several states, by E. M. Douglas: U. S. Geol. Survey Bull. 689, **1923.** (Idaho, p. 210.)‡

Power resources of Snake River between Huntington, Oregon, and Lewiston, Idaho, by W. G. Hoyt: U. S. Geol. Survey Water-Supply Paper 520C, pp. 27-51, **1924.**‡

Zonal distribution of gold, silver, lead, and copper ores in Idaho, by F. A. Thomson and Fritz McGonigle: Eng. and Min. Jour., vol. 120, pp. 216-218, Aug. 8, **1925.**§

The future of Idaho as a mineral producer, by F. A. Thomson: Min. Con. Journal, vol. 11, pp. 536-538, November, **1925.**§

The minerals of Idaho, by E. V. Shannon: U. S. Nat. Mus. Bull. 131, **1926.**‡

Geological setting of Idaho batholith, by R. H. Beckwith: Pan-Am. Geologist, vol. 45, no. 5, pp. 359-376, June, **1926.**§

Salient features of the geology of south-central Idaho, by C. P. Ross: Washington Acad. Sci. Jour., vol. 18, p. 268, **1928.**§

Mesozoic and Tertiary granitic rock in Idaho, by C. P. Ross: Jour. Geology, vol. 36, No. 8, November-December, **1928.****

The lead industry of Idaho, by S. A. Easton: Min. Con. Journal, vol. 15, p. 842, November, **1929.**§

The mining industry of Idaho, by Stewart Campbell: Min. Con. Journal, vol. 15, pp. 947-949, December, **1929.**§

Cretaceous and Tertiary planation in northern Idaho, by A. L. Anderson: Jour. Geology, vol. 37, November-December, **1929.**§

Old erosion surfaces in southwestern Idaho, by V. R. D. Kirkham: Jour. Geology, vol. 38, No. 7, October-November, **1930.****

Boundaries, areas, geographic centers, and altitudes of the United States and the several states, by E. M. Douglas: U. S. Geol. Survey Bull. 817, **1930.**** (Idaho, p. 237.)

A graphic history of metal mining in Idaho, by C. P. Ross: U. S. Geol. Survey Bull. 821-A, **1930.****

CINNABAR

U. S. Geol. Survey Mineral Resources, **1917**, pt. 1, pp. 414-415.*

Quicksilver and antimony discoveries in Central Idaho, by R. N. Bell: Idaho Mining Department Bull. 1, **1918.***

Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****

Geology of the Yellow Pine cinnabar mining district, Idaho, by E. S. Larsen and D. C. Livingston: U. S. Geol. Survey Bull. 715, **1920.***

COAL

Description of the Boise quadrangle, by Waldemar Lindgren: U. S. Geol. Survey Geol. Atlas, Folio No. 45, **1898.** (Boise and Gem counties.)*

A geological reconnaissance across the Bitterroot Range and Clearwater Mountains, in Montana and Idaho, by Waldemar Lindgren: U. S. Geol. Survey Prof. Paper 27, pp. 111-113, **1904.** (Clearwater County.)*

Lignite in the Goose Creek district, Cassia County, Idaho, by C. F. Bowen: U. S. Geol. Survey Bull. 531, pp. 252-262, **1911.***

Coal at Horseshoe Bend and Jerusalem Valley, Boise County, Idaho, by C. F. Bowen: U. S. Geol. Survey Bull. 531, pp. 245-251, **1911.***

A geological reconnaissance in southeastern Idaho, by A. R. Schultz and R. W. Richards: U. S. Geol. Survey Bull. 530, p. 281, **1911.** (Bonneville County.)*

The Horseshoe Creek district of the Teton Basin coal field, by E. G. Woodruff: U. S. Geol. Survey Bull. 541, pp. 379-388, **1912.** (Teton County.)*

The Orofino coal field, Clearwater, Lewis, and Idaho counties, Idaho, by C. T. Lupton: U. S. Geol. Survey Bull. 621, pp. 99-108, **1915.***

A geologic reconnaissance for phosphate and coal in southeastern Idaho and western Wyoming, by A. R. Schultz: U. S. Geol. Survey Bull. 680, pp. 64-79, **1918.** (Teton, Bonneville, and Caribou counties.)‡

Preliminary report on the Horseshoe district of the Teton coal basin, southeastern Idaho, by G. W. Evans: A preliminary report on the mining districts of Idaho, by Thomas Varley and others: U. S. Bureau of Mines Bull. 166, pp. 90-103, **1919.** (Teton County.)*

Coal in eastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 716, **1920.** (Fremont, Teton, Madison, and Bonneville counties.)‡

The Horseshoe Basin area of the Teton coal fields in southeastern Idaho, by G. W. Evans: Idaho Bureau of Mines and Geology Pamphlet 10, **1924.***

MONAZITE

The monazite sands, by Waldemar Lindgren: Mining districts of Idaho Basin and Boise Ridge: U. S. Geol. Survey Eighteenth Ann. Rept., pt. 3, pp. 677-679, **1898.***

Useful minerals in the black sands of the Pacific slope, by D. T. Day and R. H. Richards: U. S. Geol. Survey Mineral Resources, **1905**, pp. 1175-1258.*

Monazite in Idaho, by D. B. Sterrett: U. S. Geol. Survey Mineral Resources, **1909**, pt. 2, pp. 898-903.*

An occurrence of monazite in northern Idaho, by F. C. Schrader: U. S. Geol. Survey Bull. 430, pp. 184-191, **1909.***

OIL AND GAS

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Notes on geology of southwestern Idaho and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Bull. 217, **1903.***

Gas and oil prospects near Vale, Oregon, and Payette, Idaho, by C. W. Washburne: U. S. Geol. Survey Bull. 431, pp. 26-55, **1909.** (Payette County.)*

A geologic reconnaissance for phosphate and coal in southeastern Idaho and western Wyoming, by A. R. Schultz: U. S. Geol. Survey Bull. 680, pp. 79-81, **1918.** (Teton, Bonneville, and Caribou counties.)‡

Oil shale in western Montana, southeastern Idaho, and adjacent parts of Wyoming and Utah, by D. D. Condit: U. S. Geol. Survey Bull. 711, pp. 15-40, **1920.**‡

Oil and gas possibilities of eastern Oregon, by J. P. Buwalda: Oregon Bureau of Mines and Geology, vol. 3, No. 2, **1921.** (Southwestern Idaho.)*

Petroleum possibilities of certain anticlines in southeastern Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Bull. 4, **1922.***

Oil in Idaho? by K. C. Heald: Am. Assoc. Petroleum Geologists Bull., vol. 6, No. 5, pp. 472-473, September-October, **1922.**§

Oil shale of the Rocky Mountain region, by D. E. Winchester: U. S. Geol. Survey Bull. 729, **1923.**‡

Notes on the geology of eastern Bear Lake County, Idaho, with reference to oil possibilities, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 7, **1923.***

Geology and water resources of the Goose Creek Basin, Cassia County, Idaho, by A. M. Piper: Idaho Bureau of Mines and Geol. Bull. 6, **1923.***

A preliminary reconnaissance of the gas and oil possibilities of southwestern and south-central Idaho, by J. P. Buwalda: Idaho Bureau of Mines and Geology Pamphlet 5, **1923.***

Possibilities of petroleum in Power and Oneida Counties, Idaho, by A. M. Piper: Idaho Bureau of Mines and Geology Pamphlet 12, **1924.****

Geology and oil possibilities of Bingham, Bonneville, and Caribou counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Bull. 8, **1924.****

Oil possibilities of southeastern Idaho, by V. R. D. Kirkham: Mining and Metallurgy, vol. 6, No. 218, Feb., **1925.**§

PHOSPHATE

(Principal references only)

The Bear River formation and its characteristic fauna, by C. A. White: U. S. Geol. Survey Bull. 128, **1895.***

Phosphate deposits in western United States, by F. B. Weeks and W. F. Ferrier: U. S. Geol. Survey Bull. 315, pp. 449-462, **1907.***

Phosphate deposits in western United States, by F. B. Weeks: U. S. Geol. Survey Bull. 340, pp. 441-447, **1908.***

Preliminary report on the phosphate deposits in southeastern Idaho and adjacent parts of Wyoming and Utah, by H. S. Gale and R. W. Richards: U. S. Geol. Survey Bull. 430, pp. 457-531, **1909.***

The fauna of the phosphate beds of the Park City formation in Idaho, Wyoming and Utah, by G. H. Girty: U. S. Geol. Survey Bull. 436, **1910.**‡

Preliminary reports on a portion of the Idaho phosphate reserve, by R. W. Richards and G. R. Mansfield: U. S. Geol. Survey Bull. 470, pp. 371-439, **1910.***

A geologic reconnaissance in southeastern Idaho, by A. R. Schultz and R. W. Richards: U. S. Geol. Survey Bull. 530, pp. 267-284, **1911.***

Geology of the phosphate deposits northeast of Georgetown, Idaho, by R. W. Richards and G. R. Mansfield: U. S. Geol. Survey Bull. 577, **1914.***

Revision of the Beckwith and Bear River formations of southeastern Idaho, by G. R. Mansfield and P. V. Roundy: U. S. Geol. Survey Prof. Paper 98, pp. 75-84, **1916.***

Phosphate deposits in Idaho, by R. N. Bell: Eng. and Min. Jour., vol. 104, pp. 293-294, Aug. 18, **1917.**§

A geologic reconnaissance for phosphate and coal in southeastern Idaho and western Wyoming, by A. R. Schultz: U. S. Geol. Survey Bull. 680, **1918.**‡

Geography, geology, and mineral resources of the Fort Hall Indian Reservation, Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 713, **1920.**‡

Phosphate mine of Anaconda Copper Company, by C. E. Nighman: Idaho Twenty-fifth Ann. Rept., Min. Industry, **1923.***

Phosphate deposits of Idaho and their relation to the world supply, by V. R. D. Kirkham: Am. Inst. Min. Eng. Trans., vol. 71, pp. 308-338, **1925.**§

Geography, geology, and mineral resources of part of southeastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Prof. Paper 152, **1927.****

The Idaho phosphate field, by G. R. Mansfield: Mining and Metallurgy, vol. 9, No. 253, Jan., **1928.**§

SNAKE RIVER GOLD

Sixth Ann. Rept. U. S. Geol. and Geog. Survey Terr., by F. H. Bradley, p. 266, **1873.***

Eleventh Ann. Rept. U. S. Geol. and Geog. Survey Terr., by Orestes St. John, pt. 1, pp. 321-474, **1883.***

Treatment of the fine gold in the sands of Snake River, Idaho, by Thomas Egleston: Am. Inst. Min. Eng. Trans., vol. 18, pp. 597-609, **1889.**§

Snake River gold fields, by Don Maguire: Mines and Minerals, vol. 20, pp. 56-58, September, **1899.***

Hydraulic pumping plant on the Snake River, Idaho, for power irrigation and treatment of gold sands, by John Birkinbine: Am. Inst. Min. Eng. Trans., vol. 30, p. 518, **1900.**§

Gold dredging on Snake River in Idaho, by F. Powell: Eng. and Min. Jour., vol. 70, pp. 395-396, Oct. 6, **1900.**§

Gold in Snake River gravel bars, by W. H. Washburn: Min. and Sci. Press, vol. 81, p. 610, **1900.***

The gold belt of the Blue Mountains of Oregon, by Waldemar Lindgren: U. S. Geol. Survey Twenty-second Ann. Rept., pt. 2, pp. 759-762, **1901.***

Dredging for fine gold in Idaho, by R. N. Bell: Eng. and Min. Jour., vol. 72, pp. 241-242, **1902.**§

The origin of the fine gold of the Snake, by R. N. Bell: Eng. and Min. Jour., vol. 73, pp. 143-144, **1902.**§

The origin of the fine gold in Snake River, Idaho, by J. H. Shockley: Eng. and Min. Jour., vol. 73, pp. 280-281, **1902.**§

Description of the Nampa quadrangle, by Waldemar Lindgren and N. F. Drake: U. S. Geol. Survey Geol. Atlas, Folio No. 103, **1904.***

Useful minerals in the black sands of the Pacific slope, by D. T. Day and R. H. Richards: U. S. Geol. Survey Mineral Resources, **1905,** pp. 1175-1258.*

Investigation of black sands from placer mines, by D. T. Day and R. H. Richards: U. S. Geol. Survey Bull. 285, pp. 150-164, **1906.***

Gold development in central Uinta County, Wyoming, and at other points on Snake River, by A. R. Schultz: U. S. Geol. Survey Bull. 315, pp. 71-88, **1906.***

The gold of the Snake River, by R. N. Bell: Min. and Sci. Press, vol. 94, p. 542, Apr. 27, **1907.***

Fine gold of Snake River, by C. B. Irvine: Min. World, vol. 29, p. 916, **1908.***

A geologic reconnaissance in southeastern Idaho, by A. R. Schultz and R. W. Richards: U. S. Geol. Survey Bull. 530, pp. 282-283, **1911.***

Geology and geography of a portion of Lincoln County, Wyoming, by A. R. Schultz: U. S. Geol. Survey Bull. 543, pp. 121-129, **1914.***

Notes on the fine gold of Snake River, Idaho, by J. M. Hill: U. S. Geol. Survey Bull. 620, pp. 271-294, **1915.***

A geological reconnaissance for phosphate and coal in southeastern Idaho and western Wyoming, by A. R. Schultz: U. S. Geol. Survey Bull. 680, pp. 78-79, **1918.**‡

Annual reports of the Idaho Inspector of Mines, **1899** to **1919.***

1930 METAL PRODUCTION

The total value of the gold, silver, lead, zinc, and copper produced in Idaho in 1930 was $22,258,483.41, a decrease of $12,757,521.91 as compared with that of 1929, which was $35,016,005.32. The production of gold increased about 400 ounces, and that of the other metals suffered a large decline. The low production and low value were caused by the world-wide depression, which greatly decreased metal prices, thus causing many companies to curtail production and others to suspend entirely. Excepting Valley, Boise, and Idaho counties, every metal-producing county witnessed the lowest production record for many years. The increase in Valley County was caused by the production of the Bunker Hill & Sullivan M. & C. Co. from the Hall Interstate-Lost Pilgrim mines, and that of Boise and Idaho counties from an increase in gold production. The number of producers declined thirty, although there was an increase in the number of gold producers. These increases are indicative of an expansion in gold mining and of attention directed to the gold resources of the State.

Shoshone County continued to maintain its position as the principal mining county in the State; its rank in percentage as compared with the rest of the State was practically the same as in the previous year; in 1930 it was 91.82 per cent, while it was 91.48 per cent in 1929. Its total production in 1930 was $20,438,084.32 as against $32,030,870.21 in 1929. This county was first in the production of lead, silver, zinc, and copper; Boise County was first in the production of gold. All of the copper produced in Shoshone County was derived as a by-product from lead-silver-zinc ores. Custer County was first and Lemhi County second in the production of copper from copper mines. The respective rank of the principal mining counties in point of total production was: Shoshone, Blaine, Valley, Boise, Custer, Bonner, Butte, Idaho, Lemhi, and Owyhee.

Gold

The 1930 output of gold was 21,137.52 ounces, valued at $436,912.54, an increase of 395.90 ounces and $8,183.25 as compared with that of 1929, which was 20,741.62 ounces, valued at $428,729.29. This increase was more significant than the figures indicate, as there was a large loss in gold recovered as a by-product from lead, silver, zinc, and copper ores and a substantial increase in gold recovered from placer and quartz mines.

The respective rank of the leading mining counties in point of gold produced was: Boise, Idaho, Valley, Owyhee, Custer, Shoshone, Lemhi, and Blaine.

The principal gold-producing companies and their respective ranks were: Talache Mines, Inc., Idawa Gold Mining Co., and Idaho Gold Dredging Corporation, Boise County; Sherman Howe Mining Co., Idaho County; Bunker Hill & Sullivan M. & C. Co. at the Hall Interstate and Lost Pilgrim mines, Valley County; Mackay Metals, Custer County; American Gold Dredging Corporation, Owyhee County; F. O. Miiller, Idaho County.

Silver

The output of silver decreased from 9,446,654.44 ounces with a value of $5,006,065.59 in 1929 to 9,032,888.57 with a value of $3,446,408.32 in 1930, a decrease of 413,765.87 ounces and a decrease of $1,559,657.27 in value. The small decrease as compared with the large decrease in lead was caused by the increase in production of the Sunshine Mining Co., which gained the rank of the largest silver-producing company in the State. The large decrease in value was due to the decrease in the price of silver from $0.52993 per ounce in 1929 to $0.38154 per ounce in 1930. The decrease is significant, as it indicates a decrease in the output of lead, zinc, and copper ores, from which over 80 per cent of the silver is derived. Excepting Valley County, all other counties had a marked decrease in production.

The 1930 silver production in Shoshone County was 8,438,208.56 ounces valued at $3,219,514.11, as compared with 8,786,525.25 ounces valued at $4,656,243.33 in 1929. That of Blaine County for the respective years was 218,765.92 ounces valued at $83,467.95, and 203,589.87 ounces valued at $107,888.38. That of Valley County increased from 8,831.07 ounces valued at $4,679.85 in 1929, to 181,154.05 ounces valued at $69,117.52 in 1930. The production of Shoshone County, which was 93.4 per cent of the total for the State, indicates the importance of mining in the Coeur d'Alene district, particularly as Idaho produces approximately one-third of all of the silver of the United States.

The order of prominence of the principal silver-producing counties was: Shoshone, Blaine, Valley, Bonner, Custer, Boise, and Butte.

The largest producers in Shoshone County were: Sunshine Mining Co., Bunker Hill & Sullivan M. & C. Co., Federal Mining & Smelting Co., Hecla Mining Co., Dayrock Mining Co., Sherman Lead Co., Gold Hunter Mines, Inc., Golconda Lead Mines, Constitution Mining & Milling Co., Tamarack & Custer Consolidated Mining Co., Callahan Zinc-Lead Co., Sidney Leasing Co., Sullivan Mining Co.

In other counties the most important producers were: Hailey Triumph Mines Co., Blaine County; Bunker Hill & Sullivan M. & C. Co., Valley County; Whitedelf Mining & Development Co., Bonner County; Mackay Metals, Livingston Mines Corporation, and lessees at the mine of the Ramshorn Mines Co., Custer County; Wilbert Mining Co., Ltd., Butte County.

Lead

The production of lead decreased from 312,151,644 pounds valued at $21,329,321.83 in 1929 to 263,599,300 pounds valued at $14,542,773.34 in 1930, being the lowest production since 1925 and the lowest in value since 1922. The average price of lead in 1930 was 5.517 cents per pound, while in 1929 it was 6.833 cents per pound, thus accounting in part for the large decrease in value.

Shoshone County furnished 96.4 per cent of the State total with a production of 254,178,645 pounds, a decrease of 42,367,355 pounds under that of the previous year. The mines in all other counties, excepting Valley, reported a large decrease.

The importance of Idaho as a lead-producing State, and particularly of Shoshone County, is apparent from the fact that Idaho ranks second in the United States and produces approximately one-fourth of the entire output of the Nation.

The order of prominence of the principal lead-producing counties was: Shoshone, Blaine, Butte, Valley, Bonner, Custer, and Lemhi.

The Bunker Hill & Sullivan M. & C. Co. maintained its record as the largest lead-producing company in the State, if not in the United States; The Federal Mining & Smelting Co. was second; and the Hecla Mining Co. was third. The other large lead-producing companies in Shoshone County, in their order of prominence, were: Dayrock Mining Co., Sherman Lead Co., Gold Hunter Mines, Inc., Sullivan Mining Co., Tamarack & Custer Consolidated Mining Co., Sidney Leasing Co., Golconda Lead Mines, Constitution Mining & Milling Co., Sunshine Mining Co., and Callahan Zinc-Lead Co.

Important lead producers in other counties were: Hailey Triumph Mines Co. in Blaine County; Bunker Hill & Sullivan M. & C. Co., Valley County; Whitedelf Mining & Development Co., Bonner County; Wilbert Mining Co., Ltd., Butte County; Livingston Mines Corporation, Custer County; lessees at the P-I, Allie, and Latest Out mines at Gilmore, Lemhi County.

Zinc

The 1930 production of recoverable zinc greatly decreased from that of 1929, which was the State's record production. The total for the year was 75,136,539 pounds valued at $3,423,220.72, as compared with 110,767,523 pounds valued at $7,213,181.10 in 1929. The unsatisfactory price level which zinc maintained throughout the year caused many producers to suspend

production and others greatly to curtail it. In 1929 the price of zinc averaged 6.512 cents per pound, as compared with the price of 4.556 cents per pound in 1930. The Sullivan electrolytic zinc plant at Kellogg reduced output early in the year, and this curtailment was reflected in the total production of the State. The Anaconda Copper Mining Co., of Anaconda, Montana, and the Sullivan Mining Co. purchased the entire State output of zinc concentrate. The metal produced by the Sullivan Mining Co. is the highest grade zinc ever obtained and is sold at a premium in price over any other zinc metal.

Shoshone, Blaine, and Valley counties were the only ones that produced a marketable zinc product. The production of Blaine County was obtained from the Triumph mine of the Hailey Triumph Mines Co. and the North Star of the Federal Mining & Smelting Co., and that of Valley County from the Hall Interstate and Lost Pilgrim mines of the Bunker Hill & Sullivan M. & C. Co.

The principal zinc-producing companies in Shoshone County were: Federal Mining & Smelting Co., Sidney Leasing Co., Bunker Hill & Sullivan M. & C. Co., Sullivan Mining Co., Constitution Mining & Milling Co., Tamarack & Custer Consolidated Mining Co., Golconda Lead Mines, and Hecla Mining Co.

Copper

The output of copper in 1930 was about one-half that of 1929 and was the lowest of any year since 1922. In addition to the marked decrease in production, there was a great decrease in value due to the decrease in the price of copper under that of the previous year, which was 18.107 cents per pound, as compared with 12.982 cents per pound in 1930. The 1930 production of copper was 3,151,814 pounds valued at $409,168.49, as compared with 5,736,497 pounds valued at $1,038,707.51 in 1929, a decrease of 2,584,683 pounds and $629,539.02 in value. The decrease in production was due to the idleness of the Empire Copper mine owned by Mackay Metals in Custer County and the Winder Stillman Con and Harmony Mines Co., both in Lemhi County, throughout a large part of the year, and to the decrease in the output of lead, zinc, and silver ores in Shoshone County.

The order of prominence of the principal copper-producing counties was: Shoshone, Custer, Lemhi, and Valley.

The principal copper-producing companies were: Mackay Metals in Custer County; Winder Stillman Con and Harmony Mines Co. in Lemhi County. Except the copper produced by these companies and a few isolated shipments, the remainder of the copper produced in the State was associated with lead, zinc, and silver ores and was recovered by the smelters as a by-product.

Statistics

The production statistics for 1930 are based upon the net recovered metal content of all ores or bullion produced and sold from Idaho mines. The tabulation constitutes the production as reported to the inspector's office; reports have been verified in every possible manner; and no estimates have been used in the compilation. If any error exists in the totals, it is due to unreported production, and as production statements were furnished by all the large producers, the margin of error is very small. Any unreported production would cause these figures to be larger than the amounts set forth, so this compilation represents, as nearly as possible, the correct minimum production.

The values have been figured from the average price of metals for the year, based on New York and St. Louis quotations, as published in the Engineering & Mining Journal.

1930 METAL PRODUCTION BY COUNTIES

Number of Producers				Value
	BLAINE COUNTY			
7	Gold	117.00 oz.		$ 2,418.38
	Silver	218,765.92 oz.		83,467.95
	Lead	3,610,237.00 lbs.		199,176.78
	Zinc	7,109,238.00 lbs.		323,896.88
	Copper	2,730.00 lbs.		354.41
				$ 609,314.40
	BOISE COUNTY			
27	Gold	13,006.84 oz.		$ 268,851.38
	Silver	22,209.23 oz.		8,473.71
	Lead	110,621.00 lbs.		6,102.96
	Copper	3,570.00 lbs.		463.46
				$ 283,891.51
	BONNER COUNTY			
4	Gold	1.08 oz.		$ 22.32
	Silver	84,357.14 oz.		32,185.62
	Lead	1,887,786.00 lbs.		104,149.15
	Copper	2,046.00 lbs.		265.61
				$ 136,622.70
	BUTTE COUNTY			
4	Gold	3.44 oz.		$ 71.10
	Silver	18,889.22 oz.		7,206.99
	Lead	1,677,638.00 lbs.		92,555.29
	Copper	3,008.00 lbs.		390.50
				$ 100,223.88
	CAMAS COUNTY			
3	Gold	54.24 oz.		$ 1,121.14
	Silver	262.72 oz.		100.24
	Lead	8,312.00 lbs.		458.57
	Copper	338.00 lbs.		43.88
				$ 1,723.83
	CLARK COUNTY			
3	Gold	0.30 oz.		$ 6.20
	Silver	507.33 oz.		193.57
	Lead	56,960.00 lbs.		3,142.48
	Copper	160 lbs.		20.77
				$ 3,363.02
	CLEARWATER COUNTY			
3	Gold	41.69 oz.		$ 861.73
	Silver	5.23 oz.		2.00
				$ 863.73
	CUSTER COUNTY			
7	Gold	847.98 oz.		$ 17,527.75
	Silver	46,915.45 oz.		17,900.12
	Lead	346,938.00 lbs.		19,140.57
	Copper	1,107,600.00 lbs.		143,788.62
				$ 198,357.06

Number of Producers				Value
ELMORE COUNTY				
3	Gold	48.38	oz.	$ 1,000.15
	Silver	16.98	oz.	6.48
				$ 1,006.63
IDAHO COUNTY				
25	Gold	3,564.20	oz.	$ 73,672.02
	Silver	9,232.60	oz.	3,522.61
	Lead	796.00	lbs.	43.92
	Copper	1,140.00	lbs.	147.99
				$ 77,386.54
LEMHI COUNTY				
17	Gold	644.44	oz.	$ 13,320.57
	Silver	4,219.12	oz.	1,609.76
	Lead	259,076.00	lbs.	14,293.22
	Copper	248,600.00	lbs.	32,273.25
				$ 61,496.80
OWYHEE COUNTY				
8	Gold	910.78	oz.	$ 18,825.82
	Silver	6,260.07	oz.	2,388.47
	Lead	204.00	lbs.	11.25
	Copper	60.00	lbs.	7.79
				$ 21,233.33
SHOSHONE COUNTY				
41	Gold	810.66	oz.	$ 16,756.34
	Silver	8,438,208.56	oz.	3,219,514.11
	Lead	254,178,645.00	lbs.	14,023,035.28
	Zinc	65,055,890.00	lbs.	2,963,946.35
	Copper	1,654,847.00	lbs.	214,832.24
				$20,438,084.32
VALLEY COUNTY				
5	Gold	990.07	oz.	$ 20,464.75
	Silver	181,154.05	oz.	69,117.52
	Lead	1,442,689.00	lbs.	79,593.15
	Zinc	2,971,411.00	lbs.	135,377.49
	Copper	125,315.00	lbs.	16,268.39
				$ 320,821.30
WASHINGTON COUNTY				
3	Gold	74.80	oz.	$ 1,546.12
	Silver	1,874.20	oz.	715.08
	Lead	19,210.00	lbs.	1,059.82
	Copper	2,400.00	lbs.	311.57
				$ 3,632.59
MISCELLANEOUS COUNTIES				
4	Gold	21.62	oz.	$ 446.89
	Silver	10.75	oz.	4.10
	Lead	190.00	lbs.	10.48
				$ 461.47

Number of Producers	STATE TOTALS		Value
164	Gold	21,137.52 oz.	$ 436,912.54
	Silver	9,032,888.57 oz.	3,446,408.32
	Lead	263,599,300.00 lbs.	14,542,773.34
	Zinc	75,136,539.00 lbs.	3,423,220.72
	Copper	3,151,814.00 lbs.	409,168.49
			$22,258,483.41

MISCELLANEOUS MINERALS		
Manganese	1,315 tons	$ 26,320.00
Phosphate Rock	72,340 tons	289,360.00
Limestone	52,646 tons	18,422.00
TOTAL		**$ 334,102.00**
GRAND TOTAL		**$22,592,585.41**

ANNUAL METAL OUTPUT FOR IDAHO SINCE 1903

(Statistics for 1903 to 1920, inclusive, from U. S. Geol. Survey Mineral Resources. Statistics for subsequent years from Annual Reports, Mining Industry of Idaho.)

1903

Gold	65,850 oz.	$ 1,361,119
Silver	7,398,970 oz.	3,951,790
Lead	213,143,618 lbs.	9,135,335
Copper	569,484 lbs.	78,589
Total value		$ 14,526,833

1904

Gold	82,739 oz.	$ 1,710,365
Silver	7,666,382 oz.	4,389,004
Lead	233,096,375 lbs.	10,197,966
Zinc	2,600 lbs.	130
Copper	5,087,518 lbs.	635,940
Total value		$ 16,933,405

1905

Gold	52,033 oz.	$ 1,075,618
Silver	8,679,093 oz.	5,242,172
Lead	259,812,428 lbs.	12,211,184
Zinc	1,228,449 lbs.	72,479
Copper	7,321,585 lbs.	1,142,167
Total value		$ 19,743,620

1906

Gold	55,588 oz.	$ 1,149,100
Silver	9,018,815 oz.	6,042,606
Lead	255,014,446 lbs.	14,535,823
Zinc	2,065,597 lbs.	126,001
Copper	9,558,913 lbs.	1,844,870
Total value		$ 23,698,400

1907

Gold	60,755 oz.	$	1,255,911
Silver	8,415,431 oz.		5,554,185
Lead	233,823,854 lbs.		12,392,664
Zinc	6,985,732 lbs.		412,158
Copper	10,890,731 lbs.		2,178,146
Total value		$	21,793,064

1908

Gold	69,827 oz.	$	1,443,459
Silver	7,469,981 oz.		3,959,090
Lead	206,827,816 lbs.		8,686,768
Zinc	37,410 lbs.		1,758
Copper	10,041,850 lbs.		1,325,524
Total value		$	15,416,599

1909

Gold	70,329 oz.	$	1,453,822
Silver	7,041,633 oz.		3,661,649
Lead	215,986,285 lbs.		9,287,410
Zinc	1,351,010 lbs.		72,954
Copper	9,115,489 lbs.		1,185,014
Total value		$	15,660,849

1910

Gold	53,060 oz.	$	1,096,842
Silver	7,369,742 oz.		3,979,661
Lead	228,258,839 lbs.		10,043,389
Zinc	5,603,114 lbs.		302,568
Copper	7,037,292 lbs.		893,736
Total value		$	16,316,196

1911

Gold	66,389 oz.	$	1,372,387
Silver	8,196,136 oz.		4,343,952
Lead	272,556,525 lbs.		12,265,044
Zinc	8,340,249 lbs.		475,394
Copper	5,152,937 lbs.		644,117
Total value		$	19,100,894

1912

Gold	66,816 oz.	$	1,381,214
Silver	8,294,745 oz.		5,101,268
Lead	284,185,657 lbs.		12,788,355
Zinc	13,905,502 lbs.		959,479
Copper	7,492,152 lbs.		1,236,205
Total value		$	21,466,521

1913

Gold	65,043 oz.	$	1,344,559
Silver	9,989,193 oz.		6,033,473
Lead	317,871,945 lbs.		13,986,366
Zinc	23,173,953 lbs.		1,297,741
Copper	9,592,966 lbs.		1,486,910
Total value		$	24,149,049

1914			
Gold	55,743 oz.	$	1,152,315
Silver	12,479,516 oz.		6,901,172
Lead	348,526,069 lbs.		13,592,517
Zinc	42,012,435 lbs.		2,142,634
Copper	6,445,187 lbs.		857,210
Total value		$	24,645,848
1915			
Gold	57,069 oz.	$	1,179,731
Silver	11,769,128 oz.		5,966,948
Lead	345,999,466 lbs.		16,261,975
Zinc	70,153,234 lbs.		8,699,001
Copper	6,978,713 lbs.		1,221,275
Total value		$	33,328,930
1916			
Gold	53,977 oz.	$	1,115,810
Silver	12,300,873 oz.		8,093,974
Lead	375,081,781 lbs.		25,880,643
Zinc	86,505,219 lbs.		11,591,699
Copper	8,478,281 lbs.		2,085,657
Total value		$	48,767,783
1917			
Gold	38,933 oz.	$	804,809
Silver	12,029,338 oz.		9,912,175
Lead	393,559,521 lbs.		33,846,119
Zinc	79,854,136 lbs.		8,145,122
Copper	7,827,574 lbs.		2,136,928
Total value		$	54,845,153
1918			
Gold	33,999 oz.	$	702,816
Silver	9,172,340 oz.		9,172,340
Lead	294,695,993 lbs.		20,923,416
Zinc	45,161,712 lbs.		4,109,716
Copper	6,533,888 lbs.		1,613,870
Total value		$	36,522,158
1919			
Gold	34,503 oz.	$	713,238
Silver	5,579,056 oz.		6,248,543
Lead	182,341,898 lbs.		9,664,121
Zinc	15,994,229 lbs.		1,167,579
Copper	3,122,763 lbs.		580,834
Total value		$	18,374,315
1920			
Gold	23,490 oz.	$	485,590
Silver	7,326,794 oz.		7,986,205
Lead	249,609,976 lbs.		19,968,798
Zinc	27,932,326 lbs.		2,262,518
Copper	2,538,396 lbs.		467,065
Total value		$	31,170,176

1921

Gold	26,750.76 oz.	$ 552,938
Silver	6,184,989.73 oz.	6,184,989
Lead	210,100,194.00 lbs.	9,559,558
Copper	1,380,168.00 lbs.	172,521
Zinc	1,818,313.00 lbs.	94,006
Total value		$ 16,564,014

1922

Gold	22,178.39 oz.	$ 458,427.32
Silver	6,149,336.15 oz.	6,149,336.15
Lead	205,132,588.00 lbs.	11,762,302.60
Zinc	5,596,514.00 lbs.	394,666.17
Copper	3,225,762.00 lbs.	431,671.47
Total value		$19,196,403.71

1923

Gold	35,506.23 oz.	$ 733,913.78
Silver	7,669,393.43 oz.	6,158,099.48
Lead	255,266,476.00 lbs.	18,550,214.82
Zinc	34,690,620.00 lbs.	2,292,009.26
Copper	4,183,495.00 lbs.	603,303.12
Total value		$28,337,540.46

1924

Gold	26,237.21 oz.	$ 542,323.12
Silver	7,774,747.00 oz.	5,192,053.79
Lead	260,356,490.00 lbs.	21,081,065.00
Zinc	21,310,559.00 lbs.	1,351,941.86
Copper	3,146,997.00 lbs.	409,864.89
Total value		$28,577,248.66

1925

Gold	20,108.41 oz.	$ 415,640.82
Silver	7,708,938.55 oz.	5,324,178.41
Lead	265,302,880.00 lbs.	23,930,319.78
Zinc	37,110,647.00 lbs.	2,828,573.51
Copper	3,370,016.00 lbs.	473,217.65
Total value		$32,971,930.17

1926

Gold	14,754.64 oz.	$ 304,978.39
Silver	7,522,881.88 oz.	4,672,236.26
Lead	283,305,553.00 lbs.	23,845,828.39
Zinc	53,922,120.00 lbs.	3,956,265.95
Copper	1,381,334.00 lbs.	190,555.03
Total value		$32,969,864.02

1927

Gold	15,592.01 oz.	$ 322,286.86
Silver	8,896,293.08 oz.	5,014,840.42
Lead	312,770,885.00 lbs.	21,127,673.28
Zinc	64,479,833.00 lbs.	4,024,831.18
Copper	2,362,863.00 lbs.	305,281.90
Total value		$30,794,913.64

1928

Gold	20,739.95	oz.	$ 428,694.77
Silver	8,987,484.00	oz.	5,228,558.70
Lead	302,590,871.00	lbs.	19,078,354.41
Zinc	74,334,543.00	lbs.	4,480,142.90
Copper	2,644,301.00	lbs.	385,274.66
		Total value	$29,601,025.44

1929

Gold	20,741.62	oz.	$ 428,729.29
Silver	9,446,654.44	oz.	5,006,065.59
Lead	312,151,644.00	lbs.	21,329,321.83
Zinc	110,767,523.00	lbs.	7,212,181.10
Copper	5,736,497.00	lbs.	1,038,707.51
		Total value	$35,016,005.32

1930

Gold	21,137.52	oz.	$ 436,912.54
Silver	9,032,888.57	oz.	3,446,408.32
Lead	263,599,300.00	lbs.	14,542,773.34
Zinc	75,136,539.00	lbs.	3,423,220.72
Copper	3,151,814.00	lbs.	409,168.49
		Total value	$22,258,483.41

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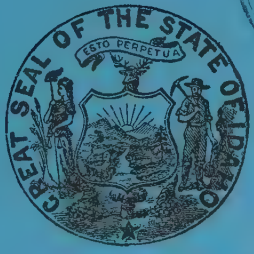
THIRTY-THIRD
ANNUAL REPORT

OF THE

Mining Industry of IDAHO

FOR THE YEAR
1931

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STEWART CAMPBELL
INSPECTOR OF MINES
BOISE, IDAHO

THIRTY-THIRD
ANNUAL REPORT

OF THE

Mining Industry

of IDAHO

FOR THE YEAR

1931

STEWART CAMPBELL
INSPECTOR OF MINES

ANGELINE F. MAHAN
SECRETARY

LETTER OF TRANSMITTAL

To His Excellency,
THE HONORABLE C. BEN ROSS,
Governor of Idaho.

SIR:

In compliance with the provisions of section 5480, Idaho Compiled Statutes, I have the honor to transmit herewith the annual report of the inspector of mines for the year ended December 31, 1931.

Respectfully submitted,

STEWART CAMPBELL,
Inspector of Mines.

SPECIAL ARTICLES APPEARING IN ANNUAL REPORTS SINCE 1921

Anaconda Copper Mining Co.: Phosphate Mine ..... 25th, 1923, p. 26*
Anaconda Copper Mining Co.: Inclined Top Slice Stoping Method: ..... 31st, 1929, p. 28*
Artificial Sunshine for Mine Workers: ..... 31st, 1929, p. 14*
Building Stone (Idaho): ..... 26th, 1924, p. 17*
Bunker Hill Hoist: ..... 26th, 1924, p. 32*
Bunker Hill & Sullivan M. & C. Co.: Valley County ..... 32d, 1930, p. 32*
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30th, 1928, p. 7
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Federal M. & S. Co. Morning Mill: ..... 27th, 1925, p. 32*
Federal M. & S. Co. Page Mill ..... 28th, 1926, p. 16*
Gold Hunter Mines, Inc., Mill: ..... 27th, 1925, p. 29*
Hecla Mining Co. Mill: ..... 27th, 1925, p. 21*
Hercules Custom Mill: ..... 31st, 1929, p. 23*
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26th, 1924, p. 36*
27th, 1925, p. 37*
28th, 1926, p. 22*
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31st, 1929, p. 51
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28th, 1926, p. 7
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Sunshine Mining Co.: New Hoist: ..... 32d, 1930, p. 45*
Talache Mines, Inc., Operations at Gold Hill Mine: ..... 32d, 1930, p. 50*

*Illustrated

NAMES, ADDRESSES, ABBREVIATIONS AND SYMBOLS USED IN BIBLIOGRAPHIES

Am. Geology.....American Geology†

Am. Inst. Min. Eng. Trans.....
American Institute of Mining and Metallurgical Engineers Transactions
29 West 39th St., New York City.

Am. Jour. Sci.....American Journal of Science
Tuttle, Morehouse & Taylor Co., 123 Temple St., New Haven, Conn.

Am. Mineralogist.....American Mineralogist
Princeton, N. J.

California Jour. Tech.....California Journal of Technology
University of California, Berkeley, Calif.

Canada Geol. Survey Ann. Rept.....Canada Geological Survey Annual Report
Ottawa, Canada.

Canadian Min. Inst. Jour.....Canadian Mining Institute Journal
Drummond Bldg., Montreal, Quebec, Canada.

Colorado Sci. Soc. Proc.....Colorado Scientific Society Proceedings†

Columbia School of Mines Quart.....Columbia School of Mines Quarterly
Columbia University, New York City.

Compressed Air Mag.....Compressed Air Magazine
Bowling Green Bldg., 11 Broadway, New York City.

Econ. Geology .....Economic Geology
University of Illinois, Urbana, Ill.

Eng. and Min. Jour.....Engineering and Mining Journal
Tenth Ave. & 36th St., New York City.

Eng. and Min. Jour.-Press.....Engineering and Mining Journal-Press†

Franklin Inst. Jour.....Franklin Institute Journal
15 South 7th St., Philadelphia, Pa.

Geol. Soc. America.....Geological Society of America
Museum of Natural History, Columbus Ave. & 77th St., New York City.

Idaho Ann. Rept. Min. Industry.....
.....Idaho Annual Report of the Mining Industry
Idaho Bureau of Mines and Geology, Moscow, Idaho.

Jour. Geology.....Journal of Geology
University of Chicago Press, Chicago, Ill.

Mines and Minerals.....Mines and Minerals†

Min. Con. Journal.....Mining Congress Journal
American Mining Congress, 841 Munsey Bldg., Washington, D. C.

Min. and Eng. World.....Mining and Engineering World†

Mining and Metallurgy
American Institute of Mining and Metallurgical Engineers, Inc.,
29 West 39th St., New York City.

Min. Mag.....Mining Magazine†

Min. Reporter.....Mining Reporter†

Min. and Sci. Press.....Mining and Scientific Press†

Min. World.....Mining World†

Nat. Geog. Mag.....National Geographic Magazine
National Geographic Magazine Society, Hubbard Memorial Hall,
Washington, D. C.

New York Acad. Sci. Trans.....New York Academy of Science Transactions
New York Academy of Science, New York City

No. ..... Number

Northwest Min. News.....Northwest Mining News†
Northwest Science, Spokane, Wash.

Pacific Miner.....Pacific Miner†

p., pp.....page, pages

Pan-Am. Geologist.....Pan-American Geologist, Des Moines, Iowa

pt. ..... part

Proc. Int. Min. Cong.....Proceedings International Mining Congress
International Mining Congress, Washington, D. C.
Salt Lake Min. Review.....Mining Review
Walker Bank Bldg., Salt Lake City, Utah.
Sci. Am. Suppl.....Scientific American Supplement
New York City.
ser. ..... series
sess. ..... session
U. S. Bureau of Mines Bull.....U. S. Bureau of Mines Bulletin¶
U S. Bureau of Mines I. C.....U. S. Bureau of Mines Information Circular¶
U. S. Bureau of Mines R. I.....
.....U. S. Bureau of Mines Reports of Investigations¶
U. S. Geol. and Geog. Survey.....U. S. Geological and Geographical Survey††¶
U. S. Geol. Survey Ann. Rept.....U. S. Geological Survey Annual Report††¶
U. S. Geol. Survey Bull.....U. S. Geological Survey Bulletin¶
U. S. Geol. Survey Geol. Atlas.....U. S. Geological Survey Geologic Atlas¶
U. S. Geol. Survey Mon.....U. S. Geological Survey Monograph¶
U. S. Geol. Survey Prof. Paper....U. S. Geological Survey Professional Paper¶
U. S. Nat. Mus. Proc.....U. S. National Museum Proceedings¶
Univ. of Idaho.....University of Idaho, Moscow, Idaho
vol. ..... volume
Washington Acad. Sci. Jour.....Washington Academy of Science Journal
211 Church St., Easton, Pa.

SYMBOLS

*.....Available in libraries only. Publication out of print.
**.....Can be procured from publisher.
§.....Not available for general distribution; may possibly be procured from publisher.
‡.....Can be purchased from Superintendent of Documents, Government Printing Office, Washington, D. C.
†.....Publication suspended.
¶.....Address: Washington, D. C.


RESOURCE MAP OF
IDAHO
SHOWING DISTRIBUTION
OF PRINCIPAL COMMERCIAL MINERALS.
BY
STEWART CAMPBELL
Inspector of Mines.
BOUNDARY
Lead, Silver, Gold, Copper, Zinc, Molybdenum and Tungsten
BONNER
Silver, Copper, Lead, Gold, Zinc, & Limestone
KOOTENAI
Zinc, Lead, Silver, Copper, Gold, Arsnic and Clay
BENEWAH
Gold, Copper, Silver, Lead, Zinc, Clay and Iron
SHOSHONE
Lead, Silver, Zinc, Gold, Copper, Antimony and Tungsten
LATAH
Copper, Gold, Silver, Mica, Opals, Feldspar, Fire clay.
CLEARWATER
Gold, Silver, Copper, Lead Zinc, Monazite, Rutile, Limestone.
NEZ PERCE
Copper, Silver, Gold, Limestone, Marble, Dolomite
LEWIS
Copper, Gold, Silver Limestone Marble
IDAHO
Gold, Silver, Copper, Lead Zinc, Antimony, Molybdenum, Tungsten, Asbestos, Iron, Talc
LEMHI
Lead, Silver, Copper, Gold Zinc, Cobalt, Manganese, Molybdenum, Nickel, Tin, Tungsten, Gypsum
ADAMS
Copper, Silver, Gold, Lead, Zinc, Mica, Garnet, Feldspar
VALLEY
Lead, Silver, Gold, Zinc, Copper, Antimony Quicksilver
WASHINGTON
Silver, Copper, Gold, Lead, Zinc, Manganese, Diatomaceous Earth, Pyrites, Gypsum, Clay, Garnet.
CUSTER
Copper, Silver, Lead, Gold, Zinc, Antimony, Molybdenum, Graphite, Benlanite, Garnet
CLARK
Lead, Silver, Zinc, Copper, Coal
FREMONT
Asbestos, Coal, Phosphate Rock
YELLOWSTONE PARK
PAYETTE
Diatomaceous Earth, Clay
GEM
Gold, Silver, Lead, Copper, Arsenic, Zinc
BOISE
Gold, Lead, Silver, Zinc, Copper, Antimony, Bismuth, Monazite
BUTTE
Lead, Silver, Zinc, Gold, Copper, Manganese, Tungsten, Limestone, Marble
JEFFERSON
MADISON
TETON
Asbestos, Iron, Coal, Petroleum, Limestone, Phosphate Rock
CANYON
Gold, Clay
ADA
BOISE
Gold, Silver, Lead, Zinc, Arsenic, and Building Stone
ELMORE
Gold, Silver, Copper, Lead, Zinc, Arsenic, Molybdenum, Nitrates, Diatomaceous Earth
BLAINE
Lead, Silver, Zinc, Gold, Copper, Antimony, Arsenic, Bismuth, Quicksilver, Baritle, Limestone, Graphite
CAMAS
Gold, Lead, Silver, Zinc, Copper, Tungsten, Diatomaceous Earth
BONNEVILLE
Gold, Coal, Petroleum, Phosphate Rock.
BINGHAM
Gold, Phosphate Rock, Coal, Petroleum
GOODING
Gold
LINCOLN
Gold
MINIDOKA
BANNOCK
CARIBOU
Petroleum, Phosphate Rock, Salt, Sulphur
POWER
Gold, Clay
Copper, Silver, Gold, Manganese, Baurite, Building Stone, Clay, Limestone, Phosphate Rock
JEROME
Gold
OWYHEE
Silver, Gold, Copper, Lead, Zinc, Antimony, Diatomaceous Earth, Opals, Nitrates.
TWIN FALLS
Gold
CASSIA
Silver, Lead, Copper, Zinc, Gold, Building Stone, Marble
ONEIDA
BEAR LAKE
Copper, Lead Silver, Manganese, Petroleum, Phosphate Rock, Gypsum
FRANKLIN

INTRODUCTION

The report for the year ending December 31, 1931, presents detailed information concerning Idaho mining companies in the form of a directory. It is, in fact, a handbook rather than a formal report. Its plan is not new, but is the one adopted by the inspector when he first took office. His first report, that of 1921, was largely an experiment, but it received such favorable press comment, notably by the Engineering and Mining Journal, the foremost mining magazine of the United States, that the plan has been followed in all subsequent reports.

Idaho is the only state in the Union which is presenting the data relative to its mineral resources and mining industry in this form. The merit and popularity of the report are proved by the continually increasing demand for copies of it, as well as by the efforts which those interested in mining in other states have made toward having their state governments publish a similar report.

Unincorporated companies have been included on the same basis as incorporated companies whenever their officers have furnished data.

Corporations that have forfeited their charters, and that have failed to file their reports as required by law, have been considered as legally dead; therefore no mention is made of them.

PROSPECT LISTS

The list of prospects published in the Twenty-third Annual Report was the first of its kind ever compiled in Idaho. It became a guide to those looking for mines, thus proving that its compilation was worth while. Subsequent lists have been extensively used, and in a number of cases examinations and sales of properties have resulted. The list of prospects contained in this report was corrected and brought down to date in the Thirtieth Annual Report, and few changes have been made since.

Many of the prospects listed are worthy of more prominent mention, but it is impossible to give more than the owner's name and address, name of mine and its general location, unless the owner should file a report with the inspector. The furnishing of detailed information by owners of prospects would not only assist in displaying the mining possibilities of Idaho, but might often prove an attractive advertisement of the property. Blank forms of these reports are always gladly furnished to all individuals requesting them.

BIBLIOGRAPHIES

Much information concerning the geology, mineralogy and mineral resources of Idaho has been collected and published by the U. S. Geological Survey, the U. S. Bureau of Mines, and the Idaho Bureau of Mines and Geology. Much is also contained in the various reports of the inspector of mines and in journals dealing with mining and geology. In order to make this information readily available to the public, in 1921 the inspector indexed this material according to counties and subjects and published it in his report. The indexing has been kept up to date, and so far as is known, each county bibliography contains references to all material of any importance that has ever been published concerning that county. Publications relating to specific minerals found in the State are listed also under the "General Bibliography" in the back of the report. The usefulness of the bibliographies has been further increased by including publishers' addresses and information as to whether each particular reference can be procured or not. Symbols have been added as a guide to facilitate explaining this information. Practically all of the publications listed are found in the inspector's library, and arrangements have been made so that copies of those not on file can be procured when requested. However, **these publications may be consulted in all large libraries.**

NEWSPAPERS

As pointed out in previous years, the visits which the inspector makes to the numerous mining counties are necessarily so short that they are inadequate to enable him to keep directly in touch with all mining activities, so that it is always necessary that he supplement his personal information

by that gleaned from the press. Most of the publishers located in mining communities have been very willing to furnish gratuitous subscriptions of their newspapers to the office of the inspector. This courtesy is greatly appreciated, and has been of much assistance in enabling the inspector to keep abreast of the mining news. Accordingly, the State of Idaho, through the inspector of mines, extends its thanks to the following:

Arco Advertiser	Arco
Idaho County Free Press	Grangeville
Kellogg-Wardner News	Kellogg
The Mackay Miner	Mackay
The Mining Journal	Phoenix, Ariz.
Mining Truth	Spokane
Mullan News	Mullan
Pend d'Oreille Review	Sandpoint
Priest River Times	Priest River
Recorder Herald	Salmon
The Salt Lake Mining Review	Salt Lake City
The Wallace Miner	Wallace
Wallace Press-Times	Wallace
The Weiser Signal	Weiser

MINERAL MARKET INFORMATION

As there has continued to be a demand for possible markets for uncommon minerals and metals, the lists prepared in 1921, which include the names and addresses of the purchasers or users, have been revised and brought up to date as nearly as it was possible to do so, through the courtesy and cooperation of Mr. Frank J. Katz, Chief Engineer, Division of Mineral Statistics, U. S. Bureau of Mines.

Aluminium	Fluorspar	Pumice
Antimony	Fullers Earth	Radium
Arsenic	Graphite	Silica Sand
Asbestos	Gypsum	Sodium
Barytes	Magnesium	Strontium
Bauxite	Magnesite	Talc
Bismuth	Manganese	Tin
Cadmium	Mica	Titanium
Chromium	Molybdenum	Tripoli
Cobalt	Monazite	Tungsten
Diatomaceous Earth	Nickel	Uranium
Feldspar	Platinum	Vanadium

LIBRARY

The library, which was started by the present mine inspector during 1921, and which now consists of over 4,000 volumes, is believed to be the largest library of its kind in the State. It contains virtually every publication of the U. S. Geological Survey and U. S. Bureau of Mines, most of the U. S. Mint Reports, numerous volumes published by the geological surveys of other states, and many volumes of journals dealing with mining and geology.

Except a few articles published in old issues of the various journals, everything of importance dealing with the mining industry of Idaho, including geology, mineralogy and mineral resources, is contained in the library. Whenever requests are made for any of the missing articles, photographic copies are procured from the publishers or from some large research library.

The following magazines are regularly received: Engineering and Mining Journal; Mining Review; Mining Truth; The Mining Congress Journal; Mining and Metallurgy; The Mining Journal; Rock Products; Compressed Air Magazine; The Explosives Engineer; Economic Geology; The Journal of Geology; The Du Pont Magazine; Dutch Boy Quarterly; and Asbestos. Complete files of these magazines are being preserved for reference use. Although most of them have been received only since 1921, the file of the Engineering and Mining Journal is virtually complete for the past 20 years, the present mine inspector having donated to the State his personal files of this journal for the years 1911 to 1920, inclusive.

The library is equipped with the U. S. Geological Survey Finding List of States, Areas and Subjects, which makes it possible to locate quickly and completely all publications of the U. S. Geological Survey concerning the geology and mineral resources of any state of the United States or concerning any particular mineral.

Visitors are always welcome to consult the books of the library or to read the magazines. The office is open from 9 a. m. to noon and from 1 p. m. to 5 p. m. In the absence of the inspector, the secretary will be glad to assist visitors in finding desired information.

In order to accommodate readers who find it inconvenient to consult books in the library at the inspector's office, the practice of lending books for a period of not over two weeks has been established, and they are mailed out to all responsible persons within the State upon request. A few rare volumes, now out of print, and of which the library contains no duplicates, and books frequently called for at the office, cannot be mailed out. Individuals not personally acquainted with the inspector, when writing in for books, should accompany their requests by letters of introduction or recommendation from some reliable person in their community personally known to the office, or by a letter from the nearest public library.

MINING LAWS

In October, 1931, the inspector of mines caused to be published a new edition of the Idaho mining laws, for which a special appropriation was passed by the 1931 Legislature. This pamphlet contains all new laws and amendments relative to mining passed by that Legislature, up-to-date extracts from the U. S. mining laws, and an appendix.

The most frequent inquiries addressed to the inspector are questions on mining law relative to mining locations, both placer and lode, and what will and what will not count as annual labor. These questions involve the State and Federal statutes, decisions of the courts, and rulings of the U. S. Land Office. Their number and frequency have proved the need of publishing a few general interpretations of the law. These, including citations, constitute the appendix. The interpretations are generalized and the citations are not complete, because it is expected that competent legal advice will be sought on each specific question of interpretation. However, those included will be of much interest and assistance to the prospector and everyone interested in mining.

The pamphlet is distributed without charge upon request to the office of the inspector of mines, Boise, Idaho.

PLATINUM

The black, graphitic lime shale beds near Lucile, Idaho County, continued to be used as a basis for exploiting the public. According to the promoters this rock contains gold, platinum and other rare metals which can be recovered only by secret methods known to the promoters. Strange as it may seem, a large amount of stock and "units" were sold on this hypothesis, and the investors were gullible enough to invest without investigating either the stock salesmen, promoters, or their secret methods of recovering the rare metals.

These "mineral" deposits were visited by the inspector in 1929, and the samples taken by him were assayed by the United States Bureau of Mines, which was unsuccessful in detecting even the presence of any rare metals. The results were given to the press, together with a warning to the public. Apparently the warning was of no avail.

Another method for enticing the public into rare metal ventures which was in vogue during the year was the salting of so-called black sands with platinum filings and then having the material assayed by competent and reliable assayers. Invariably sufficient platinum had been added to give a high assay return, and these returns were then used as the lure.

No credence whatsoever should be placed in rare metal assays, in reported high values in these metals which any promoter or questionable assayer may proclaim, or in secret methods for the recovery of rare metals until a thorough investigation of the promoters, assayers, their methods of recovery, and the reliability of the samples has been made. State and Federal Bureaus will gladly assist in such an investigation.

GENERAL REVIEW AND 1931 ACTIVITIES

Lead, silver, zinc, and copper are four of the principal metals produced in Idaho, and the price of these metals governs the prosperity of the mining industry. During 1931 silver and copper reached the lowest prices in the history of the world; lead, the lowest since 1914; and zinc, the lowest since 1914. Heretofore, when lead was selling at a low price, silver was worth from 56 to 65 cents per ounce, as compared with 28.7 cents per ounce in 1931. As almost all the silver produced in Idaho is recovered as a by-product from lead-silver, zinc, and copper ores, the mining companies had the alternative of accepting low prices or closing their mines; consequently, at most of these mines production was curtailed; there was but a small amount of new plant construction; no new enterprises were started; and mine development work was greatly reduced; the totals being the smallest that the State has witnessed for many years.

In Shoshone County, the Bunker Hill & Sullivan M. & C. Co. and the Sunshine Mining Co. were the only two companies in the State which maintained capacity production throughout the year. The Federal Mining & Smelting Co., at the Morning and Page mines, the Hecla Mining Co., Jack Waite Mining Co., Golconda Lead Mines, and Sidney Leasing Co., all greatly curtailed their production. The mines of the Sullivan Mining Co., Tamarack & Custer Consolidated Mining Co., Dayrock Mining Co., Sherman Lead Co., and Callahan Zinc-Lead Co. were closed early in the year; however, the Sullivan Mining Co. and the Callahan Zinc-Lead Co. maintained development work. The principal producing mines in which the ore reserves were increased by new development work were those of the Bunker Hill & Sullivan M. & C. Co., Sidney Leasing Co., Sullivan Mining Co., Sunshine Mining Co., Jack Waite Mining Co., Golconda Lead Mines, and Callahan Zinc-Lead Co. New ore disclosures of importance were made in the mines of the Washington-Idaho Mining Co. and Crystal Lead Mines Co. No new mills were constructed during the year, although those of the Mutual Mines Development Co. and the Jack Waite Mining Co., construction of which was started in 1930, were completed early in 1931. New mining equipment and machinery were installed by the Stratton Silver Summit, Inc., Kellogg Silver-Lead Mines Co., Washington-Idaho Mining Co., and the Independence Lead Mines Co. The principal development enterprises which maintained work without interruption were: Bunker Chance Mining Co., Granada Lead Mines, Inc., Independence Lead Mines Co., Liberal King Mining Co., Little Sunshine Mining Co., Metropolitan Mines Corporation, Ltd., Stratton Silver Summit, Inc., and Washington-Idaho Mining Co.

In other counties of the State, no lead-silver, zinc, or copper mining company maintained capacity production throughout the year; although the Whitedelf Mining & Development Co. and the Hope Mining Co., both in Bonner County, performed a large amount of mine development work, and each operated its mill and produced and marketed a substantial tonnage of high-grade lead-silver concentrate. The Bunker Hill & Sullivan M. & C. Co., at the Hall Interstate-Lost Pilgrim mine in Valley County, carried on normal operations and production until May, when the mine was closed, and a small crew for maintenance purposes only was kept at work. The Wilbert Mining Co., Ltd., in Butte County, kept up production during January and development work for the following three months, after which all operations were suspended.

The principal producing mines in other parts of the State which were closed throughout the year were: The Triumph mine of the Hailey Triumph Mines Co. and the Independence-North Star mines of the Federal Mining & Smelting Co., in Blaine County; Empire Copper mine of Mackay Metals and that of the Livingston Mines Corporation, both in Custer County. No company operations were conducted at the lead and the copper mines in Lemhi County; although lessees at the Allie, Latest Out, and P-I mines, in the Gilmore district, produced a substantial tonnage of high-grade lead-silver ore, which was stored. The Harmony and Pope-Shenon mines remained idle.

The low price of metals, coupled with the business uncertainty which prevailed throughout the United States, discouraged investments based on the exploitation of lead, silver, zinc, and copper enterprises. However, gold mining witnessed a decided impetus: most of the operating companies were continuously active; a large number of new enterprises were started; the interest shown by mining companies, promoters, brokers, and prospectors exceeded that of many years; and the only large expenditures for new construction were by those companies whose principal product is gold. Two new mills and a new dredge of importance and a large number of small mills were constructed; much new mining equipment was installed; and mine development work continued without interruption. Incorrect assays, which were accepted as correct by those interested, caused a large amount of new development work, the construction of a few small mills, and the promotion of some new enterprises. There was a decided return to placer mining, and many attempted to apply modern machinery, both pumping and excavating, toward recovering the gold.

The major part of the large expenditures and activities was in Valley, Elmore, Idaho, Boise, Lemhi, and Custer counties. The most important were the activities of the Yellow Pine Co., in Valley County, whose expenditure was the largest made in the State for new construction, mine plant installation, and mine development work. Construction of a new 150-ton mill was started in June and completed in December. The second largest expenditure during the year was that of the St. Joseph Lead Co., in Elmore County, which resumed operations in August at its Boise-Rochester mine, at Atlanta. The old mill was demolished, and a new one of 200 tons capacity was erected and placed in operation in December. Another important expenditure was that of the Idaho Gold Dredging Co., at Warren, in Idaho County. This company acquired the Warren Meadows placer ground, purchased a steam-driven dredge in Oregon, dismantled it, transported it by motor truck, reconstructed it, and commenced operations in September.

In Boise County, the Talache Mines, Inc., continued to be the largest gold producer in the State until its entire surface plant was destroyed in the disastrous forest fire, which visited this county in August. Subsequently a new hoist and mine plant were installed, and work was started on the 1,100-foot level of the mine. The Idawa Gold Mining Co. continued to be an important producer throughout a large part of the year; also the Idaho Gold Dredging Corporation, until fire destroyed its dredge in July. The Mayflower Gold Mines, Inc., Ideal Mining Co., Come Back Mining Co., and Mineral Mining Co., maintained work throughout the year. The last two produced and marketed a small tonnage of crude ore and concentrate.

Idaho County witnessed a decided improvement through a substantial increase in gold production, organization of new companies, new construction, and a greater amount of mine work. In the Marshall Lake district the Sherman-Howe Mining Co. maintained operations and production until October; the Golden Anchor Mining Co. further opened the ore bodies in the Holte mine; the Long Tom Mining Co. was active; and a large number of mine examinations were made. The success with which F. O. Miiller is meeting at the Lone Pine mine, in the Golden or Ten Mile district, greatly stimulated prospecting, promoting, and new development work. The production from this mine was one of the largest in the county; two other companies, the Buffalo-Idaho Mining Co. and Central Idaho Gold Mines, Inc., produced a small amount of bullion; and six additional companies were intermittently active. A large mining organization started preliminary investigations, which may lead to the revival of the Buffalo Hump district. The Cal-Idaho Mining Co., at the Gold Hill placer, in the Elk City district, installed additional hydraulic equipment and constructed a lower tail race. The Central Idaho Mining & Milling Co., in the Dixie district, completed construction of a small mill and hydroelectric plant.

In Lemhi County, a number of new companies were organized and commenced work; and there was a substantial increase in prospecting and in the number of investigators seeking gold mines. The principal new activities were in the Shoup, Indian Creek, Eldorado, and Gibbonsville districts.

The nonmetallic resources, particularly exploration for oil and gas, received the largest amount of attention ever given to them. The Anaconda Copper Mining Co., in Caribou County, and the Solar Development Co., in Bear Lake County, both produced and shipped a large tonnage of phosphate rock. In Bannock County, the Idaho Portland Cement Co. was active throughout the year and manufactured and marketed a large tonnage of "Eagle Brand" cement. Two manganese mines were active, and one produced and marketed a substantial tonnage of high-grade ore. The Ohio Oil Co., operating in Payette County, under the name of its vice president, R. J. Berry, installed a 122-foot steel derrick and complete rotary drilling equipment and sunk a well, which had reached a depth of 4,000 feet at the close of the year. The Boise Petroleum Co. installed a complete well-drilling rig and sunk a well to a depth of 1,100 feet; and two others, whose forms of organization are unknown to the inspector, commenced sinking wells. The wide publicity given to the operations of the Ohio Oil Co. attracted a large amount of attention to Canyon, Payette, and Washington counties and resulted in the organization of more than twenty new companies.

The increase in ore reserves of producing mines, new ore disclosures of importance, new mill construction, new organizations, and the principal mining activities for the year are more extensively given in the county outlines which follow.

Ada County

Other than the work done by the Adelmann Bros. at the Blue Grouse group, the mines and prospects in this county witnessed but little increase in attention and development work over that of the previous year. The Boise Stone Co. was idle the greater part of the year and quarried but a small quantity of stone.

Although there was much publicity to further the sale of stock by those attempting to develop oil and gas, no work of any consequence was done.

Adams County

This county experienced but little mining activity during the year. The Idaho Copper Co., which ceased operations in November, 1927, continued idle. A few prospectors in the Council Mountain, Heath, and Indian Creek districts increased their work over that of 1930, and one marketed a small amount of ore. At the close of the year arrangements were being completed to revive one of the silver properties in the Indian Creek district.

The copper prospects near Homestead, Oregon, on the Idaho side of the river, received a little more attention than usual.

Bannock County

The Idaho Portland Cement Co., near Inkom, about 12 miles from Pocatello, whose product is marketed under the trade name of "Eagle Brand," was active throughout the year and manufactured and marketed a large tonnage. Two of the manganese mines near Cleveland were active during the greater part of the year. One of them, the Idaho Manganese Mining Co., produced a substantial tonnage of high-grade manganese ore.

The Chatterton Mining Co., which is developing a lead prospect in the Swan Lake section, did a small amount of development work.

Bear Lake County

The Solar Development Co., Ltd., a subsidiary of the Consolidated Mining & Smelting Co. of Trail, B. C., which acquired and started work on a phosphate mine near Paris in 1930, was active throughout the entire year. This company maintained a large pay roll, produced a substantial tonnage of phosphate rock, and performed a large amount of development work, the principal part of which was sinking an inclined shaft 200 feet deep and running a large amount of lateral drifts. The phosphate rock is shipped for treatment to the acid phosphate plant of the Consolidated Mining & Smelting Co., at Trail, B. C. This plant was built in 1929 and 1930 at a cost of more than $7,000,000. The manufactured product, a triple superphosphate, is marketed under the trade name of "Elephant Brand." All the other companies holding phosphate mines in this county were idle throughout the year.

The Gold Star Mining Co. and the Utah-Idaho Mining & Milling Co., whose copper properties are located near Bloomington, both performed a considerable amount of development work, and the latter extended its vertical shaft to a depth of 200 feet.

The Sunset Mining Co. did a large amount of development work and produced a substantial tonnage of high-grade lead ore, which was stored.

Benewah County

The principal enterprise in this county is that of the Rainbow Mining & Milling Co., Ltd., which is driving a long crosscut. The company was active throughout the year and advanced the crosscut to a total length of 2,400 feet. The Butte Mining Co., whose property adjoins that of the Rainbow Mining & Milling Co., Ltd., did a small amount of development work and constructed approximately 2 miles of trail. The properties of these companies are located in the St. Joe district near Medimont.

Other than annual labor, all of the companies whose properties are located near Round Top Mountain were idle, and no new enterprises were started.

Blaine County

The two most active enterprises in this county were the Liberty Gem Mines, Inc., whose property is located 7 miles west of Hailey, and the Idaho Mineral Products Co., Ltd., which is operating the Vienna mine in the Sawtooth district. The former extended its vertical shaft an additional 100 feet, did a large amount of drifting and crosscutting on the 100 and 200 foot levels, readjusted its mill, and in December produced a small tonnage of concentrate, which was stored. The Idaho Mineral Products Co., Ltd., maintained active development work throughout the year, installed new milling equipment, and commenced milling operations in December. This company, in cooperation with the State highway department, opened Galena Summit to motor vehicle travel in December in order that the company might complete the storing of winter supplies.

The Triumph mine, of the Hailey Triumph Mines Co., was idle throughout the year. A few lessees maintained work at the mines owned by the Midvale Mining Co. and Ervine Mining Co., and at the Independence and North Star mines of the Federal Mining & Smelting Co. Development work was maintained without interruption at the properties of the Utah-Bellevue Mines Co., near Bellevue, and the Wood River Mining Co., and at the Parker mine, which is being operated under lease and option. The two last-mentioned properties are located in the Elkhorn section of the Warm Springs Creek mining district near Ketchum.

The Silver Star-Queens Mines, Inc., at the Queen of the Hills group, near Bellevue, reopened an additional part of the Lusk tunnel during the early part of the year. Other than annual labor, all of the companies operating in the Muldoon district were idle. The Treasure Vault Mining Co., whose property is located west of Hailey, and Peter L. Kent at the Lone Pine Tree group, near the Red Cloud mine, on Deer Creek, both performed a small amount of work during the summer.

Boise County

The gold resources of this county, both placer and lode, received much attention. A number of new mining companies were organized to develop the quartz properties, and during the summer scores of placer miners were active in almost every gulch in Boise Basin. The larger companies increased their production in the early part of the year, and the outlook was favorable for a considerable increase in gold production; but the burning of the dredge owned by the Idaho Gold Dredging Corporation in July and the disastrous forest fire which swept over the county in August, destroying the town of Quartzburg and the entire surface plant of the Gold Hill & Iowa mine of the Talache Mines, Inc., greatly curtailed the output. The surface plant at the Golden Age Junior mine and the plants of a number of small companies were also destroyed in the August fire.

Until its surface plant was burned, the Talache Mines, Inc., at the Gold Hill and Iowa mine, continued to be the largest gold-producing mine in the State. The shaft was extended from the 850-foot level to the 1,100-foot level,

and a large amount of new ore was opened on the 850, 700, and 600 foot levels. After the wreckage of the fire was cleared away, and the electric power line was rebuilt, a new electrically driven hoist, pump, and compressor were installed, the mine was unwatered, and work was started on crosscutting to the ore body on the 1,100-foot level.

The Idawa Gold Mining Co. continued to be an important gold producer and maintained milling and development work throughout the larger part of the year. However, late in the year the mine was closed, and all operations were suspended pending a readjustment of the company's corporate affairs.

The Mineral Mining Co. performed a large amount of mine development work, operated its mill intermittently, and marketed a substantial tonnage of high-grade gold-lead concentrate. Mayflower Gold Mines, Inc., a new organization, operating the Mayflower group, which is adjacent to the Gold Hill & Iowa mine at Quartzburg, maintained work throughout the year. The management reported the development of a sufficient tonnage of ore to justify the installation of a mill, plans for which were completed at the close of the year. The Ideal Mining Co., operating the Mountain Chief group under lease and option, conducted mine development work throughout the year and operated the mill for a short period. The Come Back Mining Co., whose property is located near Pioneerville, at Grimes Pass, was active throughout the year, performing a large amount of development work and producing and marketing a small tonnage of high-grade gold-silver ore. Press reports were to the effect that this company commenced installing a small milling plant.

The Idaho Gold Dredging Corporation, which was operating a dredge on Grimes Creek near Pioneerville, was active during the early part of the year and increased its production over that of the previous year. However, a fire destroyed the dredge in July, and the company then suspended all operations.

The Crooked River Mining Co. gave an option on its property and dredge at the Kempner Ranch placer to M. T. Rowland, who further altered the dredge and then operated it for a short period. Again the dredge proved to be improperly constructed, and all operations were suspended pending further refinancing and reconstruction.

New companies which entered this county during the year and which conducted a substantial amount of development work and installed a small amount of mining equipment were: Alandoc Mining Co., a placer mine enterprise at old Centerville; June Mining Corporation, at the Boulder mine; Clear Creek Development Co., near Pioneerville; and Golden Dream Mining Co., a placer enterprise, on the North Fork of the Boise River.

The "Continental Mining Co. and Inc." completed the installation of a small jig concentrating plant, performed a small amount of mine work, and marketed one small lot of concentrate. The property of the Boise Placer Co. was sold under foreclosure proceedings and was idle throughout the year. The Grandview mine, and the calcite plant at Banks, of the American Mines Development Co., Inc., and the mine of the Missouri Mining Co., Ltd., were idle. The Franklin Placer Co. rebuilt part of its ditch and flume lines and washed a small amount of gravel. Jarvis Bros., at the Hay Fork mine, did a small amount of mine work and constructed one-half mile of new road.

The increase in the gold content of the ore of the Gold Hill and Iowa mine as greater depth was obtained greatly stimulated prospecting, new development work, and investigations by those seeking gold mines. Much of the new work was intelligently directed, but some of it proved disappointing because it was based upon incorrect assays.

Bonner County

The Whitedelf Mining & Development Co. continued to be the largest operator in this county. In addition to producing and marketing a substantial tonnage of high-grade lead-silver concentrate, the company extended its shaft to the 400-foot level, on which it did a large amount of development work. The new ore encountered on the lower levels greatly added to the known resources of the mine. The Hope Mining Co. completed construction and installation of a new 100-ton flotation concentrator, installed an electrically driven compressor, performed a large amount of mine development

work, conducted milling operations, and produced and marketed a substantial tonnage of high-grade lead-silver concentrate throughout the greater part of the year.

The success with which the Whitedelf and Hope mines are meeting has greatly stimulated prospecting and development in the Clark Fork area, and most of the companies maintained a small crew during the greater part of the year. The Goat Mountain Leasing Co., a new organization, installed a gas-driven compressor and commenced driving a long crosscut. Gene-Lee Mines, Inc., was active in driving a new tunnel on the vein. Press reports were to the effect that a substantial showing of ore was encountered. Lucky Strike Mining Co. extended its principal tunnel approximately 100 feet. A small amount of development work was done by the Lawrence Consolidated Mining Co., and a car of hand-sorted ore was marketed. Explorers Prospecting Co., at the Boyer group, near Sandpoint, did a large amount of diamond drilling, constructed a new building, installed a compressor and complete mining equipment, and sunk a 100-foot inclined shaft. Minerva Silver, Inc., near Hope, installed a new compressor and maintained work throughout the greater part of the year. Amazon Mining Co., which was operating the Fall Creek mine under lease and option, employed two men during part of the year. The Silver Leaf Mines Corporation, a new organization, whose property is in the Lakeview district, constructed new camp buildings, installed a new compressor, and commenced an active development campaign. No work of any consequence was done in the Priest Lake district except annual labor, and this was greatly hampered and set back by the disastrous fire, which swept the district in September. The surface plants and buildings of practically all of the mining companies and prospectors were destroyed.

Bonneville County

Except a small amount of placer mining in the Caribou district, no mining operations were conducted during the year.

Boundary County

The year 1931 witnessed but little new activity and but a small improvement in development work by the old companies. The Silver Spoon Mining Co., Inc., and the Moyie Gold Copper Mining & Milling Co., Ltd., both maintained active development work throughout the year. Idamont Lead-Zinc Mines Co., Clancy Mining Co., Lucky Abe Mining Co., and Metals Mining Co. were active only a sufficient length of time to constitute annual labor. The International Molybdenum Co., in the Porthill district, was active during the summer months. Newspaper reports were to the effect that a discovery of placer gold was made near Naples, and that a new organization was being planned to acquire some of the properties in the Katka district.

Butte County

The Wilbert Mining Co., Ltd., whose property is located in the Dome district near Howe, maintained production during January and active work for the following three months, after which the low price of metals caused a suspension of all operations. The Dahle Bros., at the Horn Silver mine, in the Lava Creek district, maintained active development work throughout the year, and reports were to the effect that this work encountered a good showing of new ore. The other companies performed only the necessary annual labor, although the work done by the Metta Mining Co., Ltd., whose property is in the Hamilton district, exceeded the requirement.

Camas County

During 1931 the gold resources of this county, both placer and lode, in the Skeleton Creek district, on the South Fork of the Boise River, and in the Big Smoky section, received more attention than during the previous year. Much prospecting and development work were done by the old companies and by three new organizations, the principal one of which was the El Oro Mining Co., at the El Oro mine, where a small tonnage of ore was mined and milled, and work was started on a new crosscut, which is projected to open the vein at a greater depth. The Gold Mountain Mines Co. reported the installation of a 5-ton Gibson mill.

The Idaho Placer Mines Co. and the Glacier Gold Placer Mining Co., both placer operations, were active during the summer months in constructing new ditches and in trenching. The Consolidated Mines Syndicate, which is developing a prospect in the Willow Creek section, employed a few men during the early part of the year, after which all operations were suspended.

No new work was started in the Little Smoky district, and, other than the necessary expenditures for annual labor, all the properties were idle.

Canyon County

The only known mineral resources of this county are diatomaceous earth, various clays of excellent quality, and a few gold placer deposits along the Snake River. During 1930, three companies, based on the development of oil and gas in this county, were incorporated, and five such additional companies were incorporated during 1931. Some of these companies obtained a large acreage under lease, but none of them commenced drilling.

Caribou County

The Anaconda Copper Mining Co., which is operating one of the largest phosphate mines in the United States, increased its mining equipment, constructed additional homes for its employees, installed a new domestic water system, and completed the extension of its principal tunnel to a total distance of 8,000 feet, at which point a large station was cut and lined with reinforced concrete, and work was started on driving a 1,000-foot vertical operating raise. Production was also maintained throughout the greater part of the year, at a rate of approximately 200 tons a day. The rock was shipped to Anaconda, Montana, where it is manufactured into high-grade fertilizer and sold under the trade name of "Anaconda Triple Superphosphate."

Cassia County

The Silver Hills Mining Co., the only active company in this county during the year, continued work without interruption in driving a 1,700-foot crosscut.

One of the principal geological publications issued during the year was Alfred L. Anderson's "Geology and Mineral Resources of Eastern Cassia County, Idaho," which was published as Bulletin 14 of the Idaho Bureau of Mines and Geology. This bulletin completely describes the geology and mineral resources of the county, and is of great value in displaying the possibilities of the county, particularly the scenic beauties of Cassia's "City of Rocks," which is mentioned as being of sufficient importance to be designated a national monument. The bulletin is profusely illustrated.

Clark County

No new enterprises were started in the Birch Creek district, and only a small amount of development work was done.

Clearwater County

The principal mining activities in this county during the year were those of the Ruby Creek Mining Co. and the Goldendale Mining Co., both near Elk River. The former, which commenced building a small mill in 1929, constructed two ore bins, three additional houses, installed a water system and a small Diesel engine, and did a small amount of mine development work. The Goldendale Mining Co., which is operating the property of the Neva Copper Co., installed a gas-driven hoist, commenced sinking a shaft, and did a large amount of surface prospecting. The Sewell Lime Co., near Orofino, constructed a railway siding and placed its quarry in condition for production.

The gold resources, both placer and lode, in the Pierce City district, received considerable attention from people seeking new opportunities for gold mining, and at the close of the year arrangements were being completed to commence a large placer mining enterprise. The American Exploration Co., trustee for the Pierce City Gold Project, completed driving its crosscut in the early part of the year. Press reports were to the effect that the Washington Golden Eagle Mining Co., Inc., was active throughout the entire year. The Independence Placer Mining Co., Ltd., in the Moose Creek district, performed a small amount of construction work during the spring.

Custer County

Although none of the mining companies conducted mining operations at the large mines in this county, numerous lessees were active. Those at the Empire Copper mine, of the Mackay Metals, performed a large amount of development work and produced and stored a substantial tonnage of high-grade crude ore. Lessees at the Ramshorn produced and marketed a small tonnage of ore.

The property of Mackay Metals was sold to the county for taxes. At the close of the year, however, arrangements had been completed for its purchase from the county and its refinancing as soon as conditions warrant. The Livingston Mines Corporation was idle and remained in receivership throughout the year, and the property of the Ford Motor Co. was idle.

The lead mines, in the Clayton section, received considerable attention from people seeking lead-silver deposits, and R. W. Johnson, at the Mule Shoe group, was active throughout the greater part of the year in extending a crosscut.

The gold resources, particularly placer, along the Salmon River, in the Yankee Fork district, received some attention, and a few small pumping plants were installed in an attempt to hydraulic bench ground.

The Aztec Mining & Milling Co., in the Stanley district, did a small amount of work during the summer months.

The entire surface plant of the Lost Packer mine, in the Loon Creek district, and the old town of Casto were destroyed by a forest fire, which visited this district in August.

Elmore County

From a "ghost" city of less than a score of people to a thriving community of more than 300, with a picture show, school, and airplane mail service, is the experience of Atlanta in 1931, as a result of the resumption of operations in August by the St. Joseph Lead Co., at its Boise-Rochester mine.

The airplane service, which was started in December, is the first Star Route airplane mail service, to an isolated mining camp, to be established by the United States Post Office Department. It was made possible, in part, by the company constructing and maintaining a landing field at Atlanta. As there is seldom sufficient snow in Boise to permit skii-equipped planes to land, the use of wheels in landing at Atlanta is made possible by keeping the snow firmly packed with a heavy roller.

From September to the close of the year approximately 200 men were employed. The old mill was torn down, and the serviceable lumber and equipment used in the construction of a new mill of 200 tons capacity, which was erected near the portal of the lower or No. 9 tunnel. A 360-horsepower Diesel engine, driving an electric generator, synchronized with an old 125-horsepower hydroelectric plant, was installed for power purposes. All construction work was completed, and the mill was placed in operation the latter part of December. A new 1,000-cubic-foot electrically driven Ingersoll-Rand compressor, a Mancha storage-battery locomotive, and all necessary mining machinery and equipment were installed at No. 9 tunnel. This tunnel and No. 6 tunnel were rehabilitated, and the mine was placed in condition for production, part of this work being the driving of a 340-foot raise to connect these tunnels. The transportation of the machinery, equipment, and 100,000 gallons of fuel, which was handled by nine trucks, operating day and night; the razing of the old building; and the construction of the new mill and additional mine buildings represent the second largest expenditure made in the State during the year. The short time required to construct the mill and place the mine in operation established a record which has never been equalled in Idaho and for which much credit is due the manager, Mr. Frank H. Skeels.

The gold resources of the Rocky Bar section received more attention than during the previous year. One placer mining operation was active throughout the year, and two new organizations commenced work on quartz properties. Press reports were to the effect that the Feather River Gold Placer Co., whose property is on Feather River, installed a tractor shovel and hydraulic equipment and commenced mining. The Consolidated Mines Syndicate, at the Revenue group, in the Volcano district, near Hill City, reported that its long crosscut was advanced 165 feet during the year.

The Neal district received a large amount of attention from prospectors; many claims were located; and the construction of a 25-ton mill was commenced by a small organization.

Gem County

The only operation during 1931 was that of the American Mines Development Co., at the Old Liberty mine, near Sweet, which was active throughout the year in extending its tunnel.

Idaho County

The first quartz veins located in the northern part of Idaho County were those at Elk City, in 1884. Active mining operations were conducted in this district, and in the adjoining districts of Ten Mile, Buffalo Hump, Orogrande, and Dixie, in which gold was subsequently discovered, until about 1909. These operations were based on the mining of the free-milling, oxidized portions of the veins and were continued until the sulphide zone in many of the properties was encountered. As the gold could not be recovered from these ores by the metallurgical methods then in use, the mines ceased to be profitable, particularly because it became necessary to make a concentrate which required shipment to a smelter, and road conditions made the cost of transportation to railhead prohibitive.

The old road leading from Stites to Elk City, a distance of 53 miles, crossed two high divides, with such a great change in climatic conditions that it was never open to wheeled vehicles for more than four months of the year. Starting at Stites with an elevation of 1,200 feet, the road ascended in the first 25 miles to an elevation of 6,500 feet at the top of Mt. Baldy; then descended a distance of 8 miles to 3,800 feet at Newsome; from there it ascended to an elevation of 5,700 feet at the top of Elk Summit, a distance of 9 miles; and then descended 9 miles to an elevation of 3,950 feet at Elk City. Throughout almost the entire distance the road traversed a heavily forested area, and the character of the soil is such that the road was practically a dugway on which the sun seldom shone. Many of the level stretches were through swamps over which corduroys were necessary. The proper maintenance of this road would have been so expensive that the county always refused to expend any appreciable amount on it; hence, nearly all the maintenance provided was that covered by the small sums expended by the Forest Service and the mail contractors. Consequently the road never permitted other than light, slow-moving traffic, a condition which made the cost of transporting mine products and supplies prohibitive and made it impossible to enlist capital for development and operation of the quartz mines, and which resulted in the abandonment of most of them.

In 1923 work was started on a new road following the South Fork of the Clearwater River from Grangeville to Elk City. Construction of this road has progressed intermittently. In October, 1931, the contract for the completion of the last 7 miles to Elk City was let, and work was started. The terms of the contract require that the work shall be completed and the road be opened to travel early in 1932. The first 12 miles of this road, from the top of Clearwater Hill to Castle Creek, is not standard construction, but the roadbed is good, and no grades exceed 5 per cent. However, surveys have been completed for estimating the cost to standardize this distance. From Castle Creek to Elk City the road is a standard 14-foot highway, which is kept in excellent condition by the Forest Service. Following the water grade as it does, the highway is free from snow throughout the greater part, if not the whole, of the year; and heavy hauling is economical and practical.

The assurance that the new road would be completed and opened to travel early in 1932 greatly stimulated interest in the Elk City, Dixie, Orogrande, Buffalo Hump, and Ten Mile districts during 1931. This was particularly evident in the Buffalo Hump district, where one of the largest mining organizations in the United States acquired a large number of properties, under lease and option, packed in supplies, and commenced preliminary investigations. Many mining engineers and geologists representing responsible companies visited the other districts during the year, and those representing one large organization made an intensive examination of the Orogrande district.

In the Elk City district the Cal-Idaho Mining Co. was the largest operator. This company acquired the Gold Hill placer. It finished rehabilitation of the 8-mile ditch, installed complete hydraulic equipment, and constructed a new tail race at a lower elevation. The company contemplates a large hydraulic placer mining enterprise. The Day Development Co., which acquired the Center Star group in October, 1930, completed the sinking of a 100-foot shaft and conducted active exploratory work until May, when all operations were suspended. Lessees at the property of the French Creek Gold Mining & Milling Co. did a small amount of work during the early part of the year. Later the company cancelled the option and by the close of the year had completed arrangements for refinancing the property.

The Orogrande district witnessed a large amount of new activity. Lessees at the Homestake group of the Homestake Gold Mining Co. conducted a large amount of mine work. According to press reports a large tonnage of gold ore was developed, a contract was let for driving a 2,000-foot lower tunnel, and the contractors, by the close of the year, had installed a gas-driven compressor and complete mining equipment. The Gnome Gold Mining Co., a new organization, which is operating the property of the International Mining Co., under lease and option, constructed new camp buildings and commenced extending the principal tunnel, which is a drift on the vein. The Ohadi Mines Corporation, operating the Deadwood placers, under lease and option, conducted a small amount of work for 30 days, and at the end of the year was making plans for the installation of a power shovel and washing equipment. The property of the Orogrande Gold Mining Co. was placed in receivership, and legal proceedings were completed under which the receiver can sell the property.

The largest expenditure made in this county during the year was that of the Idaho Gold Dredging Co., in the Warren district. This company acquired the Warren Meadows under lease and option, purchased a large steam-driven dredge in Oregon, dismantled it, transported it to Warren by motor truck, reconstructed it, and put it into operation early in September. Press reports were to the effect that the gold recovered by the dredge proved that the ground had a high gold content. The Unity Gold Mines Co. was idle throughout the year. Two sales under attachment proceedings were held against its property.

The Golden or Ten Mile district was one of the most active sections of this county throughout 1931. F. O. Miiller and son, at the Lone Pine group, maintained development work without interruption, operated the mill for a short period, and installed a new 160-cubic-foot gas-driven compressor. This mine was one of the largest gold producers in the county. The development work greatly increased the known ore resources, and at the close of the year the owners were completing plans for the construction of a new mill. The success with which this enterprise is meeting has greatly stimulated prospecting and promoting; and six companies holding near-by properties did a small amount of work and a large amount of solicitation in the sale of stock. The Buffalo-Idaho Mining Co. and the Central Idaho Gold Mines, Inc. were active throughout the larger part of the year. Each operated its mill for a short period and produced a small amount of bullion. The Moose Creek Placers Co. conducted work on its ditch and flume line and further repaired its hydraulic equipment.

In the Dixie district, the Central Idaho Mining & Milling Co. was active throughout the year. This company completed the construction of a mill building and the installation of a 25-ton flotation concentrator and a small hydroelectric plant. In addition to building many miles of trail and conducting an active mine development campaign, a small tonnage of high-grade gold-lead concentrate was produced and marketed. Press reports were to the effect that the Mammoth Mining & Development Co., which is operating the property of the Mammoth Mine Corporation, under lease and option, installed a small steam-driven compressor and commenced construction of a small mill. J. R. Painter, whose property is on the Salmon River, south of Dixie, produced a small tonnage of gold ore, which was of such high grade that it warranted transportation by pack train from the mine to Dixie. The placer deposits near

the town of Dixie received considerable attention. Press reports were to the effect that a new company had been organized to exploit one of these properties.

The Marshall Lake district was one of the most active sections in the county throughout the year. A substantial production was recorded, a large amount of development work done, and a large number of mine examinations were made. The Golden Anchor Mining Co., at the Holte mine, in which there was one of the most important disclosures made in the State during 1930, conducted development work throughout the larger part of the year. This work further opened the ore bodies and proved them to be of major importance. The Sherman Howe Mining Co. completed construction of additional new camp buildings, enlarged its mine plant and maintained production and development work without interruption until October. This company's production was one of the largest in the county. The Long Tom Mining Co., at the Cuban and West Goodenough groups was active throughout the year at both groups. The new highway, which the Forest Service is constructing between Burgdorf and this district, was extended an additional 4 miles. This road is of great assistance to the companies now operating and is a great encouragement to the development of the district.

In the Burgdorf district a small amount of work was done by the Davis Mining Co., on Ruby Creek; the Golden Rule placer was operated for 30 days; and late in the year arrangements had been completed to prospect thoroughly a large tract of ground for its placer gold content.

The alleged presence of rare metals and gold in the black graphitic lime shales and "dike" rock in the Salmon River or Simpson district, near Lucile, continued to be used as a lure for the sale of stock. Those promoting these enterprises profess having secret methods by which the rare metals and gold are recovered. No work of any consequence was done by any of these companies.

The Idaho Bureau of Mines and Geology, in cooperation with the United States Geological Survey, commenced work on a new geologic survey of all that part of the county lying north of the Salmon River, including the Buffalo Hump, Dixie, Elk City, Ten Mile, and Orogrande districts. The bureau considers these districts to possess favorable possibilities for the discovery of new gold deposits.

Fourteen new companies were incorporated and acquired gold properties in Idaho County during the year, and 448 new locations were made. This is the largest number of new locations in any one year during the past 30 years.

Kootenai County

The Beauty Bay section witnessed a large amount of development work throughout the year. The work done by practically all of the companies holding property in this section greatly exceeded the annual labor requirements. The principal operators were: Blue Bird Mining Co., Caribou Mining Co., Ltd., Radio Mining Co., Royal Mining Co., Silver Tip Mining Association, and J. G. Sullivan, at the Shamrock mine. The Coeur d'Alene-Beauty Bay Mining & Milling Co., a custom-mill enterprise, based on milling the ores from all of the mines in this section, completed construction and adjustment of its mill.

In the Hayden Lake district, the Burnt Cabin Mining Co., the Commonwealth Metals Co., and the Connie Mining & Milling Co. were active throughout the year, and all did a substantial amount of development work. Press reports were to the effect that an enterprise known as the Ramsey Oil Project had installed drilling equipment and had sunk a well approximately 1,500 feet deep. As such a concern has never filed articles of incorporation nor the reports required by law, the inspector does not know whether the press statements are correct or not.

Lemhi County

The gold resources of this county received more than the usual amount of attention. There was a substantial increase in the number of prospectors and investigators seeking gold mines, a number of new companies were organized, and some of them were active throughout the year.

The placer and lode deposits in the Shoup district received more attention than for many years. The Gold Hill Mines, Inc., a new organization, at the Kentuck mine; the Golden Dawn Mining Co., a placer mining enterprise; and the Owl Mining Co., Inc., were all active. Press reports were to the effect that a flat-boat dredge was constructed and placed in operation to exploit a placer deposit on the Salmon River, and that the Kittie Burton mine, in the Indian Creek district, which is near Shoup, was rehabilitated and that a short tramway and a small mill were under construction.

The Eldorado Gold Mining Co., a new organization, at the Ranger mine, in the Eldorado district, northeast of Salmon, commenced work early in the year and produced and marketed a small tonnage of high-grade gold ore.

The Goldstone Mines Corporation, in the Pratt Creek district, conducted mining and milling operations for the first three months of the year and produced and marketed a small tonnage of high-grade concentrate, after which all operations were suspended, and the company reorganized as the Western Gold Mines, Inc.

In the Yellow Jacket district the United Mace Smelters, Inc. employed two men during the summer months in a placer mining enterprise, and Mrs. H. F. Steen, at the Continental group, further extended the principal tunnel.

All of the lode mines in the Leesburg district were idle. Three placer mining companies further enlarged their ditches, increased their hydraulic equipment, and conducted hydraulicking operations during the spring.

There was a slight increase in prospecting and development work in the Gibbonsville district. Two new companies were organized, and each produced and marketed a small tonnage of high-grade gold ore.

Other than the necessary annual labor, all of the mining companies operating in the Nicholia, Spring Mountain and Leadore districts were idle throughout the year; however, lessees at two of the mines in the Nicholia district did a small amount of development work, and the owners of the Maryland mine, in the Leadore district, conducted development work without interruption.

The Hecla Mining Co., which, in 1930, commenced developing a discovery of high-grade copper-gold ore, on Allison Creek, 10 miles south of Salmon, on the divide between the Lemhi and Salmon rivers, continued this work during the early part of the year. Other than a small amount of work by lessees, the copper mines of the Harmony Mines Co. and Winder-Stillman Con, near Salmon, were idle throughout the year.

The Gilmore district, which for many years was one of the principal lead-silver producing sections in the State, witnessed but little activity, as all of the mining companies were idle. About 20 men were engaged in leasing operations at the Allie, Latest Out, and P-I mines. They produced a substantial tonnage of high-grade ore, all of which was stored, except one small shipment.

Owyhee County

One of the largest and most important new enterprises based on the development of lead-zinc-silver ores which was started in the State during 1929 was that of the Exploration Co. of California, at the Golconda group, in the South Mountain district. New buildings were constructed, complete mining equipment was installed, and development work was started. A large amount of crosscutting, drifting, and sinking was done. This work greatly increased the known resources of the property. These operations continued until late in 1931, when the low price of metals caused a suspension of all operations pending a return of normal metal prices.

The most important new enterprise to enter this county was that of the Golden Chariot-War Eagle Mines Co., which acquired the principal properties on War Eagle Mountain and commenced work in May. The power line was rebuilt; equipment was repaired; and Sinker tunnel and an upper tunnel were reopened. An extensive examination was then started, a small amount of development work was done, and all operations were suspended in August. The American Gold Dredging Corporation, on Meadow Creek, near Triangle, operated its dredge during the spring months; after which time, the shortage

of water made it impossible to operate. The B. B. & M. Oil & Gas Co., near Grandview, was active during the early part of the year and sunk a small well to a depth of 1,500 feet.

The silver resources of the Castle Creek section and the gold properties in the Reynolds Creek section, both received a small amount of attention, although no work of any importance was done.

Lessees at the properties of the Empire Mines Co. and the Never-Sweat Mining Co., at Silver City, were active throughout the year and produced and marketed a small tonnage of high-grade ore.

The Idaho Gold & Platinum Merger Mines Co., an enterprise based on the alleged presence of platinum in the volcanic glass sands which lie at a depth of about 200 feet in the artesian basin of Little Valley, near Bruneau, performed a small amount of work during the year and gave the project a large amount of publicity through the press and through circulars designed to finance further the project.

Payette County

In 1930 the Crystal Dome Oil & Gas Co., whose property lies in Payette and Washington counties, erected an 84-foot derrick, installed a standard steam-driven drilling rig, and sunk a well to a depth of 1,865 feet, at which point a showing of natural gas was encountered. In November, 1930, this company entered into an operating agreement with the Mountain States Oil & Gas Co. After months of intensive study by the geologists of the Ohio Oil Co. and after additional months of negotiations with the Mountain States Oil & Gas Co., the former company, operating under the name of its vice president, R. J. Berry, took over all the properties of the latter company on a lease basis. In September, 1931, a standard 122-foot derrick was erected; a complete rotary drill, run by a 125-horsepower Clark gas engine, gas-driven pumps, control heads, and a water system were installed; and drilling operations were started on October 4. The drill was manned by 16 experienced men and was operated 24 hours a day. By December 31 the new well, which was located a few feet south of the original well sunk by the Crystal Dome Oil & Gas Co., had reached a depth of 4,000 feet. The entire enterprise represented an expenditure of more than $100,000.

The wide publicity given to the encountering of natural gas by the Crystal Dome Oil & Gas Co. and the operations of the Ohio Oil Co. attracted a large amount of attention to this county and resulted in the organization of many new companies and the sinking of other wells. The Boise Petroleum Corporation, whose property is located in the Willow Creek section, erected a large derrick, installed standard steam-driven well-drilling equipment and, during the early part of the year, sunk a well to a depth of 1,100 feet.

At a site a few miles east of Payette, a small wooden derrick was erected, drilling equipment was installed, and the sinking of a well was started by a Mr. Louis Lilly. The size, type, and kind of equipment and the depth to which the well was drilled are unknown, as Mr. Lilly refused to file any information with the inspector other than that he was acting as "sole trustee."

Adjacent to Mr. Lilly's operations, a small well-drilling rig was installed, and work was started in sinking a small well, known as the "Underhill well." Whether this operation was conducted by Mr. H. H. Underhill personally or by the Northwestern Co., which filed articles of incorporation on October 19, 1931, and of which Mr. Underhill was designated as president, is unknown, as Mr. Underhill refused to file with the inspector of mines the reports which are required by law.

The Idaho-Oregon Petroleum Corporation reported that its property was idle throughout the year and was "under lease to International Finance Corporation of Payette, Idaho, H. H. Underhill, president." Such a corporation has never qualified to do business in Idaho nor has it ever filed with the inspector of mines the reports which are required by law.

Shoshone County

The year 1931 was one of curtailment. Production was reduced; there was but a small amount of new plant construction; no new enterprises were started; and mine development work was greatly reduced, the totals being the smallest that the county has witnessed for many years. The Bunker Hill &

Sullivan M. & C. Co. and the Sunshine Mining Co. were the only two companies in the county which maintained capacity production throughout the year. The Federal Mining & Smelting Co., at the Morning and Page mines, the Hecla Mining Co., Jack Waite Mining Co., Golconda Lead Mines, and the Sidney Leasing Co., all greatly curtailed their production. The mines of the Sullivan Mining Co., Tamarack & Custer Consolidated Mining Co., Dayrock Mining Co., Sherman Lead Co., and Callahan Zinc-Lead Co. were closed early in the year; however, the Sullivan Mining Co. and the Callahan Zinc-Lead Co. maintained development work. The principal producing mines in which the ore reserves were increased by new work were those of the Bunker Hill & Sullivan M. & C. Co., Sidney Leasing Co., Sullivan Mining Co., Sunshine Mining Co., Jack Waite Mining Co., Golconda Lead Mines, and Callahan Zinc-Lead Co. New ore disclosures of importance were made in the mines of the Washington-Idaho Mining Co. and Crystal Lead Mines Co. No new mills were constructed during the year, although those of the Mutual Mines Development Co. and the Jack Waite Mining Co., construction of which was started in 1930, were completed early in 1931. New mining equipment and machinery were installed by the Stratton Silver Summit, Inc., Kellogg Silver-Lead Mines Co., Washington-Idaho Mining Co., and the Independence Lead Mines Co. The principal development enterprises which maintained work without interruption were: Bunker Chance Mining Co., Granada Lead Mines, Inc., Independence Lead Mines Co., Liberal King Mining Co., Little Sunshine Mining Co., Metropolitan Mines Corporation, Ltd., Stratton Silver Summit, Inc., and Washington-Idaho Mining Co. Other development enterprises which were active throughout a large part of the year and whose work exceeded the legal requirements for annual labor were: Atlas Mining Co., Ajax Mining Co., Pontiac Mining Co., Coeur d'Alene Mining & Smelting Co., General Mines Corporation, Louise Silver Lead Mining Co., Nine Mile Mining Co., Pearson Mining Co., and Samson Mining & Development Co., Ltd.

Under an agreement adopted on November 16, 1925, wages in the Coeur d'Alene district were to be adjusted each month in accordance with a bonus rate based on the selling price of lead in New York City. The base rate of this scale is a wage of $3.75 per day for miners when lead is selling for less than 5½ cents per pound, being graduated from 25 cents per day, when the price of lead is 5 cents per pound to $2.75 per day when the price of lead is 10½ cents per pound. During 1931, the price of lead declined so far that if the bonus scale had been adhered to wages would have been cut to a point entirely out of proportion to existing living conditions; so the signatories to the bonus scale waived their agreement, and, on May 16, wages were reduced to a basis of lead selling at 7 cents per pound, or $1.00 per day bonus.

The attention which all of the large operators are giving to safety conditions and supervision was reflected in a very small number of fatal accidents and by the continued interest which the employees are displaying in the mine-rescue and first-aid training which is conducted by the Central Mine Rescue Station. Working conditions throughout the Coeur d'Alene district are exceptionally favorable. All of the mines are well ventilated, and the operators devote much time, thought, and money to making the mines safe and to keeping them in such a condition that the men can do a full day's work without expending the energy which is required in poorly ventilated mines. It can safely be said that the mines of this district are the best ventilated ones in the United States. The solarium, installed by the Bunker Hill & Sullivan M. & C. Co., in 1929, is a distinct contribution to welfare work. It continued to be used throughout the year by a large number of the company's employees, and that its results are very beneficial was definitely proved.

The gold resources, both placer and lode, of the North Side or Murray section received a large amount of attention. Many placer miners were active throughout the year; three of the old lode mines were reopened; and a large amount of development work was done at the Mother Lode mine.

The foregoing principal activities are more extensively reviewed in the outline by companies, which follows:

The Bunker Hill & Sullivan M. & C. Co. operated its mines, mills, and smelter at capacity production throughout the year. The new development

work, consisting of more than 8,000 feet, greatly increased the known resources of the mine; and the ore bodies were further opened on the 2,000-foot level, where the ore and geological conditions were found to be normal. This ore, with that on No. 6 level, which was first disclosed in 1929, adds many years to the life of the mine. Many plant betterments, which greatly increased the efficiency of the enterprise, were made in the mills and smelter; the principal one of which was the completion of the new lead refinery of the smelter. A new 75-horsepower electric hoist, which was constructed in the company's plant, was installed in the Cherry raise, which connects Kellogg tunnel with No. 6 level. This company's expenditure for plant betterments, additions, and improvements constitutes the largest expenditure made in the county during the year. The Crescent mine, which is on Big Creek, near the Sunshine mine, was operated without interruption, and a large tonnage was mined and milled. The Bunker Hill company, because of the magnitude of the Bunker Hill mine, has become more of a manufacturing than a mining organization and, with its smelter, mills, experimental plants, and organization, is one of the largest enterprises of its kind in the world. The management is conservative and progressive; and, although it was necessary to cease payment of dividends on common stock early in the year, the company's refusal to suspend or curtail production greatly added to the prosperity of the county and of Kellogg in particular. The Mining Congress Journal, in its issue of November, 1931, contained a complete description of this company's management, history, properties, and operation of its mine, mills, and smelter.

The Hecla Mining Co. maintained normal production until August, when the continued low price of metals caused a reduction to a four-days-a-week basis. The mine and mill plants were further improved, and more than 4,000 feet of development work was done in the lower levels of the mine. The dividend rate was cut to 40 cents in February and maintained at that figure throughout the year. This company is recognized as one of the principal lead-silver producers in the United States. The curtailed production greatly conserved its resources.

The Federal Mining & Smelting Co., at the Morning and Page mines, maintained capacity production until June, when the continued low price of metals compelled curtailment. Both mines were then reduced to a 12-days-a-month operation, the mines being worked every other week. At the Morning mine, the mine and mill plants were improved, and mine development work was conducted without interruption; the principal part of which was drifting on the 3,450 and 3,650 foot levels, where the ore bodies were proved to be larger and more extensive than those on the upper levels. This mine is one of the oldest in the Coeur d'Alene district in point of continuous production, as well as one of the largest lead-silver-zinc mines in the United States. As the new development work has added greatly to the known resources of the mine, the number of years that this record will continue is unknown. In addition to the ore mined under company operation, a small tonnage was extracted from the upper levels of the Morning mine by lessees, although this was the smallest for many years. At the Page mine, the mill was enlarged and improved and the shaft extended from the 1,200 to the 1,500 foot level; and crosscutting to the vein was started from the new level. Additional mine and camp buildings were erected; some new milling equipment was installed; and development work progressed without interruption. This mine is now recognized as one of the large producing mines in the district. Lessees at the Frisco mine produced a large tonnage of ore and those at the Mace a small tonnage, part of which was milled by the Hercules Mining Co., at its custom mill at Wallace.

Production at the Star mine of the Sullivan Mining Co., which was suspended in April, 1930, was not resumed. However, mine development work was conducted without interruption. The Star mine is operated through the Hecla shaft, and its 4,000-foot level is the same as the 2,000-foot level of the Hecla mine; the two being connected by the Star crosscut, which is 8,900 feet long. This crosscut made a blind connection with the Star vein at a point 2,800 feet below the Star tunnel. A vertical operating raise and a vertical

shaft to connect these two tunnels was then projected, and, during the year, the vertical raise was completed to the Star tunnel. In addition to advancing the raise, a large amount of development work was done on the upper levels in the Star mine. This work opened one of the most important disclosures of new ore which has been made in the district for many years. The Star crosscut approximately corresponds with the 2,250-foot level of the Morning mine, in which the ore has been proved to the 3,650-foot level or 1,400 feet deeper. As the new ore in the Star tunnel is 2,850 feet above the Star crosscut, the magnitude of the Star mine is apparent.

The Sullivan Mining Co. suspended operation at its electrolytic cadmium plant early in the year, but operated its electrolytic zinc plant at approximately 50 per cent capacity throughout the entire year. The zinc and cadmium produced by this company are exceedingly high in grade and find a ready market; the zinc selling at an increase in price over that of any other zinc metal. These plants constitute one of the most important enterprises in the Pacific Northwest, and one which greatly insures the permanence of the mining industry in Shoshone County. The uninterrupted operation of the zinc plant greatly assisted business conditions in the county.

The Sunshine Mining Co., which is the largest silver producer in the State and the second largest in the United States, maintained capacity production throughout the year. Its mine and mill plants were greatly improved, and a large amount of development work was done in the mine; the principal part of which was drifting on the 1,700-foot level, where the ore bodies were proved to be of greater extent and richer in metal content than in any of the upper levels. In addition to this, a large amount of drifting was done on the upper levels; and a 400-foot raise, to connect with the 1,300-foot level, was started on the 1,700-foot level. The total amount of new work exceeded 4,000 feet. The low price of silver greatly reduced operating profits, and but one dividend was paid.

The new 500-ton mill of the Jack Waite Mining Co., construction of which was started in 1930, was completed and placed in operation in February; but on account of low metal prices it was operated only on a one-shift basis. The greater part of the ore milled was derived from development work, which consisted principally of sinking a new inclined shaft 250 feet deep and driving a 520-foot raise from the lower tunnel to connect with the Silver King tunnel on the Montana side. In addition, a large amount of drifting was done in the shaft and on intermediate levels above the main tunnel. A new electrically driven hoist and locomotive and a large amount of new mining equipment were added to the mine plant. The company constructed new camp buildings; the county built a new road to the mine; and the Post Office Department established a post office at the mine, named Duthie, in honor of the president of the company. The new ore exposed by the development work was one of the principal disclosures of the year. It greatly increased the known resources of the mine, which is fast becoming recognized as a producer of importance.

Another important disclosure of ore was that of the Golconda Lead Mines on the 1,400-foot level, where the ore was recovered on the east side of the fault and then opened for a length of more than 600 feet. This ore was opened further by a raise, which was projected from the 1,400-foot level to trace its continuation to the upper levels. The mill was operated on a one-shift basis on ore derived from development work, and lessees produced a substantial tonnage of high-grade, hand-sorted ore from the surface discovery on the Mayflower group, which was disclosed in 1930. By the close of the year, arrangements had been completed to extend one of the lower levels into the property of the Square Deal Mining & Milling Co., which is held under lease and option. Golconda Lead Mines is fast becoming recognized as one of the principal mines in Shoshone County, and mine profits during the year were sufficient to pay more than all costs.

The Callahan Zinc-Lead Co., at its Galena mine, produced no ore; however, development work, consisting of 2,200 feet of crosscutting and drifting, principally on the 1,200-foot level, and a large amount of diamond drilling on the 800, 1,000, 1,200, and 1,600 foot levels, was done. The diamond drill holes further proved the extension of the new south vein, first opened on the 600-

foot level, to additional depth and greatly increased the known resources of the mine. The favorable results of this company's work have greatly stimulated interest in prospecting throughout the section of the Coeur d'Alene district in which the Galena mine is located.

The Sidney Leasing Co. was idle throughout the first half of the year. During this period the tramway was rebuilt, and development work was conducted on the 800-foot level. On August 1, production was resumed, on a basis of 100 tons per day, and continued throughout the remainder of the year. The development work on the 800-foot level greatly increased the ore reserves of the mine, as well as being one of the principal new disclosures to be made in the Coeur d'Alene district during the year. The increase of the ore reserves of this mine, as additional depth is being gained, has been an important factor in stimulating interest in the Pine Creek section.

The Dayrock Mining Co. maintained development work and production until May, at which time all operations were suspended and the mine was closed. The development work, which was done on the four principal levels, consisted of more than 1,450 feet. This work greatly increased the known ore reserves of the mine, which is now recognized as one of the important producers of the county.

The Sherman Lead Co. continued production and development work until May, when the low price of metals caused a suspension of all operations. During the early part of the year, a large amount of development work was done, and the additional ore exposed greatly increased the known resources of the mine. This company's mine is connected with the No. 5 tunnel of the Hercules Mining Co., through which it is operated, and the ore is sold to the Hercules custom mill at Wallace. Control of the company is held by the Tamarack & Custer Consolidated Mining Co.

The Tamarack & Custer Consolidated Mining Co., which operates one of the substantial producing mines of the Coeur d'Alene district, maintained a steady output and an extensive development campaign until May, when production and all work on company account were entirely suspended and various parts of the mine were turned over to lessees. It was reported that the new work which was done during the early part of the year greatly increased the known ore reserves of the mine. This company's ore is sold to the Hercules custom mill at Wallace.

The Gold Hunter Mines, Inc., at Mullan, one of the oldest mines in Shoshone County in point of continuous production, remained idle throughout the year.

Early in the year the Washington-Idaho Mining Co. installed new mining equipment and commenced sinking a shaft from the 125-foot level to the 300-foot level, after which a large amount of crosscutting and drifting was done on the 225-foot and 300-foot levels. This work resulted in one of the substantial new ore disclosures made in the Coeur d'Alene district during the year. As this company's property is located on Moon Creek, the new disclosures added greatly to the importance of this section of the county.

The Mutual Mines Development Co., which commenced construction and installation of a new 100-ton flotation concentrator in 1930, completed the mill and commenced milling operations in May; after which, the mill was operated intermittently, and a small tonnage of lead-silver concentrate was produced and marketed.

Stratton Silver Summit, Inc., which was one of the principal development enterprises in the Coeur d'Alene district to maintain development work throughout the year, installed a new compressor and additional mining equipment, and drove more than 3,000 feet of crosscuts and drifts. The new disclosures made by this work greatly enhanced the possibilities of this enterprise.

The Independence Lead Mines Co., which was active throughout the year, installed a new hoist and commenced extending the shaft from the 100 to the 200 foot level.

Kellogg Silver Lead Mines Co. constructed a new building and headframe, installed a new electrically driven hoist and pumps, and unwatered the shaft to the 400-foot level, after which work was started on opening this and the 200-foot level.

The Pine Creek Lead-Zinc Mining Co., which completed construction of a new mill and placed its mine in condition for production late in 1930, was idle throughout the year, although during 1931 the company completed all payments on the purchase price of the property.

The Atlas Mining Co. resumed operations in May and commenced work on driving a raise to connect its long lower tunnel with the lower workings of its Carbonate Hill group. In addition to the raise, a small amount of drifting was done and a small tonnage of ore mined. This ore was milled at the mill of the Gold Hunter Mines, Inc., and shipped to the Bunker Hill Smelter at Kellogg.

Granada Lead Mines, Inc., whose property adjoins that of the Golconda Lead Mines, was active throughout the larger part of the year and extended its crosscut approximately 500 feet.

Metropolitan Mines Corporation, Ltd., whose property is located on Big Creek, maintained work throughout the year in extending its principal tunnel. Press reports were to the effect that this work opened two veins of importance.

Bunker Chance Mining Co., whose property is in Milo Gulch, near Wardner, was active throughout the year in extending its principal tunnel.

Liberal King Mining Co., whose property is located on Pine Creek, was one of the few enterprises in this section which maintained work throughout the year. This company is driving a long crosscut, which was extended to a total distance of 1,800 feet.

The Little Sunshine Mining Co. performed a substantial amount of development work at its Palmer group on Big Creek and at the Elk group, near Mullan, during the larger part of the year. Late in the year this company and the Lookout Mountain Mining & Milling Co. were merged with the United Mines & Metals Corporation, a new corporation.

Pontiac Mining Co., at the Terrible Edith group, near Murray, reported employing four men during the larger part of the year and starting work on a new lower tunnel.

Coeur d'Alene Mining & Smelting Co., whose property is located on Nine Mile Creek and whose stock is controlled by residents of Wallace, extended its crosscut a distance of 600 feet.

Ajax Mining Co., which is one of the oldest development enterprises in the Coeur d'Alene district and one which has conducted work for many years, drove more than 1,000 feet of drifts and crosscuts on the Bixby tunnel level during the early part of the year.

The General Mines Corporation reported employing three men until October in extending its principal tunnel, in which there is approximately 3,800 feet of workings. Press reports were to the effect that gold is the principal metal contained in the minerals encountered by this work.

Nine Mile Mining Co. was active during a large part of the year in extending its principal tunnel to a total distance of more than 2,200 feet.

Pearson Mining Co., in the St. Joe district, near Falcon, was active throughout the year in extending its long crosscut.

Samson Mining & Development Co., Ltd., whose property is in Eagle district, near Prichard, rehabilitated its mine plant and commenced sinking a new shaft.

The Louise Silver Lead Mining Co., a new organization, whose property is in Eagle district, near Delta, installed equipment and was active for five months in driving a drift on the vein.

The Coeur d'Alene Mines Corporation was active for a short period during the early part of the year. The principal work consisted of approximately 500 feet of crosscutting and drifting. Lessees at the property of the North Star Mining & Development Co. drove a 500-foot tunnel.

Valley County

Early in the year the Yellow Pine Co. decided that sufficient ore had been developed to warrant the construction of a 150-ton pilot mill. In order that operations in advancing the Monday tunnel would not be interrupted, and as

there was a large tonnage available above the level of Meadow Creek tunnel, this camp was selected as the location for the mill. Plans were then made for the year, and a large sum was appropriated to carry them out. By the close of the year the expenditures in new mine work and construction had exceeded those of any other company in the State. The work was carried on by approximately 200 men, divided into 10 crews, under the supervision of Geo. W. Worthington, mine superintendent. Besides directing all of the work successfully and expeditiously, he established a new tunnel-driving record for the United States, by advancing the Monday tunnel 663.6 feet during the month of August. Construction of the mill was started in June; the building was erected, equipment completely installed, and the mill was ready to start at the close of the year. In addition to the mill building, a new cook house, bunk house, and store building were constructed, and the company assisted the employees in building 13 residences. The mine work was divided into four separate operations: crosscutting and drifting on the 200 and 400 foot levels in the shaft in Meadow Creek tunnel; advancing Monday tunnel, Cinnabar tunnel, and Antimony tunnel. The other principal activities included: moving the South Meadow Creek power plant into the mill building, reconstructing the pipe line and constructing a 40-foot earth-filled dam at the intake; covering the 11,000-foot redwood pipe of Meadow Creek power plant to prevent freezing, 4,000 feet being buried and 7,000 feet being boxed, then filled with sawdust and covered; logging and sawing of more than 1,000,000 feet of lumber and cutting and delivering to the yards 80,000 feet of mine timber. The company assisted in constructing 4 miles of road down the river from Yellow Pine for the development of the proposed site of a large hydroelectric power plant and in establishing a public school, which is conducted in the original Meadow Creek camp building.

The Bunker Hill & Sullivan M. & C. Co., at the Hall Interstate-Lost Pilgrim mine, carried on normal operations and production until May, when the mine was closed and a small crew for maintenance purposes only was kept at work. Lead-silver and zinc concentrates were shipped to the company's plant at Kellogg.

New camp buildings were erected and work started on building and installing a 5-stamp mill at the Wordenhoff mine of the Keystone Gold Mines, Inc., in the Edwardsburg district. This company was active throughout the year, and, in addition to the new construction, did a substantial amount of mine development work.

The Mary Jane Mining Co., a new organization, whose property is located near the Merry Blue mine, in the Deadwood district, reported active operations during the summer months and that the construction of a 10-ton mill had been commenced.

The Amalgamated Red Metals Mines Co. was active for three months. The Copper Camp Mining Co. reported the construction of a new camp building.

In the Thunder Mountain district, McRae and Davis maintained work at the Sunnyside mine throughout the summer and operated their mill intermittently. This district, as well as the Big Creek and Edwardsburg districts, received a large amount of attention and examination by those seeking gold-mining enterprises. In selecting districts deemed favorable for the discovery of new gold deposits, in which to conduct geological surveys, the Idaho Bureau of Mines and Geology, in cooperation with the United States Geological Survey, chose these districts and commenced work on a new geological survey.

Washington County

The wide publicity given to the encountering of natural gas by the Crystal Dome Oil & Gas Co. in 1930 and the operations of the Ohio Oil Co. at the Crystal Dome property during 1931 attracted a large amount of attention to this county and resulted in the organization of many new companies, although none of them commenced drilling operations.

The gold resources of the Cuddy Mountain district received a small amount of attention during the summer, but the Mineral district, the principal product of which is silver, was idle throughout the year.

THE YELLOW PINE ENTERPRISE

OF

YELLOW PINE COMPANY

Stibnite, Valley County

A new mining district of magnitude is being developed at Stibnite and Yellow Pine, Valley County, Idaho, through the activities of the Yellow Pine Co., of which Fred W. Bradley of San Francisco is president. Mr. Bradley is also president of the Bunker Hill & Sullivan Mining & Concentrating Co., Alaska Juneau Gold Mining Co., Alaska Mexican Gold Mining Co., Alaska Treadwell Gold Mining Co., Alaska United Gold Mining Co., Ocean Shore Railway Co., Registration & Securities Co., Treadwell Yukon Co.; vice president of the Atolia Mining Co.; director of the Golden Gate Gold Mining Co., First National Bank of Juneau, Juneau Realty Co., American Trust Co., Atlas Imperial Diesel Engine Co., Occidental Insurance Co., San Francisco Commercial



MEADOW CREEK CAMP,

Co., Spanish Mining Co., Sullivan Mining Co.; and past president of the American Institute of Mining & Metallurgical Engineers.

A mine output of 2,500 tons per day, the construction of a 2,500-ton mill, and the erection of an 8,000-horsepower hydroelectric power plant are plans of the company, and their realization will make this enterprise one of the largest mining operations in the United States. Mercury, gold and silver bullion, and electrolytic metallic antimony—the latter for the first time in history on a large commercial scale—will be the products.

The development of a large low-grade mine calls for courage, initiative, and caution, three qualities which have made Mr. Bradley one of the outstanding figures in the mining world, by whom he is held in the highest regard. In recognition of his distinguished achievements in mining he was awarded the William Lawrence Saunders Gold Medal, in 1931, by the American Institute of Mining & Metallurgical Engineers.

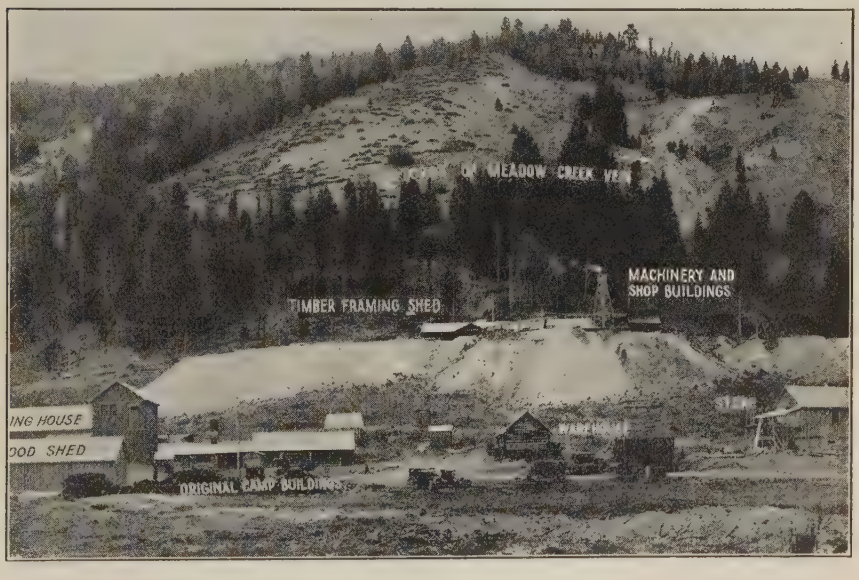
His genius in the evolution of metallurgical methods has been directly responsible for a large addition to the gold, mercury, lead, zinc, and silver reserves of the United States. He now plans to add antimony* to this list. That he will be successful there is no doubt.

HISTORY

It is impossible within the limits of this article to trace the vicissitudes of the mining claims in this enterprise from their discovery, through ownership by prospectors and many small promotional companies, to their consolidation as the United Mercury Mines Co. and their final acquisition by the Yellow Pine Co.

Their discovery dates back to the discovery of gold in Thunder Mountain in 1899 or 1900 by the Caswell Bros., the subsequent boom from 1901 to 1903 and the overflow into the adjacent areas by prospectors, who discovered the principal cinnabar and antimony veins now under development. Many of the first locators soon abandoned their prospects; some, particularly Pringle Smith and Albert Hennessy, remained.

Other than annual assessment, little work of importance was done on any of the veins until 1918, when the World War caused an excessive demand for mercury and antimony, and their price rose greatly. Their mining became



1931: YELLOW PINE CO.

attractive; more than a dozen different companies were organized; and they acquired practically all of the properties which are now held by the Yellow Pine Co.

*Antimony is a brittle metal of silvery luster, easily powdered, of low melting point, and one-half as heavy as lead. Unalloyed it has few industrial uses. It alloys readily with most metals, the alloy being harder than the two pure metals and in most cases possessing the property of prompt expansion on solidifying. Type metal, bearing metals, Britannia metal, storage battery plates, and antimonial lead are the principal alloys. The compounds are used in medicine, safety matches, paints, vulcanizing rubber, enamel ware, and building trades. It is a very important war metal, being used especially in shrapnel, for bullets, in primers, and to produce a white smoke for range finding. In 1930, no antimony ore was produced in the United States, but lead smelters produced 1,685 tons as a by-product in antimonial lead. Approximately 8,563 tons of metal and 1,403 tons of compounds were imported in 1930, China supplying over 80 per cent of the imports. The tariff on the metal and oxide is 2 cents per pound and 6 cents per pound on most of the chemicals.

Some of these companies produced and marketed a small tonnage of hand-sorted antimony ore and a few flasks of mercury; however, even with high war prices, road and transportation conditions made the operation of the mines impractical, and all of those promoting the various companies, except J. J. Oberbillig of Boise, became discouraged and quit.

In January, 1921, Mr. Oberbillig organized the United Mercury Mines Co., which, through deeds and exchange of stock absorbed twelve of the original companies, and mining operations were then financed through the sale of this stock. During the period from 1921 to 1927, Mr. Oberbillig directed all mining operations in addition to personally selling and supervising the sale of stock, which was sold at a cost of less than 5 per cent to the company. The



MEADOW CREEK CAMP, 1928: YELLOW PINE CO.

mine development work proved that the mines would require an expenditure of many million dollars before they could be placed on a profitably operating basis. As the company could not raise such a sum of money through the sale of stock, it was decided to sell the properties, if possible, to some large mining company.

In 1925 Mr. Oberbillig negotiated an option on the Meadow Creek group with the Homestake Mining Co. of Lead, South Dakota, at an agreed price of $1,000,000. This company held the option for about one year and then forfeited it, giving as the reason that the gold could not be successfully recovered. Undaunted, Mr. Oberbillig continued his efforts, and in May, 1927, succeeded in interesting Mr. Bradley, who then took the Meadow Creek and Cinnabar groups under lease and option, and, in 1930, the Antimony group.

BRADLEY ACHIEVEMENTS

1927 Activities

The achievements since 1927 are impressive. At that time there was no telephone, no mining equipment other than hand tools, and only one small duplex cabin on the Meadow Creek group. The properties could be reached by two trails: one leading from the Antimony group on Johnson Creek, over a high mountain, through No Mans Land, and thence down Meadow Creek, a distance of 12 miles; the other following the East Fork of the South Fork of Salmon River from the settlement of Yellow Pine to the mine, a distance of 14 miles. After the property was acquired by Mr. Bradley, a telephone line between Johnson Creek and Meadow Creek was erected; Meadow Creek camp was enlarged; new buildings were erected at North Camp, on Fiddle Creek;

supplies were laid in; and active development was started in Meadow Creek and North tunnels. This work progressed without interruption, and, by the spring of 1928, the results were sufficiently encouraging to warrant an expansion of operations.

1928 Activities

Geologic reports published from 1918 to 1927 describe the old road which the State constructed into Thunder Mountain during the boom as "abominable," "atrocious excuse," "terrific grades." Nevertheless, over this road in the summer of 1928 two large boilers, steam engines, a complete sawmill, a compressor and other mining equipment were transported to the head of South Meadow Creek and thence down the steep mountain side to the mine, a distance of 4 miles. Over much of the last 4 miles it was necessary to let the equipment down by means of snubbing blocks and tackle.



MEADOW CREEK CAMP, 1930: YELLOW PINE CO.

New buildings were erected at Meadow Creek camp and also at Monday camp—the new site selected for the two long tunnels, the Monday and Cinnabar; land was cleared for an air port; and road work was started. The company cooperated with the Forest Service in the construction of 4 miles of highway from Yellow Pine up the river, and built independently 10 miles down the East Fork of the South Fork of Salmon River, to connect with the Forest Service road. The entire distance involved the heaviest kind of mountain construction, as much of it passed through a precipitous box canyon. This work was maintained throughout the winter of 1928 and completed early in 1929, thus making it possible to replace pack strings and saddle horses with motor trucks and automobiles.

1929 Activities

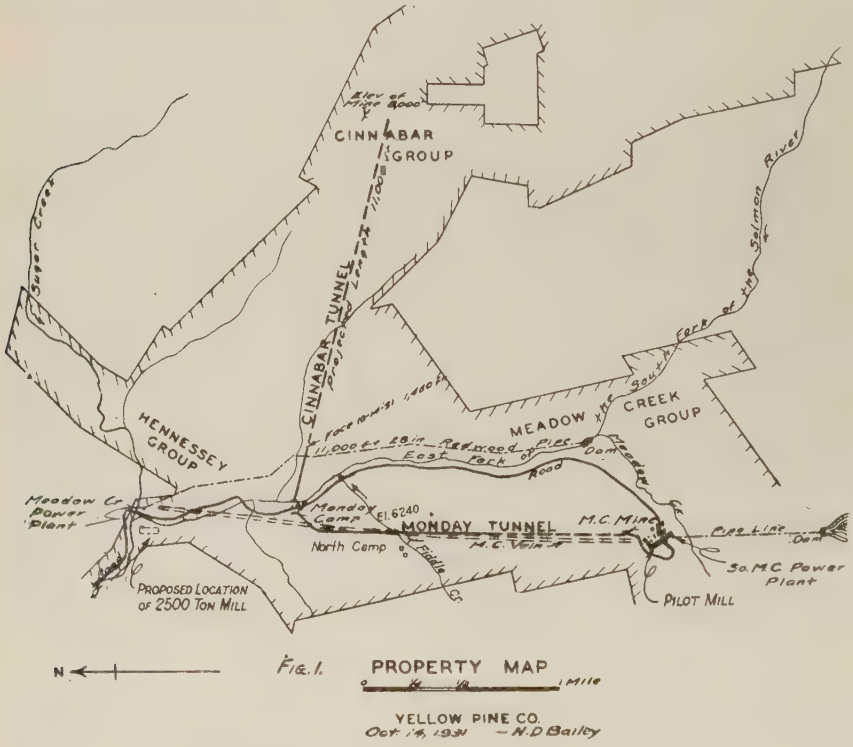
During 1929 additional camp buildings were erected at Meadow Creek and Monday camps; complete mining equipment was installed at the latter; and Cinnabar tunnel was started. There were now three independent mining operations, namely, Meadow Creek, Monday, and Cinnabar tunnels. The driving of these was conducted without interruption, and by the spring of 1930 sufficient ore had been proved to warrant another expansion of operations.

1930 Activities

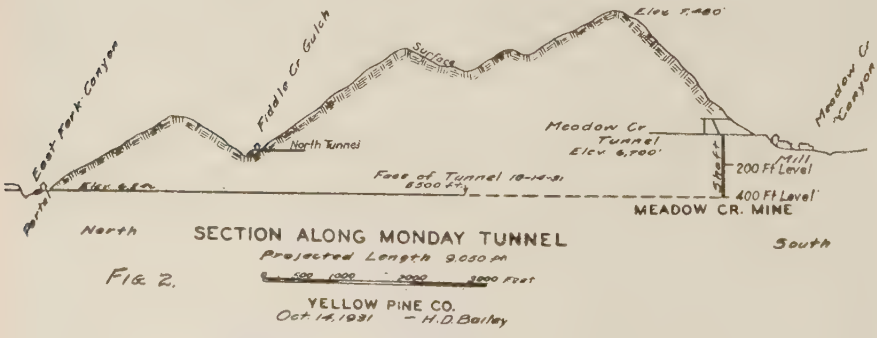
The expenditures during 1930 exceeded those of any other mining company in the State. A large hydroelectric power plant, fed through an 11,000-foot 28-inch redwood-stave pipe and a 1,620-foot 24-inch steel penstock, was

constructed. All machinery was converted to electric drive; additional buildings, compressors, mining machinery, and an electric hoist were installed; and work started on sinking a 400-foot vertical shaft in Meadow Creek tunnel.

In November, 1930, Geo. Stonebreaker, who holds the government mail contract, replaced dog-team mail delivery, requiring three days from Cascade, with airplane service, requiring less than one hour. Passengers and light supplies are transported, and a regular schedule is maintained from November until June. This airplane service proved valuable to the company during the



PROPERTY MAP: YELLOW PINE CO.



SECTION ALONG MONDAY TUNNEL

winter of 1930, when the source of power was lost through freezing of the large hydroelectric power plant. A gas-driven compressor was substituted; the gasoline was delivered by airplane; and Monday tunnel was advanced without interruption. So far as the writer knows, this was the first time in the United States that gasoline was so transported for power purposes in conducting mining operations.



PARTIAL VIEW MONDAY CAMP, YELLOW PINE CO.

1931 Activities

By the spring of 1931 sufficient ore had been proved in the Meadow Creek vein to indicate a future mine output and milling capacity of 2,500 tons per day. The metallurgical treatment of the ore had been solved by Mr. Bradley and his staff, and, as the milling methods involved some new procedure, Mr. Bradley displayed his usual caution by deciding to construct first a pilot or experimental mill of 150 tons capacity, in order that all tests should should be proved in practice before building such a large mill. Meadow Creek camp was selected for the location of this mill, in order that operations in advancing the Monday tunnel would not be interrupted and because of the large tonnage of ore available above the level of the Meadow Creek tunnel. Plans were then made for the year, and $450,000 was appropriated to carry them out. These plans included crosscutting and drifting on the 200 and 400 foot levels in the shaft in Meadow Creek tunnel; advancing Cinnabar and Monday tunnels; rebuilding South Meadow Creek power plant and constructing a 40-foot dam; covering the 11,000-foot redwood pipe of Meadow Creek power plant to prevent freezing; logging and sawing of more than one million feet of lumber; starting a new 6,000-foot tunnel on the Antimony group at Yellow Pine, 16 miles from Meadow Creek camp; and constructing the pilot mill. A public school, conducted in the original Meadow Creek camp building, was established; a new cook house, bunk house, and store building were erected; and the company assisted in the construction of more than a dozen houses for its employees. The mill, construction of which was started on June 11, 1931, was ready to start operation by the 1st of January, 1932.

NEW TUNNEL RECORD FOR UNITED STATES

Mr. Geo. W. Worthington, mine superintendent, was in full charge of the execution and supervision of this work throughout 1931. Besides directing the company's orders rapidly, successfully, and expeditiously, he established a new tunnel-driving record for the United States by advancing the Monday



VIEW OF PIPE LINE MEADOW CREEK POWER PLANT: YELLOW PINE CO.

tunnel 663.6 feet during the month of August. The tunnel has a projected length of 9,050 feet and is being extended through hard granite; its dimensions are 6 by 8 feet in the clear, where no timber is necessary, and 7 by 9 feet where timber is required. At the end of August, the face was 4,820 feet from the portal, having been advanced 1,964 feet during May, June, July, and August, an average of 491 feet a month. In establishing this record, three shifts of six men each were employed daily; two machines mounted on a crossbar were used; the muck was handled by hand and trammed by an electric storage battery locomotive.

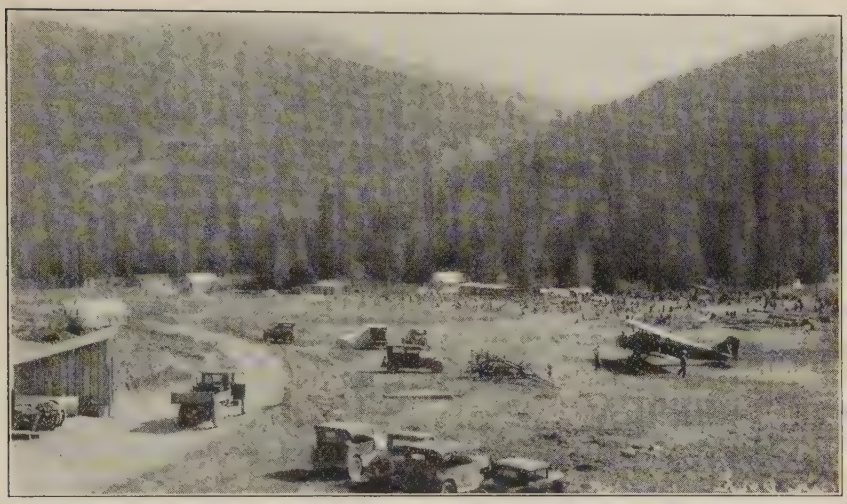
Thus, since 1927, has a mountain wilderness been transformed from an isolated single-building mining camp, which could be reached only over a high mountain trail, into a hustling mining community with a modern highway, airplane service, and all modern facilities and conveniences; the whole totalling an expenditure of more than $1,300,000.

PRINCIPAL TUNNELS

The Monday and Cinnabar tunnels, at Monday camp, on each side of Meadow Creek, are at the same elevation; and the portals are connected with a long trestle, thus making all equipment and camp facilities accessible to both tunnels. (See Fig. 1.) The Cinnabar tunnel is projected to develop the gold and mercury deposits of the Cinnabar group. Its total length when completed will be about 10,000 feet, and it will intersect the ore zones approximately 1,700 feet below the upper levels. The Monday tunnel, which is practically a drift on the Meadow Creek vein, has a projected length of 9,059 feet and will connect with the vertical shaft in the Meadow Creek tunnel at the 410-foot level. (See Fig. 2.) In the Meadow Creek tunnel there is a 410-foot vertical shaft and approximately 5,500 feet of crosscuts, drifts, and raises that open ore bodies 800 feet below the surface.

PROPERTY HOLDINGS 10,540 ACRES

The property holdings have been expanded from 6 patented and 87 unpatented mining claims in 1925 to 9 patented and 518 unpatented claims, containing an area of 10,540 acres, in 1931. The various groups and the principal metals contained in them are as follows: Meadow Creek group, 160 claims, gold-silver-antimony; Hennessy group, 17 claims, gold-silver-antimony; Antimony group, 80 claims, antimony-gold-silver; Cinnabar group, 240 claims,



LANDING FIELD: YELLOW PINE CO.

mercury; Yellow Pine Country Placer group, 30 claims, placer gold. The Antimony group is located on Johnson Creek, 2 miles south of Yellow Pine. The Yellow Pine Country group is located on the river below Yellow Pine. Besides being valuable for placer gold, the latter claims cover the site of the proposed 8,000-horsepower hydroelectric plant.

GEOLOGY*

The geology of that part of the Yellow Pine mining district which is occupied by the Meadow Creek and Cinnabar groups is not simple. The rocks vary from unaltered sedimentary to igneous and can be grouped into two main divisions. The sedimentary rocks consist of limestone, quartzite, schists, argillite, and hornfels, all interbedded. In places some of the schists are so highly altered that it is impossible to identify them as to sedimentary or igneous origin. The igneous or intrusive rocks are granite and various dikes. The principal dikes are dark greenish-gray diabase (lamprophyre) and light flesh-colored slightly porphyritic rhyolite. All of these rocks occur in the Cinnabar and Meadow Creek groups, and the ore deposits appear to be genetically connected with the diabase dikes. The granitic rocks occupy the larger area, and the Meadow Creek and Hennessy veins appear to be confined to them, while the cinnabar veins occur in altered and unaltered limestone.

The granite is light-gray in color and slightly porphyritic. In places it is of even grain and texture; in other places it is coarse-grained and contains many segregations resembling aplite and pegmatite dikes. Further study may prove that there are two or more separate and distinct intrusive granite masses widely separated in age.

Glacial debris and alluvium prevent tracing the contact between the granite and sedimentary rocks, but it appears to be in proximity to the Meadow Creek vein, with a general northerly course parallel to that of the river and the vein.

MEADOW CREEK VEIN

The Meadow Creek vein has been opened by three major entries—Meadow Creek, Monday, and North tunnels (note Fig. 1), between which it has a known length of more than 2½ miles. So far four ore bodies have been

*For a more complete description, see ANTIMONY AND QUICKSILVER DEPOSITS IN THE YELLOW PINE DISTRICT, IDAHO, by F. C. Schrader and C. P. Ross: U. S. Geol. Survey Bull. 780, pp. 137-167.

determined, and the ore in Meadow Creek tunnel has been proved to a vertical depth of 800 feet by mine entries and to a greater depth by diamond drill holes. The vein is a wide shear zone in which the granite is altered and mineralized. Where opened in the Meadow Creek tunnel, a diabase dike, about 6 feet wide, occupies the center of the vein, and the mineralization graduates from solid ore adjacent to the dike, on each side, to a fine dissemination at a distance. The ore shoots vary from 20 to 60 feet in width; no walls are apparent; and assaying is necessary to determine ore from altered rock to ascertain the width of the ore shoots.

MEADOW CREEK ORE

The ore consists of stibnite (antimony sulphide), arsenopyrite (iron-arsenic sulphide), and pyrite (iron sulphide) in a matrix or gangue of quartz and unreplaced country rock. The distribution of the sulphide minerals in the gangue varies from pure massive stibnite to finely disseminated particles. In places the stibnite is free from the pyrites, and again all three are so intimately mixed that they cannot be distinguished by the naked eye.

The stibnite contains a small silver content; the pyrite is barren; and the arsenopyrite carries the principal gold and silver values; also an unidentified silver mineral may be present.

PILOT MILL

The mill is in two units: one a flotation plant; the other, a cyanide plant. The flotation plant will make two products: an antimony concentrate; and an iron concentrate, which contains the gold and silver. Until the contemplated electrolytic antimony plant is constructed, the antimony concentrate will be stored during the winter and shipped for smelting during the summer. The iron concentrate goes to the cyanide plant where the gold and silver is removed and shipped as bullion. The design and flow sheet of both units are based on results obtained in the laboratory. As the laboratory research has not been completed, and as it is expected that the experience gained from operating the mill, together with further testing, will result in many changes in the present flow sheet, a complete and accurate description of the milling methods cannot be given at the present time.

REMARKS

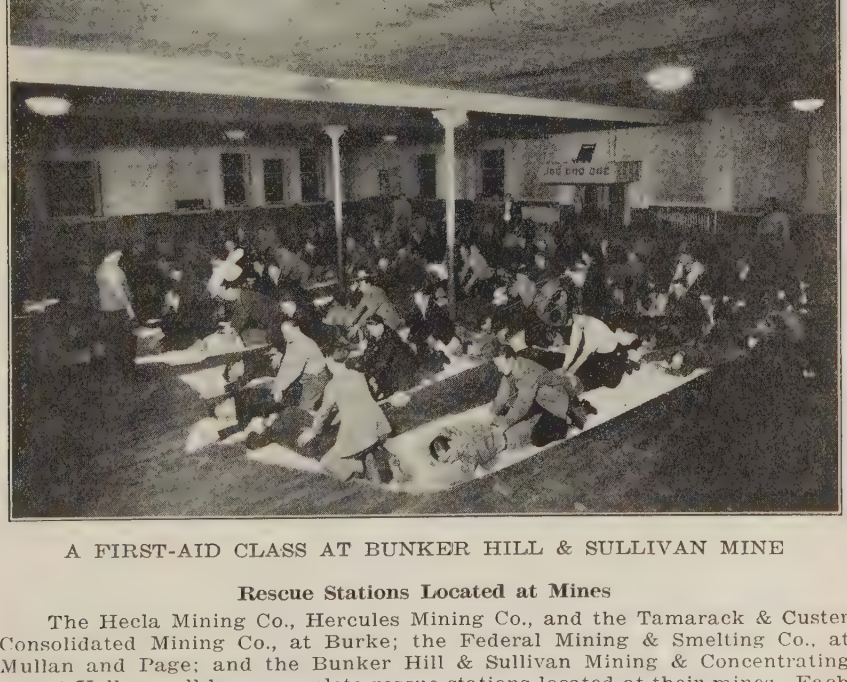
Although the company's ultimate plans are far from being completed, the expenditures to date have had a marked influence on the prosperity and welfare of southern Idaho. A big market for the products of the farmer and home industries and for labor has been created; and the benefit the State has received and will receive cannot be estimated, as such a large enterprise has many ramifications. However, at the close of the year two things had been proved: First, the long number of years and the huge expenditures usually required before a prospect becomes a profitably operating mine; second, that the State is fortunate in having laws which encourage such an undertaking; otherwise, investors could not afford to take the risk.

MINE RESCUE AND FIRST AID IN THE COEUR D'ALENE DISTRICT

By H. B. McDermott, Director Central Mine Rescue Station
Coeur d'Alene Mine Operators Association

In 1923 the principal mine operators in the Coeur d'Alene district, realizing the necessity of mine-rescue equipment and training, established a central mine-rescue station. Since then it has been in operation, working smoothly and at small expense.

The central station is a mine-rescue car, which is maintained in Wallace on a spur track, accessible to both railroads of the district, in order that it may be quickly moved to any point where needed. This car is a large railroad coach rebuilt for mine-rescue purposes. It carries 14 sets of oxygen breathing apparatus, commonly called "helmets"; 12 large storage tanks of oxygen; 1,000 regenerating cans; one power-driven pump; also spare parts, necessary tools, and miscellaneous equipment, including resuscitating apparatus and various gas-testing devices, as well as a complete line of fire-hose fittings, revolving nozzles, spray nozzles, and quick connectors. The car is equipped with living quarters for a small crew and is ready to move at any time.



A FIRST-AID CLASS AT BUNKER HILL & SULLIVAN MINE

Rescue Stations Located at Mines

The Hecla Mining Co., Hercules Mining Co., and the Tamarack & Custer Consolidated Mining Co., at Burke; the Federal Mining & Smelting Co., at Mullan and Page; and the Bunker Hill & Sullivan Mining & Concentrating Co., at Kellogg, all have complete rescue stations located at their mines. Each of these stations has from 8 to 15 sets of breathing apparatus and an ample supply of spare parts, regenerating cans, and oxygen pumps. In the event of

a large mine fire in the district, the equipment from all the mine stations, together with the apparatus from the mine-rescue car, can be concentrated at one place in a very short time; thus making available about 100 sets of apparatus and a large quantity of spare parts.



A View of Paul Breathing Apparatus

Type of Breathing Apparatus

The Paul self-contained breathing apparatus is standardized for use in the Coeur d'Alene district, and all the mine stations and the mine-rescue car are equipped with this type. Standardization is an important factor when men from different mines are called upon to help fight a fire in a strange mine, as they gain confidence upon discovering that the apparatus in use is similar to that which they have been trained to use.

The Paul breathing apparatus weighs about 40 pounds. As the oxygen feed is controlled by automatic valves, which give the wearer the amount of oxygen he requires, it is practically "fool-proof." The valves are so set that the pressure inside the machine is slightly greater than that of the surrounding atmosphere, so that should a leak develop while the machine is in use, there is no danger of the wearer being gassed. This apparatus supplies the wearer with ample oxygen, under average working conditions, for a period of two and one-half hours.

Mine Rescue Equipment

During 1931 all the oxygen breathing apparatus, high-pressure oxygen pumps, oxygen inhalers, gas masks, gas-detecting and gas-sampling apparatus were thoroughly overhauled, and a few accessories, of more efficient type, were added.

New equipment added to each mine-rescue station consists of focussing, vapor-proof flashlights. As these lights are not as heavy as the battery hand lamps, their use makes a decrease in weight, which is always an item to be considered when climbing is necessary. A safety feature added to each rescue station is the "Hard Boiled" hat. This hat is equipped with straps, which will hold the mouthpiece of the apparatus, thus insuring head protection to wearers of apparatus.

First Aid Work

U. S. Bureau of Mines Car No. 9 visits the Coeur d'Alene district for a period of from five weeks to two months each year. During this period, classes are conducted at all the large mines in the district, not only for the miners, but for the general public as well. The course lasts two and one-half hours a night for five nights, and everyone who completes it is given a Government certificate of competency and a First Aid Manual.

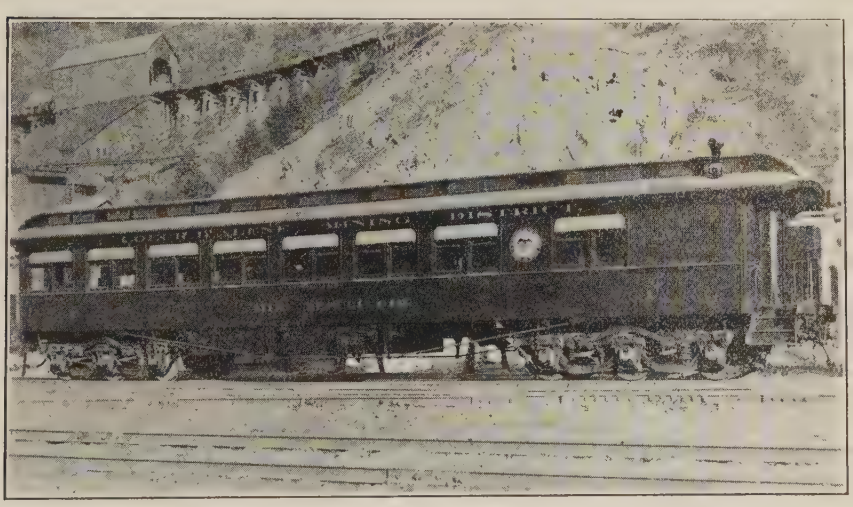
First aid is merely the treatment given a person who has suffered an accident, bridging the time before a doctor can reach the case. The course given by the U. S. Bureau of Mines teaches the kinds of bleeding, signs of their recognition, and method of control; the care and bandaging of wounds; recognition and treatment of physical shock; artificial respiration, the method used to restore breathing after electric shock, gas poisoning, asphyxiation, and drowning; care and treatment of dislocations, fractures, burns, sprains,

and strains; and last, but not least important, transportation of the injured. Anyone who completes the course has a good working knowledge of first aid and will be competent to handle almost any accident that may happen.

During the winter months of 1930-1931, the personnel of the Central Mine Rescue Station, under authority granted by the U. S. Bureau of Mines, conducted first-aid and safety classes at each of the mining towns of the district, namely: Wallace, Mullan, Burke, Page, and Kellogg. Nearly six hundred men attended these first-aid classes, and 90 per cent of them qualified for Government certificates of competency.

The first-aid training has produced gratifying results, such as, a decrease of infection, better treatment of physical shock conditions, and thorough first-aid treatment of wounds and other injuries. Handling and transportation of the injured are complete. The policy of the station is to conduct first-aid and safety classes each season. In conjunction with "class" first-aid, the station conducts "team" first-aid training and hopes later to revive first-aid team exhibitions and contests.

The excellent cooperation of all the mine officials has made possible the success of the above activities.



MINE RESCUE CAR

Miners' Safety Hats and Shoes

"Hard Boiled" or "Protective" hats, light-weight, miners' hats, are fast finding their way into the mines. These hats are in stock at the mine warehouses and are sold to the miners at cost. The station has reports of the saving of severe head injuries and possible fatalities through the wearing of this latest head protection.

Safety shoes, both leather and rubber, are carried in stock in the mine warehouses. These are also sold to the miners at cost. Safety shoes are so constructed that they will withstand great pressure on the toes without injury to the wearer. One safety shoe manufacturer gives, with each pair of shoes, an indemnity bond guaranteeing to pay for injuries to the toes received by anyone while wearing his brand of shoes. The station has reports of the prevention of injuries through the wearing of safety shoes.

ACCIDENTS

The minor accidents listed in the accompanying table, pages 56 and 57, "Classification of Accidents," are taken from the records of the Industrial Accident Board and have been arranged to comply as nearly as possible with the classification made by the U. S. Bureau of Mines. Accidents that did not cause a loss of time of more than seven days are not included, because no compensation is paid. Many of the large companies do not report them, so a complete record is impossible to obtain. Although the U. S. Bureau of Mines and many State officials are listing these minor injuries of less than seven days in their reports, they have all been omitted from the accompanying table.

A comparison of the total accidents in 1931 with those in 1930 shows a decrease of 10 in the number of fatal accidents and a decrease of 110 in the number of minor accidents which involved a loss of time of more than 14 days. A comparison of the total number of men employed with the total number of accidents shows the very low accident rate of 0.45 accidents per 1,000 man-shifts. This low rate can be attributed to a great extent to the safety organizations, to the first-aid training given the men by all the larger mining companies, to the sustained effort and interest maintained in safety work by those in charge, further augmented by close supervision, and to the low pay roll which was in effect throughout the year. The results of safety educational work are particularly apparent in the small number of accidents in the large mines of Shoshone County, which employ more than 80 per cent of the total number of men working in the mines of the State. A comparison of the number of accidents with the number of men employed shows that the accident rate is in direct proportion to the efforts given to maintaining safety provisions. That this effort is successful in establishing a low accident rate is shown by a continued decrease in accidents over that of previous years. The accident rate per 1,000 days per man during 1931 of three of the largest companies was as follows:

Bunker Hill & Sullivan Mining & Concentrating Co.	0.21
Hecla Mining Co.	0.54
Federal Mining & Smelting Co.	0.62

Out of a total of 468 accidents during the year, 8 were fatal. Of these fatalities, 3 could have been prevented had the victims been more careful; company responsibility could be placed for 1; and the other 4 were unavoidable. Out of the 442 minor accidents listed, 167 did not compel a loss of time to exceed 14 days, and 275 incapacitated the injured person for more than 14 days. The 18 additional accidents resulted in permanent injuries.

The loss of both legs or arms, one leg and one arm, total loss of eyesight, paralysis or other condition permanently incapacitating a workman from doing any work in a gainful occupation, is classified as "Permanent Total Disability." The loss of one foot, leg, hand, eye, one or more fingers, one or more toes, any dislocation where ligaments are severed, or other injury known in surgery to be a permanent partial disability, is classified as "Permanent Partial Disability."

Notes on Fatal Accidents

May 7, Federal Mining & Smelting Co., Page mine; Shoshone County. Jens J. Fredberg, age 40, married, timberman. Deceased and his partner had built a "V"-shaped trough or slide to transfer waste rock across a two-compartment inclined raise. As the trough had a drop of about one foot in five, it was necessary to use water to assist in moving the rock. The rock had hung up in the chute from which it was being drawn and on being loosened by the aid of water it came down with a surge. Deceased was precipitated over the trough and fell about 100 feet down the raise to the level below.

May 26, Hope Mining Co.; Bonner County. Charles Q. Rice, age 41, married, electrician. Deceased was on a ladder, about 10 feet above the ground, engaged in connecting the electric power line to that in the mill. One connection had been completed. He then turned on the power, to which his helper objected, and continued making the other connections. A short circuit occurred and he was instantly killed.

September 11, Bunker Hill & Sullivan Mining & Concentrating Co., Hall-Interstate mine; Valley County. Ben W. Storey, age 49, married, blacksmith. Curtailed operations had necessitated an exchange of work and on the day of the accident the deceased was acting as motorman. He delivered a three-car train of waste to a trestle on the dump and commenced dumping it. Two cars had been dumped; while the third, which was on the far end of the trestle, was being dumped, the rock hung up in the car, the car sprang back, and the force of the rebound jerked the motor and cars from the track. Evidently anticipating the result of the rebound, the deceased jumped to the dump, about 10 feet, where he was caught and crushed by the falling cars.

October 2, Sunshine Mining Co.; Shoshone County. L. W. Kennicott, age 31, married, miner. Deceased was descending a ladder in a raise, which was being driven between the 700 and 500 foot levels. When he reached a point about 30 feet above the 700-foot level he fell to the level, evidently having been asphyxiated by foul air in the raise.

November 2, Federal Mining & Smelting Co., Morning mine; Shoshone County. Emil Salmi, age 44, married, shift boss. Deceased loaded some lagging on the cage at the 3,050-foot level and then signaled for the cage to stop at the 1,250-foot level. On traveling between these two levels, deceased was thrown from the cage and fell to the 3,650 station. He had failed to close the doors of the cage; the loose lagging evidently fell, caught on a wall plate and precipitated him to his death.

November 14, Yellow Pine Co.; Valley County. Sam Hancock, age 60, married, miner. Deceased, G. W. Hope, and John Smalley were engaged in driving a tunnel, which had been extended about 200 feet. Smalley went to the surface; upon his return he discovered that the roof of the tunnel had caved in, crushed the timber, and killed Hancock and Hope.

November 14, Yellow Pine Co.; Valley County. G. W. Hope, age 48, married, mine foreman. Deceased, Sam Hancock, and John Smalley were engaged in driving a tunnel, which had been extended about 200 feet. Smalley went to the surface; upon his return he discovered that the roof of the tunnel had caved in, crushed the timber, and killed Hope and Hancock.

December 30, Bunker Hill & Sullivan Mining & Concentrating Co.; Shoshone County. Leroy A. Wheeler, age 51, married, mill roustabout. Deceased was on a runway in the flotation section of the mill engaged in scaling pipe preparatory to painting it. Evidently he had placed one foot on a launder and on reaching to the pipe, he slipped and fell about 15 feet. The fall resulted in his death.

CLASSIFICATION OF ACCIDENTS

MINE	Killed	Seriously Injured Time Lost More Than 14 Days: Permanent total disability	Seriously Injured Time Lost More Than 14 Days: Permanent partial disability	Slightly Injured: Time lost over 14 days	Slightly Injured: Time lost 1 to 14 days
UNDERGROUND					
1. Fall of rock or ore from roof or wall	2		1	68	35
2. Rock or ore while loading at working face or chute			1	10	9
3. Timber			1	5	5
4. Explosives					3
5. Haulage, Cars or Motors				14	8
6. Persons falling down chute, winze, raise or stope	2			13	8
7. Drilling (by machine or hand drills)			2	10	5
8. Hand tools			2	10	11
9. Machinery (other than motors or drills)				2	2
10. Flying or falling objects			4	22	18
11. Fall of persons				16	6
12. Lifting				12	4
13. Nails and splinters			1	14	8
14. Electricity					1
15. Other causes				4	1
Total	4		12	200	124

MILL	Killed	Seriously Injured Time Lost More Than 14 Days: Permanent total disability	Seriously Injured Time Lost More Than 14 Days: Permanent partial disability	Slightly Injured: Time lost over 14 days	Slightly Injured: Time lost 1 to 14 days
MILLING ACCIDENTS					
1. Haulage (cars and locomotives)					
2. Railway cars or motors					
3. Crushers, rolls or stamps					
4. Tables, jigs, etc.					
5. Other machinery			1	1	
6. Falls of persons	1			2	
7. Falls in ore bins					
8. Falling objects (rocks, timbers)				3	4
9. Scalding (steam, water or acid)					2
10. Lifting				2	
11. Hand tools, axes, bars, etc.				1	1
12. Nails, splinters, etc.					
13. Electricity	1				
14. Other causes					
Total	2		1	9	7

SHAFT ACCIDENTS					
15. Falling down shaft					
16. Objects falling down shaft					
17. Breaking of cables			1		
18. Overwinding					
19. Cage, skip, or bucket	1			5	2
20. Other causes			2		
Total	1		3	5	2
SURFACE ACCIDENTS					
Yards, Shops, and Construction					
21. Mine cars or mine locomotives, gravity or aerial trams	1			2	2
22. Flying and falling objects			1	6	12
23. Lifting				4	2
24. Falls of persons				11	7
25. Nails and splinters					3
26. Hand tools, axes, bars, etc.				9	2
27. Falls or run of ore in or from bin					
28. Machinery				5	1
29. Other causes				3	
Total	1		1	40	29
Grand Total	6		16	245	155

SMELTER ACCIDENTS					
15. Haulage (cars, motors, etc.)				2	
16. Machinery					
17. Cranes					
18. Lead fumes					
19. Falls of persons				4	1
20. Flying or falling objects (rocks, timbers, etc.)				4	
21. Hand tools, axes, bars, etc.					
22. Burns from matte, slag or molten metal (pouring or spilling)				1	1
23. Other causes				3	
Total				14	2
AUXILIARY WORKS ACCIDENTS					
Placers, Tramways and Dredges					
24. Falls of persons					1
25. Flying and falling objects				4	1
26. Nails and splinters					
27. Hand tools, axes, bars etc.				1	
28. Lifting					
29. Machinery			1	2	1
30. Handling hot materials					
31. Other causes					
Total			1	7	3
Grand Total	2		2	30	12

MEN EMPLOYED AND WAGES

The year closed with very few of the producing mines in the State in operation. Those operating maintained a payroll equal to that of previous years, although none were on a seven-day producing basis. As a whole, 1931, from a labor standpoint, was one of the worst years ever experienced. There was a surplus of labor throughout the year, and the turnover was exceedingly small, so that the companies were assured a constant working force without the necessity of breaking in new men.

It is practically impossible to obtain complete and accurate statistics of the number of men employed in the mines; a great many are employed by prospectors and small companies which do not maintain continuous work and do not report to the inspector of mines; and the different reports filed by the companies vary as to the number of days. The average payroll reported was 3,500, and 1,000 has been added as an estimate to cover lessees, prospectors, and small companies which did not report; thus giving a total of 4,500 for the year, which is known to be a conservative estimate.

The table below gives the different wage scales that were in force in the State during 1931. Column No. 1 gives the average wage throughout the State for the year, and column No. 2 gives the wage scale in effect in the Coeur d'Alene district from May 16, 1931, to December 31, 1931.

Under an agreement adopted on November 16, 1925, the wages in the Coeur d'Alene district were to be adjusted each month in accordance with a bonus rate based on the selling price of lead in New York. This scale was based on a wage of $3.75 per day for miners when lead is selling under 5½c per pound; the bonus to be added was as follows:

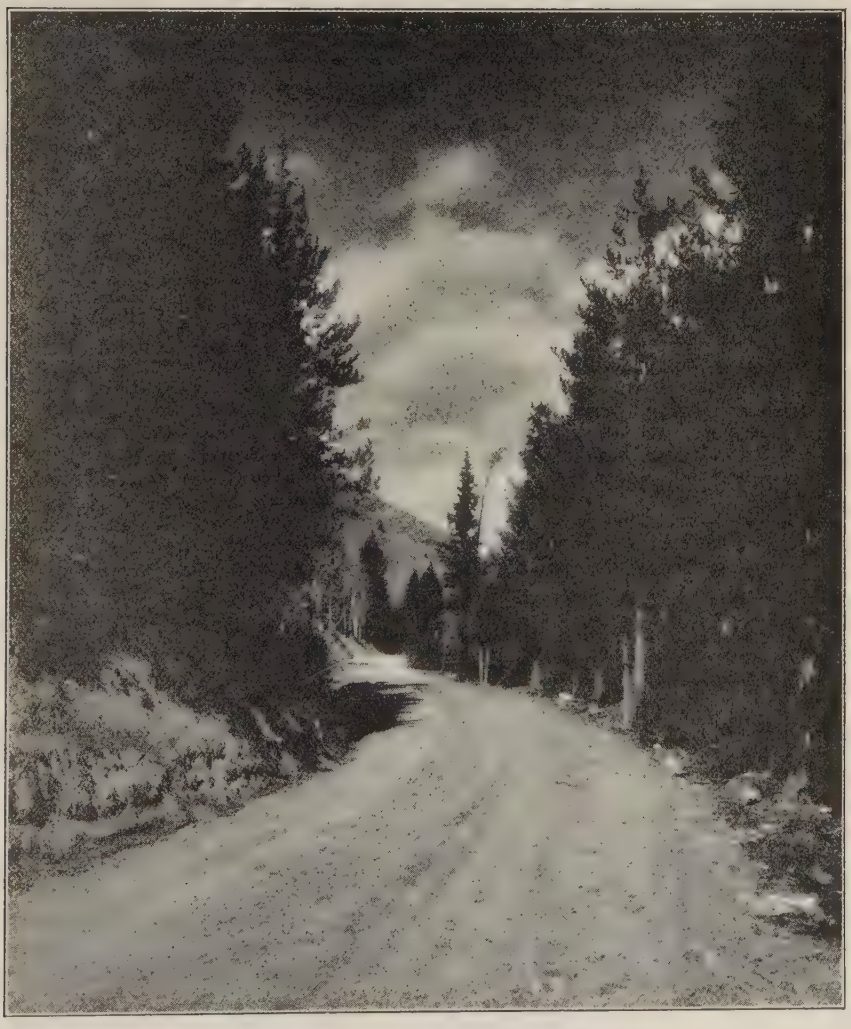
When the price of lead is 5c	and under 6c	$0.25 per day
When the price of lead is 6c	and under 6½c	.50 per day
When the price of lead is 6½c	and under 7c	.75 per day
When the price of lead is 7c	and under 7½c	1.00 per day
When the price of lead is 7½c	and under 8c	1.25 per day
When the price of lead is 8c	and under 8½c	1.50 per day
When the price of lead is 8½c	and under 9c	1.75 per day
When the price of lead is 9c	and under 9½c	2.00 per day
When the price of lead is 9½c	and under 10c	2.25 per day

During 1931 the price of lead declined so rapidly that if the bonus scale had been adhered to wages would have been cut to a point entirely out of proportion to wages in other parts of the State and too low under existing high-living costs, so the signatories to the bonus scale waived their agreement, and on May 16, 1931, wages were reduced to those set forth in column No. 2 below, which were on a basis of lead selling up to 7½ cents per pound or $1.00 per day. The wage scale maintained during the remainder of the year throughout the State is set forth in column No. 1. A few companies operating in remote parts of the State maintained a wage scale 25 cents higher than the scale set forth in column No. 1.

	No. 1	No. 2
Miners	$5.00	$5.00
Shovelers	4.50	4.50
Timbermen	5.50	5.50
Timber helpers	4.75	4.75
Machinists	6.00	5.75
Machinists' helpers	5.00	5.00
Carmen	4.50	4.50
Motormen	5.00	5.25
Trainmen	4.50	4.50
Main hoistmen	5.75	5.75
Small hoistmen	5.25	5.25
Nippermen	4.50	4.50
Pump and compressormen	5.00	5.50
Surface laborers	4.50	4.25
Ore sorters	4.25	4.25
Cagers	5.25	5.50
Pipe and trackmen	5.25	5.25

Shift bosses	6.00	6.25
Blacksmiths	6.00	6.00
Blacksmith helpers	5.00	4.75
Electricians	5.50	5.50
Millmen	5.00	5.00
Mill repairmen	6.00	5.50
Mill swampers	4.50	4.00
Carpenters	6.00	6.00

The cost of board and room at company boarding houses, hotels, and at private homes averages from $1.25 to $1.50 per day. Many companies have built and are maintaining houses which are rented to their married employees, and some of the largest companies assist their employees in the construction of homes.



A Forest Service Highway, Little Smoky Mining District, Camas County

MINERAL RESOURCES

Idaho contains an area of 83,888 square miles; its maximum width at the southern end is approximately 312 miles, and its length from the southwest corner to the northwest corner is about 486 miles. The State is divided into 44 counties, 36 of which can be classed as having minerals of commercial importance. In 22 of these counties there are producing mines.

In the past practically all mining has been confined to the five principal metals: Lead, silver, gold, zinc, and copper, which are widely distributed throughout the State (see map, page 9.) In addition to these a great variety of uncommon metals and minerals, many of which have been successfully exploited during the past few years, occur in sufficient extent to be of commercial importance.

This great diversity of mineral wealth, consisting of practically all the metals used in modern arts and many of the uncommon minerals for which a demand is continually being developed, establishes Idaho as one of the principal mining States in the Union. It also makes mining the second most important industry in the State.

The importance of Idaho's mineral wealth is well shown by statistical facts based on the production and exploitation of the five principal metals, lead, silver, gold, zinc, and copper:

Total metal production since 1860, over $1,100,000,000.
Average annual production for past 28 years, over $26,000,000.
Average annual mine payroll, over $9,000,000.
Average annual mine dividends from lead-silver mines, over $5,000,000.
Average annual expenditure on new mine development and prospecting, over $4,000,000.

METALS

Lead

Lead is the most important metal found in Idaho, and excepting in the years 1926 and 1927, this State has always ranked second in the United States in the production of lead, Missouri ranking first, and Utah third. During the two years aforementioned Utah held second place, although the production of the two States was almost on a parity. Idaho produces over one-fourth of the total amount of lead mined in the United States. Lead is widely distributed throughout the State, and occurs as galena (lead sulphide) and as the oxide and carbonate; silver is always associated with it, and occasionally zinc, gold, and copper.

The largest lead mine in the United States is in Idaho—the Bunker Hill & Sullivan M. & C. Co. at Kellogg. This is one of the few companies in the world that mine, mill, smelt, refine, manufacture, and market lead and lead products. Other important lead-producing mines in Idaho and their respective ranks in the United States are: Federal Mining and Smelting Co., third; Hecla Mining Co., fifth.

The principal lead mines in the State are those in Shoshone County, which produce 85 per cent of the State total. Blaine, Boundary, Bonner, Custer, Lemhi, Boise, Butte, Valley, and Camas counties are the other important lead-producing counties.

Silver

Idaho ranks third in the United States in the production of silver, the first three States in order of rank being Utah, Montana, Idaho. Idaho produces one-eighth of all the silver mined in the United States.

Silver is found associated with all of the lead, copper, zinc, and antimony ores of the State, and occasionally in associations in which it is the principal metal. It is one of the most widely distributed metals, and its occurrence is such that the mining of silver can hardly be separated from that of the other metals. Accordingly, the production of silver fluctuates with and parallels that of lead.

Shoshone County produces more silver than any other county in the State; the other important silver-producing counties are: Lemhi, Custer, Bonner, Boundary, Blaine, Butte, Owyhee, Boise, Camas, Valley, Washington, Idaho, Elmore, Adams, and Cassia.

Zinc

Zinc is found associated with lead in many of the lead mines of Idaho, although there are numerous deposits in Shoshone and Blaine counties in which it is the principal metal. In Shoshone County it occurs as sphalerite (zinc sulphide), and in Blaine County as sphalerite and smithsonite (zinc carbonate).

Selective flotation revolutionized the art of ore-dressing, and it is now possible to treat mixed lead-zinc ores which could not be separated by gravity concentration methods. As a consequence, the zinc content which was formerly lost is recovered and many mines which at one time could not be profitably operated are now being reopened in Blaine, Camas, and Shoshone counties. As a result of these modern ore-dressing methods, Idaho is one of the largest zinc-producing States in the Union.

The principal zinc-producing counties, in the order of prominence, are Shoshone, Blaine, Camas, Custer, Lemhi, Bonner, Boise, Boundary, and Butte.

Gold

Gold is found in practically all of the counties in the State, and is one of the most widely distributed metals. Prior to the World War Idaho was an important producer of this metal, but during the war period many of the mines of which the principal product was gold were closed down and have not been reopened, so at the present time the State ranks only tenth in the United States in gold production.

Gold occurs associated with almost all the lead, zinc, copper, and silver ores, and very commonly in a free-milling condition. A large amount of gold is obtained from placer deposits; at one time Idaho was among the principal placer-mining States in the Union. The greater part of the placer ground which could be hydraulicked has been exhausted, but many acres suitable for dredging still remain, and the gold lode-deposits offer greater opportunities than those of almost any other State.

The most important counties in which gold occurs are Boise, Idaho, Lemhi, Owyhee, Elmore, Shoshone, Custer, Blaine, Camas, Clearwater, Gem, and Valley.

Copper

Idaho is an important producer of copper and holds a high position among the ranking States of the Union. The many copper mines which are now under development and the numerous discovered but undeveloped veins indicate that the production of this metal will be greatly increased; the State will then be elevated to a rank higher than that of tenth, which it now holds.

Gold and silver are found associated with practically all the copper ores; and in some counties, notably in Custer and Bonner, the silver content is more valuable than the copper.

Custer, Lemhi, and Shoshone are the most important copper-producing counties; Adams and Washington counties may eventually become large producers. Bonner, Idaho, Blaine, Butte, Clearwater, Latah, and Lewis counties also contain copper mines of importance.

Antimony

Deposits of antimony, principally the sulphide (stibnite), are found in Shoshone, Valley, Boise, Blaine, Idaho, Owyhee, and Custer counties. Those in the Coeur d'Alene district of Shoshone County have been extensively developed; a number of mills for the concentration of the ore have been constructed; and in the past a large tonnage has been produced and marketed. The deposits in Blaine, Valley, and Owyhee counties contain a high-grade ore, most of which can be shipped without preliminary treatment. During the war, when antimony commanded a high price, a large tonnage was produced and shipped from the mines in Valley County.

Antimony occurs as an accessory mineral in many lead-zinc ore bodies, also in stibnite-bearing veins in which it is the dominating metallic mineral. All of the antimony ores carry more or less silver, and many of them, particularly those of Blaine County, are more valuable for this mineral than for the antimony.

In all the above-mentioned counties there are many deposits containing a large available tonnage of commercial ore, which can be readily marketed when freight and market conditions will permit it to be produced at a profit.

Arsenic

Deposits of arsenic, principally the sulphide (arsenopyrite), occur in Blaine, Gem, and Boise counties. These deposits, although not fully developed, show a large available tonnage containing sufficient arsenic to be valuable for this metal, which can be readily marketed when the demand for it will permit profitable production. Arsenic occurs also as arsenopyrite in Ada, Elmore, and Kootenai counties, but the deposits in these counties have not been sufficiently developed to ascertain the possible tonnage.

Bismuth

Bismuth, occurring as a sulphide, has been found in Blaine County unassociated with other metals, as well as in association with many of the lead ores. It also occurs in the gold ores of the Gold Hill, Belshazzar, and Buckskin mines, Boise County, in association with lead, probably galenobismuthite or similar lead-bismuth minerals.

Cobalt

Cobalt is found in Lemhi County. During the World War, when this metal commanded a high price, the deposits were actively developed; a small mill was constructed, and concentrate with a high cobalt content was produced. These deposits are described by Frank L. Hess under "Cobalt" in U. S. Geological Survey: Mineral Resources of the United States, part I, 1917.

This metal is reported to have been found also in Kootenai and Latah counties.

Manganese

Manganese occurs in Bannock, Lemhi, Owyhee, Shoshone, Butte, and Washington counties. Some of the deposits are high in manganese content and others in manganese-iron. A substantial tonnage has been produced and marketed from the mines in Bannock County, and the deposits in Lemhi County constitute a large potential resource.

Describing the Bannock County deposits in "Manganese and Manganiferous Ores in 1926," U. S. Bureau of Mines: Mineral Resources of the United States, J. W. Furness said: "D. F. Hewett, of the United States Geological Survey, reports that the Idaho Manganese Co. has been exploiting since April, 1924, a manganese deposit on the McGregor ranch, 1 mile east of Cleveland, Bannock County, Idaho. The shipments in 1926 were 830 tons and during 1927 will probably be larger. The ore consists of nodules of the several oxides embedded in brown wad and forms a distinct bed in Pleistocene (Ice Age) sediments. In the explored area the bed will probably yield 3,000 tons per acre; the extent of the bed is assuredly several acres and may be more. Most of the shipments range from 42 to 48 per cent manganese. The ore is shipped by auto truck to Grace, 14 miles north, thence by rail to the Columbia Steel Co., Ironton, Utah."

Molybdenum

Molybdenum, occurring as the sulphide disseminated in intrusive rocks and as a molybdate of lead in fissure veins in limestone, is found in Elmore, Boundary, Custer, Idaho, and Lemhi counties.

Nickel

Nickel is found in Lemhi County. During the late war considerable development work was done on the veins in which it occurs. These deposits are described by Frank L. Hess under "Cobalt" in U. S. Geological Survey: Mineral Resources of the United States, Part I, 1917.

Quicksilver

Cinnabar, the sulphide of mercury, has been found in the placer deposits of Custer and Valley counties and in lode-deposits in Valley, Blaine, and Cassia counties. The quicksilver lode-deposits of Valley County are being extensively developed, and a little mercury has been produced from an experimental plant. The other deposits have never been opened.

Tin

Tin has been found in the placer mines in the Gravel Range mining district of Lemhi County. Its occurrence is described by Clyde P. Ross in Idaho Bureau of Mines and Geology Pamphlet No. 25, "Ore Deposits in Tertiary Lava in the Salmon River Mountains, Idaho." Mr. Ross includes in this a list of all published references relating to his subject.

Tungsten

Tungsten, in the form of scheelite and wolframite, occurs in commercial value in Shoshone, Idaho, Camas, Lemhi, Boundary, Bonner, Blaine, Valley, and Butte counties. The deposits in Shoshone County have been extensively exploited, and during the war period of high prices a large tonnage was produced and marketed; at the same time a small amount was obtained from Boundary and Camas counties. Sufficient work has been done on all these deposits to indicate that tungsten is one of the State's substantial mineral resources.

NON-METALLIC MINERALS

Asbestos

Commercial asbestos occurs in two forms: The chrysotile variety, which is adapted to spinning; and the amphibole variety, which is not adapted to spinning but is used extensively in shingles, insulation materials, paper stock, cements, and paints.

Amphibole asbestos occurs extensively in Idaho County, near Kamiah. There is a large demonstrated tonnage, but the demand is small, on account of markets and freight rates. Deposits containing chrysotile have been reported in Fremont, Teton, and Idaho counties.

Barytes

Barytes (barium sulphate) is used in the rubber, paper, linoleum, ink, and paint manufacturing industries. Its principal use is in the manufacture of lithopone, a white pigment consisting of about 70 per cent barium sulphate and 30 per cent zinc sulphide.

Some of the largest deposits of high-grade barytes found west of the Mississippi River occur in the Deer Creek and Muldoon sections of Blaine County. The deposits on Deer Creek vary in width from 50 to 100 feet, and one outcrop is over 1000 feet long; this was described by Arthur Lakes in the Mining Reporter for August 16, 1906, under the title, "A New and Large Deposit of Barite in Idaho," as follows:

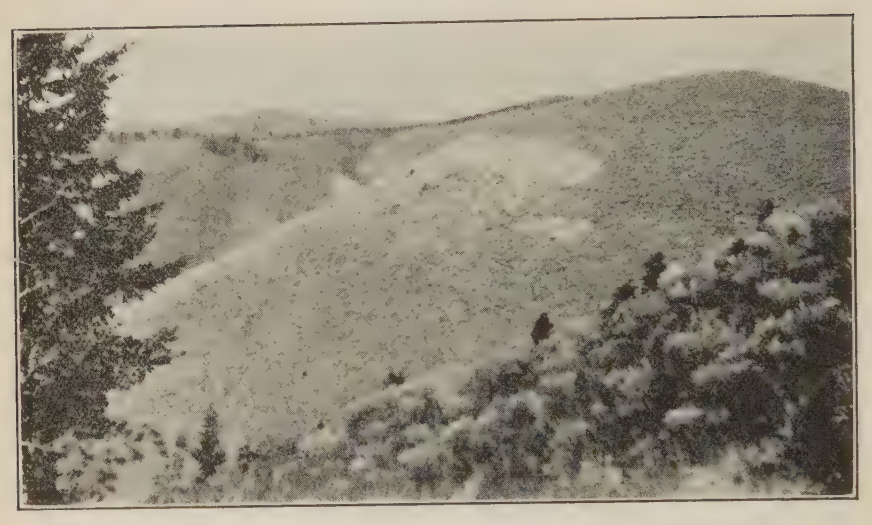
"In visiting some mining prospects in the Wood River region of Idaho I came across an unusually large massive deposit of the mineral called barite.

"It forms a steep cliff on the crest of a hill and descends as a vein down the gulch. The thickness is apparently from 50 to over 100 feet. Its course passes very near some silver-lead prospects and not far from it on one side is a huge outcrop of iron oxide.

"The material is of a dull white color and resembles at a distance a vein of calcspar or a vein of white feldspar and quartz. It has not been opened up but there must be thousands of tons in sight."

Bentonite

Bentonite, a plastic clay, is valuable for its high absorbent qualities; it has the capacity for absorbing three times its weight or about seven times its volume of water. It is used in beauty clays; for refining oil; as a filler in paper and soaps; as an adulterant in drugs and candies; and as a packing for horses' hoofs.



Deer Creek Barytes Deposit, Viewed from a Distance of 2000 Feet

Bentonite occurs in commercial extent in Clark and Custer counties, and it has been reported to be found in Cassia, Owyhee, and Oneida counties. The deposits in Clark and Custer counties are described by V. R. D. Kirkham in Pamphlet No. 19 Idaho Bureau of Mines and Geology, "A Geologic Reconnaissance of Clark and Jefferson and Parts of Butte, Custer, Fremont, Lemhi, and Madison counties, Idaho": "A commercial grade of bentonite, a peculiar type of clay with extraordinary absorptive qualities, was found at two localities in the area. One is near the railway in the vicinity of Mackay, the other is more remote and lies west of Dubois."

Beryllium and Beryl

Beryllium, or glucinum, is often listed as a rare element, though it probably is more abundant in the earth's crust than many of the minor metals that are ordinarily considered rather common. * * * Beryllium is very light and exceptionally hard and strong, and many believe that it is destined to share with magnesium and aluminum in the fast-growing demands for light metals to be used in the construction of air craft. It is very light, having about the same specific gravity as magnesium, and is almost as hard as quartz.

The mineral beryl, which seldom contains more than about 5 per cent of the element, is the only recognized ore of beryllium. It is a common accessory in pegmatite veins and is also found in clay slate and mica schist, but hitherto only the gem varieties, including emerald and aquamarine, have been actively sought. In several localities, however, ordinary beryl is produced as a by-product in mining mica and feldspar. * * * A. V. Petar, U. S. Bureau of Mines I. C. 6190.

The occurrence of beryl in the mica deposits of Latah County has been reported.

Building Stone

Sandstone exceptionally adapted to building purposes is found in Ada, Bear Lake, and Cassia counties. One of the principal enterprises in Ada County is that of the Boise Stone Company in quarrying and converting sandstone to building purposes. This enterprise is fully described, with illustrations, in the Twenty-sixth Annual Report of the Mining Industry of Idaho for the Year 1924. The most notable building in Idaho, the State Capitol, is constructed of this stone.

The sandstones in Bear Lake County are described in U. S. Geological Survey Professional Paper No. 152, "Geography, Geology, and Mineral Resources of Part of Southeastern Idaho," by George Rogers Mansfield; pages 336-338.



Close-up View of Deer Creek Barytes Deposit

Clay

"The different kinds of clay have so many uses that it is probably impossible to list them all, but the following rough classification will serve to point out the great variety of products that contain clay: Structural products: Common brick, tile, etc. Refractories: Fire clay brick and special refractories. Pottery: Tableware, kitchenware, sanitary ware, etc." From U. S. Bureau of Mines Information Circular No. 6155, Clay, by Paul M. Tyler. This publication contains complete information on the occurrence, use, methods of testing, classification and preparation of various kinds of clays.

Clay suitable for structural purposes is found in almost every county in the State, the better grades occurring in Benewah, Cassia, Kootenai, Latah, Lewis, Idaho, Power, and Washington counties.

Clay suitable for refractories and pottery is found in Latah County. The refractory clay is high-grade. One deposit is being exploited, and the manufactured articles are in great demand throughout the Pacific Northwest states.

Coal

Bituminous coal of commercial importance occurs in Teton, Bonneville, Fremont, and Clark counties. No attempt has been made to exploit any of the deposits commercially except those of the Teton Coal Company in Horseshoe Basin, Teton County. In discussing the Horseshoe Basin coal in Pamphlet No. 10, Idaho Bureau of Mines and Geology, "The Horseshoe Basin Area of the Teton Coal Field in Southeastern Idaho," George Watkins Evans said:

"The chemical analysis of this coal indicates that the coal in this field is of as good quality as any mined in Utah or Wyoming. The principal question is whether or not this field can produce a sufficient percentage of lump coal to compete with the larger sizes from Utah and Wyoming.

"From the limited information at hand, it is impossible to make a reliable estimate of the minable tonnage in this field. In the first place, we do not know exactly the total area of the coal bearing strata, nor do we know the number of workable coal beds contained within this field. Any tonnage estimate made at this time must be based upon arbitrary figures and the quantity might be either much more or much less than the figures given.

"If we assume that the Horseshoe bed and the Brown Bear bed are two separate and distinct beds and that the Horseshoe bed will contain 9 feet of coal and that this bed can be mined for a distance of one-half mile on the

dip, and that the bed will continue of fairly uniform character for a distance of 2 miles along the strike, there would be within the Horseshoe bed approximately 5,000,000 tons of coal, provided it will average 6 feet of minable coal and if we allow 1300 tons per foot acre. The Brown Bear bed has an average thickness of about 4 feet and on the same basis would contain a little over 3,000,000 tons of coal. The Boise bed, allowing an average thickness of 3½ feet of minable coal, contains nearly 3,000,000 tons—in all approximately 11,000,000 tons of coal.

"It is not improbable that with future investigations it will be found that the total tonnage of coal in this field is very much greater than the amount of tons suggested. On the other hand, it might be found that the coal contained within these beds is very friable and will not produce any considerable quantity of the larger sizes, and furthermore, it is probable that the market tributary to this field will be so exacting that only the larger sizes can be successfully marketed."

The Teton Coal Company has recently completed a 3600-foot crosscut with a 600-foot connecting raise to the surface, and a tipple for grading the coal. The tunnel intersected three coal beds, two of which were not included in the above estimate; as yet the tunnel has not been completed to the Horseshoe and Boise beds, so it appears that the total tonnage, when this field is fully developed, may be in excess of the estimate.

Lignite is found in Cassia, Boise, Owyhee, Washington, Idaho, Lemhi, and Clearwater counties.

Diatomaceous Earth

Diatomaceous earth is more commonly known as infusorial earth, and is sometimes referred to by its German name of kieselguhr. It is composed of the siliceous remains of minute aquatic plants known as diatoms, which are of such proportions that they must be identified chiefly by the aid of the microscope.

The principal uses of diatomaceous earth are: Sawed brick for refractory and insulation purposes; filter material at sugar factories; light-weight filler in concrete; in polishing powders; absorbent in dynamite, and in thermal insulator compounds.

Extensive beds of this mineral, in which it can be measured by the acre, are found in Owyhee, Elmore, Camas, Payette, Washington, and Idaho counties. A small tonnage has been obtained from Elmore County for use in Idaho sugar factories.

Feldspar

Common feldspars are crystalline compounds of silica, alumina, and one or more of the bases: potash, soda, and lime. There are two principal classes of feldspar—the one including the potash and potash-soda varieties; the other including the soda, soda-lime, and lime varieties. Pure potash feldspars are orthoclase and microcline. The principal use of feldspar is in the manufacture of pottery, chinaware, porcelain, enamel-ware, and enamel brick and tile.

Deposits of high-grade feldspar, occurring as orthoclase, are found in Latah and Adams counties.

Garnet

Garnet is a common accessory mineral in a large variety of rocks, occurring abundantly in contact metamorphic zones and in metamorphosed crystalline limestones. Deposits of garnet possessing the necessary qualifications for ornamental or industrial use and so situated with regard to transportation and markets that they can be exploited commercially are relatively small and occur in only a few areas throughout the United States.

The principal uses of garnet are: As settings in jewelry; jewel bearings in watches; and as an abrasive. Abrasive garnet is utilized either in the form of a manufactured paper similar to sand-paper, or as loose grain or powder for grinding and polishing.

Extensive deposits of garnet adapted to abrasive purposes occur in Adams, Lemhi, Custer, and Cassia counties.

Graphite

Graphite is a soft, black, greasy form of carbon, sometimes referred to in trade as "plumbago" and "black lead." It occurs in nature in two forms, crystalline and amorphous, each having its own peculiar uses.

The physical properties of graphite—infusibility, chemical inertness, high conductivity, extreme softness, and low specific gravity—fit it for a large number of uses: The manufacture of crucibles and other refractory products; lubricants; "lead" pencils; paints; stove polish; foundry facings; and various types of electrical appliances.

Graphite of commercial importance is found in Blaine County, but, owing to the fact that at the ordinary price of graphite it is possible to mine only the most favorably situated deposits, the known deposits in Idaho have never received much attention.

Gypsum

Gypsum is a natural hydrated sulphate of lime. It is a soft, white, chalk-like material, found widely distributed in single crystals and in thick beds. The natural product is generally very pure.

The principal uses of gypsum are as structural material—wall plaster, gypsum boards, blocks and tile—and as an ingredient in Portland cement and plaster of Paris.

Extensive deposits of high-grade gypsum are found in Lemhi, Bear Lake, and Washington counties. These deposits have never been developed, as the low price of the crude product limits production to those States located near the centers of population.

Limestone

Limestone is mined in Bannock, Butte, Boise, Clearwater, Teton, and Bonner counties; Blaine and Bear Lake counties also contain deposits of importance. The limestone mined in Bonner County is shipped to Spokane, Washington, where it is manufactured into Portland cement; the limestone mined in Butte and Teton counties is shipped to the sugar factories of Idaho and Utah, where it is used in the refining of sugar; the limestone mined in Bannock County is manufactured into cement, the plant being located adjacent to the quarry; the limestone mined in Boise and Clearwater counties is sold to the agricultural and poultry industries.

There are unlimited deposits which are suitable to the foregoing industries.

Marble

Marble is dense crystalline calcium carbonate, formed from limestone by the pressure of overlying sediments and the action of underground water. The value depends on the color, which may be white, gray, red, black, or veined, and the grain and structure. Its principal use is for building and monumental purposes.

Marble suitable to commercial purposes occurs in Nez Perce, Butte, and Cassia counties. The deposits in Nez Perce and Butte counties have been slightly exploited.

Mica

The principal physical properties which give value to mica are: Its cleavage, transparency, resistance to decomposition, and non-conduction of electricity and heat. The important uses of mica are: Short mica, in the electrical industries and as glazing for stoves, screens, goggles, and lantern projection; ground mica, in fancy paints, wallpaper, tiles, concrete, rubber goods, roofing materials, lubricants, and insulating compounds.

"Mica deposits of probable value have been found in about half the States of the United States. The principal producing States have been North Carolina, New Hampshire, South Dakota, Idaho, New Mexico, Colorado, Virginia, South Carolina, Alabama, and Georgia."—Schaller, W. T., Mica: U. S. Geological Survey Mineral Resources, pt. 2, p. 280; 1915. The production which gave Idaho this prominent rank was from the mica mines in Latah County.

Deposits of commercial importance occur in Adams and Idaho counties also, although they have never been prospected or developed in proportion to the possibilities which they offer.

Mineral Waters

Mineral springs of various types occur at a great many places throughout the State, the principal types being calcareous, chalybeate, sulphurated, and saline. The temperatures of the different types vary from "cold" to "hot," with some of the latter exceeding the boiling point. Hot springs are the more numerous, and at many of them sanitariums and bathing resorts have been erected.

The chalybeate springs of Caribou County are particularly efficacious from a therapeutic standpoint, although they have never been exploited.

Monazite

The mineral monazite consists chiefly of the phosphate of cerium and variable amounts of thoria, the value depending primarily upon the thoria content. It is a resinous golden-yellow mineral occurring as a placer sand in practically all of the gold placer mines in the State; the quantity varies, and in some of the deposits it is not sufficient to be of commercial importance. The placer deposits of Ada, Idaho, Lemhi, and Owyhee counties contain an appreciable amount of this mineral, and those of Boise and Clearwater counties contain sufficient to be of commercial importance.

The principal use of thorium is in the manufacture of incandescent mantles for gas lighting. Practically all of the monazite used in the United States is imported from Brazil and India.

Nitrates

The occurrence of nitrate in Camas, Elmore, and Owyhee counties has been reported.

Oil and Gas

The same formations which are oil-producing in Wyoming are present in structures highly favorable to the accumulation of oil and gas in Caribou, Bonneville, Teton, Bear Lake, and Bingham counties. A small amount of drilling has been done in Caribou and Teton counties, but the wells were never completed to a sufficient depth to determine the possibilities for the occurrence of oil.

Gas has been developed in Payette and Washington counties.

Phosphate Rock

The greatest potential mineral resource in Idaho is the immense phosphate rock deposits in Bear Lake, Caribou, Bannock, Bingham, and Bonneville counties. Conservative estimates by members of the U. S. Geological Survey accredit Idaho with over 85 per cent of the total phosphate resources of the United States in 268,299 acres out of a total of 396,612 acres which have been withdrawn from public entry. These deposits are fully described with maps, illustrations and analyses by G. R. Mansfield in U. S. Geological Survey Professional Paper No. 152, "Geography, Geology, and Mineral Resources of Part of Southeastern Idaho," from which the following is quoted:

"In Utah, Idaho, Wyoming, and Montana the great bulk of the phosphate rock is on public land, though some has passed into private ownership. The public lands are withdrawn from entry pending their examination and classification. No estimates of the acreage of phosphate land in private ownership are available, but the acreage of the outstanding withdrawals of public land in the States named is shown in Table 38.

TABLE 38—**Outstanding phosphate withdrawals, July 31, 1927**

	Acres
Utah	301,945
Idaho	**396,612**
Wyoming	996,539
Montana	279,944
Total	1,966,390

"In addition to the land embraced in the outstanding phosphate withdrawals, 268,299 acres in Idaho, 25,293 acres in Wyoming, 3,833 acres in Montana, and 160 acres in Utah—297,585 acres in all—have been examined in detail and formally classified as phosphate land. * * *

"Under the act of July 17, 1914, agricultural entries may be made upon withdrawn phosphate lands, but the mineral rights are reserved to the United States."

TABLE 74a—Estimate of phosphate rock in the United States available December 31, 1925, in long tons

FIELD	Estimated quantity available	FIELD	Estimated quantity available
Eastern field:		Western field:	
Arkansas	20,000,000	**Idaho**	**4,997,855,000**
Florida	291,000,000	Montana	391,323,000
Kentucky	878,000	Utah	326,745,000
South Carolina	8,788,000	Wyoming	115,754,000
Tennessee	83,500,000		5,831,677,000
	404,166,000	Less approximate quantity mined since 1906	350,000
			5,831,327,000
			404,166,000
			6,235,493,000

Pyrite

Pyrite of commercial importance is found in Washington County. The development work which has been done on these deposits indicates an immense available tonnage.

Rutile

The occurrence of rutile in Clearwater County has been reported. Rutile, the natural titanium oxide, is used in paints; arc-light electrodes; dyes; and in the manufacture of leather.

Salt

The pioneers evaporated the brine from the salt springs of Caribou County, and this salt was transported to all of the northwestern States before the building of the railroad. The salt obtained from these springs is above the average of the commercial salts of the United States in purity and compares favorably with some of the best salt produced. The salt springs and deposits are described by W. C. Phalen, who estimates 5,000,000 tons in sight, in U. S. Geological Survey Bulletin 669, "Salt Resources of the United States":

"Although the salt bodies or old alkali flats are thus meager in extent, especially in comparison with the other prominent salt-producing areas of the United States, the conservative estimate of 5,000,000 tons for the Crow Creek rock-salt body and the possibility of a larger salt body near the Tygee and Stump Creek forks indicate that the amount of salt apparently in sight in some of the present areas would be sufficient (if proper railroad connections existed) to yield returns on large workings for a long time. It also appears quite probable that all the areas, including the smaller brine springs, contain sufficient salt to return the sums that may be advisedly invested in their development."

Sulphur

Sulphur occurring in extensive deposits and as sulphur springs is found in Caribou County. During the World War a little attempt was made toward the commercial development of these deposits.

Talc

Talc suitable to the electrical and powdered-talc industries occurs in Idaho County in sufficient extent to be of commercial importance.

ADA COUNTY

Ada is one of the southwestern counties, adjoining and lying north and east of Owyhee and Canyon counties, and south of Boise County. It contains 1,154 square miles and was accredited with a population of 37,925 in the 1930 census. Boise, the largest city in the State, is the State capital and county seat. The county is noted for its excellent irrigated farms, and its livestock, farming, and fruit-raising industries.

The State highway, Oregon Trail, extending from the southeast corner of the county to Boise, thence west to Nampa, and the excellent county highways and roads, give this county some of the best roads in the State as well as easy access to the mineralized areas.

Ada is not recognized as a mining county, yet its small mountainous area was once the scene of many active mining operations; and Boise was established as the principal distributing point for miners' supplies when the rich placer diggings of Boise County and adjacent areas were worked in the early days.

The early day mining was based on free gold operations and, as the sulphide zone was encountered at a shallow depth, the mines were soon closed and have remained dormant for many years. The principal ores are lead and zinc, carrying high values in silver and gold, occurring in fissure veins and as replacement deposits in granite. The ore occurrences are well defined and offer good opportunities to prospectors and small operators in search for these metals.

The chief mineral resources are building stone, gold, lead, silver, zinc, and arsenic. Building stone and its accompanying enterprise were fully described in the Twenty-sixth Annual Report, for the year 1924.

1931 Activities

Other than the work done by the Adelmann Bros. at the Blue Grouse group, the mines and prospects in this county witnessed but little increase in attention and development work over that of the previous year. The Boise Stone Co. was idle the greater part of the year and quarried but a small quantity of stone.

Although there was much publicity to further the sale of stock by those attempting to develop oil and gas, no work of any consequence was done.

BERGDAHL OIL CO.

Office: 260-261 Sonna Bldg., Boise. **Officers:** A. F. Bergdahl, Pres.-Mgr.; C. M. Godfrey, Sec., both of Boise. **Inc.:** July 16, 1927. **Capital:** 1,000,000 shares; par value $1; 678,000 shares issued. **Property:** Leases on 2760 acres of patented land in Ada and Gem counties. **Development:** Unknown. **Plant:** Unknown. **Mineral sought:** Oil and gas **Men employed:** Unknown. **Remarks:** This company was incorporated in 1927. Since then an active stock-selling campaign has been maintained, together with a large amount of publicity to further it. The company reported that it had sunk a well to a depth of 900 ft. The diameter of the well was not given.

BOISE MINING, MILLING & SMELTING CO.

Office: Boise. **Officers:** N. J. Minton, Pres., Boise. **Inc.:** Jan. 9, 1928. **Capital:** 100,000 shares; par value $1; all shares issued. **Property:** 5 unpatented claims. **Development:** By 8 short tunnels. **Ore:** Gold. **Remarks:** Annual labor only.

GOLD KING-DELHI MINES CORPORATION

Office: Boise. **Officers:** Albert Beck, Sec., Boise. **Inc.:** July 13, 1929. **Capital:** 300,000 shares; par value $1; 8,000 shares issued. **Property:** Gold King-Delhi groups; 5 unpatented claims; Shaw Mountain dist.; Boise. **Development:** By 1 tunnel 220 ft. long and 2 side drifts. **Ore:** Gold. **Remarks:** Idle.

PIONEER IDAHO OIL CO.

Office: 322 Eastman Bldg., Boise. **Officers:** J. E. Nottingham, Pres.-Mgr.; P. M. Davis, Sec., both of Boise. **Inc.:** Apr. 4, 1927. **Capital:** 600,000 shares; par value $1; 9887 shares issued.

RED ROSE GOLD MINES CO.

Office: 605 Eastman Bldg., Boise. **Officers:** J. J. Oberbillig, Pres.-Mgr., Boise. **Inc.:** Jan. 27, 1921. **Capital:** 500,000 shares; par value 5c; all shares issued. **Property:** Red Rose group; 12 patented claims, Black Hornet dist.; Boise. **Development:** By 3 tunnels, the principal one of which is 685 ft. in length; total development, 1400 ft. **Ore:** Gold-silver. **Remarks:** Idle throughout the year.

RELIANCE GOLD MINES CO.

Office: 605 Eastman Bldg., Boise. **Officers:** J. J. Oberbillig, Pres.-Mgr., Boise; Louis A. Dumond, Sec., Chicago, Ill. **Inc.:** Feb. 4, 1924. **Capital:** 1,000,000 shares; par value 10c; 350,000 shares issued. **Property:** Star group; 8 unpatented claims, Black Hornet dist.; Boise. **Development:** Principally by one tunnel which is 1350 ft. long. **Ore:** Gold-silver-arsenic. **Remarks:** Annual labor only.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Big Foot Bar	Unorganized	Archie T. Winter	Mt. Home
Blue Grouse Ext.	Black Hornet	Goodwin & Thacker	Boise
Blue Grouse et al.	Black Hornet	A. G. Adelmann	622 Idaho St., Boise
Five Mile Gr.	Shaw Mountain	J. M. Roberts	110 E. Ban. St., Boise
Gold Eagle Gr.	Black Hornet	C. C. Anderson	Boise
Hidden Treasure	Black Hornet	W. P. Richards	Boise
Maynard Bros.	Highland	H. T. Maynard	Boise
Monitor Placer	Highland	W. E. Johnston	Boise
Sorrel Horse et al.	Black Hornet	N. R. C. Adelmann	221 Jeff. St., Boise
White Mineral	Black Hornet	H. J. Leppert	506 S. 3d St., Boise

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

A geological reconnaissance across Idaho, by G. H. Eldridge: U. S. Geol. Survey, Sixteenth Ann. Rept., pt. 2, pp. 217-276, **1894-1895.***

Description of the Boise quadrangle, by Waldemar Lindgren: U. S. Geol. Survey Geol. Atlas, Folio No. 45, **1898.***

Mining districts of the Idaho Basin and the Boise Ridge, Idaho, by Waldemar Lindgren: U. S. Geol. Survey Eighteenth Ann. Rept., pt. 3, pp. 625-736, **1898.***

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey Twentieth Ann. Rept., pt. 3, pp. 75-256, **1900.***

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Preliminary report on artesian basins in southwestern Idaho and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Water-Supply Paper 78, **1903.**‡

Notes on the geology of southwestern Idaho and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Bull. 217, **1903.***

Description of the Nampa quadrangle, by Waldemar Lindgren and N. F. Drake: U. S. Geol. Survey Geol. Atlas, Folio No. 103, **1904.***

Description of the Silver City quadrangle, by Waldemar Lindgren and N. F. Drake: U. S. Geol. Survey Geol. Atlas, Folio No. 104, **1904.***

Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 60, art. 3, pp. 1-33, **1921.**‡

A preliminary reconnaissance of the gas and oil possibilities of southwestern and south-central Idaho, by J. P. Buwalda: Idaho Bureau of Mines and Geology Pamphlet 5, **1923.***

Idaho building stone, by Stewart Campbell: Idaho Twenty-sixth Ann. Rept. Min. Industry, **1924.***

ADAMS COUNTY

Adams is one of the southwestern counties, adjoining and lying south of Idaho County, north of Washington County, and west of Valley County. The Snake River, which flows north, forms the entire western boundary. The county contains 1,366 square miles and was accredited with a population of 2,867 in the 1930 census, or 2.1 inhabitants to the square mile. The larger part of the population is located in Weiser River and Little Salmon River valleys. The headwaters of the Weiser River, which flows south, and those of the Little Salmon River, which flows north, are located in this county. It is primarily an agricultural county and is noted for its high-quality apples and livestock industry.

The North and South Panoramic Highway extends from the southern to the northern boundaries and is situated in about the geographical center. Branch roads leading to all of the outlying settlements are maintained by the county and U. S. Forest Service. These are kept in good repair and are open to travel during the larger part of the year. In 1925 the Legislatures of Oregon and Idaho each appropriated $25,000 for the construction of a joint State wagon bridge across the Snake River at Ballard's Landing, about three miles north of Homestead, Oregon. It has proved to be an important connecting link between the Oregon highway at Baker and the Idaho highway at Council, which is the county seat and largest settlement of Adams County.

The county is served by two railroads: the Pacific and Idaho Northern, which extends from Weiser to New Meadows, and the Oregon Short Line branch from Huntington to Robinette, Oregon.

Over 90 per cent of the county is mountainous. The mountains are rough and rugged and the bold relief that many of them show on the skyline presents scenic views that are unsurpassed in grandeur, the principal one of which is the Seven Devils, seven serrated peaks which reach high into the skyline, and from which the Seven Devils mining district is named.

During the eighties and early nineties this district was an active mining center. Many mines were in operation, a railroad was projected into it and partly constructed, a smelter was in operation, and three towns of fair sized populations were established. The boom died down in the panic of 1893 and since then no large operations or shipments of any consequence have taken place. The latent mineral resources are practically undeveloped and unprospected. The bold relief permits cheap development work by tunnels and drifts and, as the mineral resources are diverse and varied, the county offers many excellent opportunities to prospectors and development companies. The ores of the Seven Devils district are principally copper carrying silver and gold, with an occasional deposit of lead-zinc ore. The ores of the Indian Creek section are those of silver-copper and lead-zinc-silver. In addition to the five principal metals—copper, silver, gold, lead, zinc—deposits of mica, feldspar, and garnet, of commercial importance, occur in this county. The mica deposits of Council Mountain have received a little attention, although they have never been prospected or developed in proportion to the possibilities which they offer. When the mineral resources of Adams County are properly exploited and developed this county may be recognized as one of the principal mining counties in the State.

1931 Activities

This county experienced but little mining activity during the year. The Idaho Copper Co., which ceased operations in November, 1927, continued idle. A few prospectors in the Council Mountain, Heath, and Indian Creek districts increased their work over that of 1930, and one marketed a small amount of ore. At the close of the year arrangements were being completed to revive one of the silver properties in the Indian Creek district.

The copper prospects near Homestead, Oregon, on the Idaho side of the river, received a little more attention than usual.

AMERICAN MINING CO., LTD.

Office: 630 Monroe Ave., Helena, Mont. **Officers:** Amelia H. Kleinschmidt, Pres., Helena, Mont. **Inc.:** Sept. 11, 1911. **Capital:** 50,000 shares; par value $1; none issued. **Property:** Peacock and White Monument groups; 10 patented claims, Seven Devils dist.; Cuprum. **Ore:** Copper, silver. **Remarks:** Idle.

BLACK HORSE GROUP

Owners: Jacob Stites, Council, and W. H. Willard, R. 4, Nampa. **Property:** Black Horse group; 15 unpatented claims, unorganized district; Council. **Development:** By 4 short tunnels. **Ore:** Gold and silver. **Remarks:** Active development work throughout the year.

IDAHO COPPER CO.

Office: 745 Rowan Bldg., Los Angeles, Calif. **Officers:** O. H. Griggs, Pres.; Cooley Butler, Mgr., both of 745 Rowan Bldg., Los Angeles, Calif.; Carey H. Nixon, Sec., Boise. **Inc.:** Jan. 10, 1920, as Idaho Copper Co., Ltd.. Name changed May 24, 1926. **Capital:** On Feb. 9, 1925, the capital was increased from 50,000 shares, par value $10, to 10,000,000 shares, par value $1; 9,664,755 shares issued. **Property:** Red Ledge group; 31 patented, 22 unpatented claims, Seven Devils dist.; R. R. and P. O. Homestead, Ore., 18 miles. **Development:** 3 tunnels on Deep Creek: No. 1, 950 ft. long; No. 2, 2400 ft. long; No. 3, 100 ft. long; tunnel No. 4 at Eagle Bar, 700 ft. long. In addition to the tunnels, approximately 10,000 ft. of diamond drilling has been done on the property. **Plant:** 600-cu. ft. I. R. compressor, driven by 120 h. p. Diesel engine; complete mining equipment and camp at No. 4 tunnel. **Ore:** Copper. **Men employed:** One watchman. **Remarks:** Idle throughout the year. Property mortgaged to Cooley Butler.

IDAHO COPPER CORPORATION

Office: 745 Rowan Bldg., Los Angeles, Calif. **Officers:** O. H. Griggs, Pres.; Cooley Butler, Mgr., both of 745 Rowan Bldg., Los Angeles, Calif.; Carey H. Nixon, Sec., Boise. **Inc.:** Incorporated in Delaware, Oct., 1924; filed in Idaho, April 4, 1925. **Capital:** 2,500,000 shares; par value $1; all shares issued. **Property:** South Peacock group; 3 patented, 5 unpatented claims; Seven Devils dist.; Cuprum. **Development:** I vertical shaft, 325 ft. deep; completed in 1901 by prior owners. Total development, approximately 1300 ft. **Plant:** Partly installed steam-driven hoist and compressor. **Ore:** Copper. **Men employed:** None. **Remarks:** Idle throughout the year. Property mortgaged to Cooley Butler.

IDAHO MINES CO., LTD.

Office: Weiser. **Officers:** S. H. Travis, Pres., Chehalis, Wn.; B. S. Varian, Sec., Boise. **Inc.:** Jan. 5, 1904. **Capital:** 5,000,000 shares; par value $1; 1,503,700 shares issued. **Property:** California group: 3 patented claims, Seven Devils dist.; Cuprum; R. R. Homestead, Ore., 30 miles. **Ore:** Copper. **Remarks:** Idle for many years.

NATIONAL COPPER MINES CO.

Office: 307 Fitzpatrick Bldg., Portland, Ore. **Officers:** R. Fennell, Sec., Portland, Ore. **Inc.:** April 26, 1906. **Capital:** 3,000,000 shares; par value $1; shares issued, unknown. **Remarks:** Failed to file the reports required by law.

RUBY MINING CO.

Office: 400 Blackstone Ave., La Grange, Ill. **Officers:** John Ball, Pres., La Grange, Ill. **Inc.:** July 21, 1928. **Capital:** 120 shares; par value $100; all shares issued. **Remarks:** Idle.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Alaska et al.	Seven Devils	Mrs. S. J. Stephens	Cuprum
Amadore et al.	Seven Devils	Mrs. Anna Dimick	San Antonio, Texas
American Flag et al.	Mountain View	Mary Z. Finney	Cleveland, Ohio
Andy O'Toole Gr.	Seven Devils	L. A. Aplington	Homestead, Ore.
Arkansaw	Seven Devils	E. C. Westervelt	11 Broadway, New York City

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Azurite Gr.	Seven Devils	John Bottcher	Tacoma, Wash.
Bald Eagle	Seven Devils	Mrs. Mabel Sprouls	Cuprum
Big Indian et al.	Seven Devils	Loren Gogochea	Ontario, Ore.
Black Garnet	Seven Devils	Ellen Kleinschmidt	Berkeley, Calif.
Black Hawk Gr.	Seven Devils	E. C. Spicer	Homestead, Ore.
Blue Bird Gr.	Seven Devils	Mose Fuchs	Baker, Ore.
Blue Bucket	Seven Devils	Irene Imhaus	Madison Park Apts. Portland, Ore.
Bryan et al.	Seven Devils	Mose Fuchs	Baker, Ore.
Camp Ground et al.	Seven Devils	Martin Bradley	Cuprum
Chameleon Gr.	Mountain View	Thos. G. Potter	Pollock
Chieftain et al.	Seven Devils	Jas. A. Stewart	Indian Valley
Cliff et al.	Seven Devils	Mrs. P. L. Gaarden	Bear
Copper Belt Gr.	Seven Devils	G. W. McCarty	Homestead, Ore.
Copper Bottom	Seven Devils	Frank Shelton	Cuprum
Copper Queen et al.	Unorganized	Lynn Snow	Newburg, Ore.
Decorah	Seven Devils	R. E. Wilson	Cambridge
Decorah	Seven Devils	Mary Steele	1516 S. Negley Ave., Pittsburg, Pa.
Deep Creek Gr.	Seven Devils	Frank Lauzon	Cuprum
Faye L.	Seven Devils	Anna Adams	Cuprum
Glenn G.	Unorganized	J. F. Glenn et al.	Fruitvale
Gold Coin Gr.	Seven Devils	Adams County	Council
Golden Star Gr.	Mountain View	Jas. H. Hawley	Boise
Grandview Gr.	Seven Devils	Frank Shelton	Cuprum
Grant Gr.	Seven Devils	J. A. Walsh	Helena, Mont.
Greenhorn Gr.	Seven Devils	Collins Lynes	Cuprum
Green Horn Gr.	Unorganized	R. A. Weddle et al.	Council
Hollister Gr.	Seven Devils	L. A. Darland	Cuprum
Idaho Standard	Seven Devils	Owen Hill	Homestead, Ore.
Iowa & Josie	Seven Devils	E. D. Ford	Weiser
Kinney	Seven Devils	Chas. Warner	Bear
Last Chance Pl.	Seven Devils	Walter James	Cuprum
Last Chance	Seven Devils	I. R. Smith	Boise
Little Bill et al.	Seven Devils	Joseph M. Healey	Homestead, Ore.
Lockwood et al.	Seven Devils	J. C. Barton	Weiser
Lola Group	Seven Devils	A. J. Cole	Oakland, Ky.
Mammoth Gr.	Seven Devils	Chas. Anderson	Cuprum
Margaret Gr.	Seven Devils	Frank E. Smith	Weiser
Mayflower Gr.	Seven Devils	Mrs. F. Hildebrand	Council
Mineral Hill Gr.	Seven Devils	Frank Shelton	Cuprum
Monarch Mica Gr.	Unorganized	Gillman Rinehart	Council
Moonlight	Seven Devils	J. A. Reynolds	Weiser
Newton Hill Gr.	Seven Devils	Chas. R. Sowder	Homestead, Ore.
North Alaska	Seven Devils	A. O. Huntley	Myrtle Creek, Ore.
North Hornet Gr.	Unorganized	W. E. Freehafer	Council
North Peacock	Seven Devils	Mrs. O. H. Martin	Council
Paducah	Seven Devils	J. M. Dennis	Ashland, Ore.
Pres. Wilson et al.	Seven Devils	L. A. Darland	Cuprum
Rabbit's Foot et al.	Unorganized	Chas. A. Theobold	Idaho Springs, Colo
Red Mountain	Seven Devils	Collis Lynes	Cuprum
River Queen Gr.	Seven Devils	Bernard Haas	Weiser
Ruby Bell	Mountain View	Mary Z. Finney	Cleveland, Ohio
Schley et al.	Seven Devils	Geo. A. Jones	Boise
Silver 1 & 2	Seven Devils	F. Alers	Cuprum
Star Gr.	Mountain View	Thos. G. Potter	Pollock
Virginius	Seven Devils	Andrew Wilmot	Kendrick
Virginius	Seven Devils	Adams County	Council
Walker	Seven Devils	Orrill Lewis	Council
Whale	Seven Devils	Adams County	Council
Wild Horse Gr.	Seven Devils	Mrs. C. R. Braasch	Homestead, Ore.

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

The copper deposits of the Seven Devils, Idaho, by Waldemar Lindgren: Min. and Sci. Press, vol. 78, p. 125, **1899.***

Seven Devils district, by Charles Kirchhoff: U. S. Geol. Survey Twentieth Ann. Rept., pt. 6, pp. 183-184, **1899.***

Copper deposits of the Seven Devils, Idaho, by Waldemar Lindgren: The gold and silver veins of Silver City, De Lamar and other mining districts in Idaho: U. S. Geol. Survey Twentieth Ann. Rept., pt. 3, pp. 88, 249-253, **1900.***

Copper deposits of Snake River, by Waldemar Lindgren: The gold belt of the Blue Mountains of Oregon: U. S. Geol. Survey Twenty-second Ann. Rept., vol. 2, pp. 562, 580, 595, 632, 747-762, **1901.***

The copper mines of the United States in 1905, by W. H. Weed: U. S. Geol. Survey Bull. 285, pp. 108-109, **1906.***

The Seven Devils and the Snake River district, by G. D. Reid: Eng. and Min. Jour., vol. 84, p. 401, Aug. 31, **1907.**§

The occurrence of ore on the limestone side of garnet zones, by J. B. Umpleby: University of California publications, Bull. Department of Geology, vol. 10, No. 3, pp. 25-37, Oct. 14, **1916.****

The I. X. L. copper prospect, by R. N. Bell: Eng. and Min. Jour., vol. 108, p. 400, Sept. 6, **1919.**§

Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, pp. 32-37, **1919.****

The copper deposits of the Seven Devils and adjacent districts, by D. C. Livingston and F. B. Laney: Idaho Bureau of Mines and Geology Bull. 1, **1920.***

Diamond drilling in the Seven Devils Mountains, by F. A. Kennedy: Eng. and Min. Jour.-Press, vol. 113, pp. 521-523, Apr. 1, **1922.**§

A geologic reconnaissance of the Mineral and Cuddy Mountain mining district, Washington and Adams counties, Idaho, by D. C. Livingston: Idaho Bureau of Mines and Geology Pamphlet 13, **1925.****

BANNOCK COUNTY

Bannock County is one of the largest and most important of the southeastern counties. It is bounded on the north by Bingham County, on the east by Caribou and Bear Lake counties, on the south by Franklin and Oneida counties, and on the west by Power County. It has an area of 1837 square miles and was accredited with a population of 31,266 in the 1930 census. Pocatello, the second largest city in the State, is the county seat and principal division point of the Oregon Short Line Railroad.

The county is served by two State highways, the Oregon Trail, and Yellowstone Park. The former is the main east and west trunk line, and the latter is the main north and south trunk line of the State system.

The principal mineral resources are phosphate rock, limestone, manganese, copper, silver, gold, and building stone. The limestone is suitable for Portland cement and, as the deposits are extensively distributed and adjacent to transportation, they will eventually add a new and important industry. The phosphate rock covers a large area and constitutes an important latent resource. Considerable prospecting has been done on the copper veins which are found in the Portneuf Mountains south of Pocatello. In 1909 a mill was constructed at one mine; but other than the necessary annual labor no work of importance has been conducted for a number of years. Reports on the manganese deposits near Cleveland and Lava Hot Springs, which were discovered during 1924, indicate that the ore is high grade and that there is a large tonnage available.

1931 Activities

The Idaho Portland Cement Co., near Inkom, about 12 miles from Pocatello, whose product is marketed under the trade name of "Eagle Brand," was active throughout the year and manufactured and marketed a large tonnage. Two of the manganese mines near Cleveland were active during the greater part of the year. One of them, the Idaho Manganese Mining Co., produced a substantial tonnage of high-grade manganese ore.

The Chatterton Mining Co., which is developing a lead prospect in the Swan Lake section, did a small amount of development work.

BANNOCK MANGANESE MINING CO., LTD.

Office: Box 502, Pocatello. **Officers:** Lewis E. Munk, Pres., Georgetown; L. E. Glennon, Sec.; Wm. Sharp, Mgr., both of Pocatello. **Inc.:** Dec. 17, 1928. **Capital:** 100,000 shares; par value $1; 75,000 shares issued. **Remarks:** Failed to file the reports required by law. Charter forfeited Nov. 30, 1931.

CHATTERTON MINING CO.

Office: Midvale, Utah. **Officers:** Byron Chatterton, Pres., Swan Lake; William Waters, Sec., Midvale, Utah. **Inc.:** Not filed in Idaho. **Capital:** 1,000,000 shares; par value 2½c; 432,580 shares issued. **Property:** Lead Canyon group; 29 unpatented claims, Swan Lake dist.; Swan Lake. **Development:** Approximate total development 212 ft. **Ore:** Lead. **Men employed:** Average, 4. **Remarks:** Active during the summer.

CLEVELAND MINING CORPORATION

Office: Cleveland, Idaho. **Officers:** C. C. Ames, Pres., Cleveland. **Inc.:** July 13, 1925. **Capital:** 400,000 shares; par value 10c; shares issued, unknown. **Remarks:** Failed to file the reports required by law.

EMERALD OIL & GAS CO.

Office: 343 W. Clark St., Pocatello. **Officers:** H. C. Harris, Pres.; S. G. Baker, Sec., both of Pocatello. **Inc.:** Aug. 8, 1929. **Capital:** 250,000 shares; par value $1; 151,217 shares issued. **Property:** 3685 acres held under government lease. **Mineral sought:** Oil and gas. **Remarks:** The company did not report any operations nor the county in which its property is located.

FORT HALL MINING & MILLING CO., LTD.

Office: Pocatello. **Officers:** H. M. Palmer, Pres.-Mgr., Pocatello. **Inc.:** Sept. 5, 1902. **Capital:** 1,000,000 shares; par value $1; 260,000 shares issued. **Property:** Fort Hall group; 10 unpatented claims, Fort Hall dist.; Portneuf. **Development:** Principal tunnel 4000 ft. long; total development approximately 8000 ft. **Plant:** MINE: Steam-driven compressor, complete mining equipment. MILL: 50-ton concentrator built 1909. **Ore:** Copper. **Remarks:** Annual labor.

IDAHO MANGANESE MINING CO.

Office: Cleveland. **Officers:** Howard R. Smith, Pres.-Mgr.; George L. Smith, Sec., both of Cleveland. **Inc.:** July 17, 1925. **Capital:** 400,000 shares; par value 10c; all shares issued. **Property:** 260 acres patented land; Grace. **Development:** Approximately 1200 ft. total development. **Mineral sought:** Manganese. **Men employed:** Unknown. **Remarks:** Press reports were to the effect that this company produced and marketed a substantial tonnage of high-grade manganese ore during the year. The company failed to file the reports required by law. Charter forfeited Nov. 30, 1931.

IDAHO PORTLAND CEMENT CO.

Office: Inkom. **Officers:** Eugene Enloe, Pres., Spokane, Wash.; Raymond Enloe, Sec.; J. B. Maxfield, Mgr., both of Pocatello. **Inc.:** July 20, 1928. **Capital:** 6000 shares common, no par value; 5000 shares preferred, par value $100; 5782 shares common, 4564 shares preferred issued. **Property:** 175 acres patented land, unorganized dist.; near Inkom. **Plant:** For a complete description of plant see Thirty-first Annual Report, for the year 1929. **Ore:** Limestone. **Men employed:** Average, 53. **Remarks:** Producers of "Eagle Brand" cement. A large tonnage was manufactured and sold during the year.

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

The copper mines of the United States in 1905, by W. H. Weed: U. S. Geol. Survey Bull. 285, pp. 108-109, **1906.***

Notes on the Fort Hall mining district, Idaho, by F. B. Weeks and V. C. Heikes: U. S. Geol. Survey Bull. 340, pp. 175-183, **1908.***

Guidebook of the western United States, by W. T. Lee and others: U. S. Geol. Survey Bull. 612, pp. 114-147, **1915.**‡

Geography, geology, and mineral resources of the Fort Hall Indian Reservation, Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 713, **1920.**‡

The Wasatch and Salt Lake formations of southeastern Idaho, by G. R. Mansfield: Am. Jour. Sci., vol. 49, pp. 399-406, June, **1920.**§

Triassic and Jurassic formations in southeastern Idaho and neighboring regions, by G. R. Mansfield: Am. Jour. Sci., vol. 50, pp. 53-64, July, **1920.**§

Geography, geology, and mineral resources of part of southeastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Prof. Paper 152, **1927.**‡

A manganese deposit of Pleistocene age in Bannock County, Idaho, by D. F. Hewett: U. S. Geol. Survey Bull. 795, pp. 211-218, **1928.**‡

Portland cement materials near Pocatello, Idaho, by A. L. Anderson: Idaho Bureau of Mines and Geology Pamphlet 28, **1928.****

Geography, geology, and mineral resources of the Portneuf quadrangle, Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 803, **1929.**‡

BEAR LAKE COUNTY

Bear Lake is the extreme southeastern county of the State. It is bounded on the east by the State of Wyoming and on the south by the State of Utah. On the north and west it adjoins Caribou, Bannock, and Franklin counties. It has an area of 980 square miles and was accredited with a population of 7,872 in the 1930 census. Montpelier, situated in the center of a rich agricultural valley, is the largest town; and Paris, located near the north end of Bear Lake, is the county seat.

The State highway, Oregon Trail, and the main line of the Oregon Short Line Railroad traverse the county east and west, thus giving it good transportation facilities.

The principal mineral resources are phosphate rock, gypsum, manganese, copper, lead, and silver. There are also excellent possibilities for petroleum. Estimates made by geologists of the U. S. Geological Survey credit the State with more than five billion tons of minable phosphate rock, over 85 per cent of the total known phosphate resources of the world. The largest and most accessible areas containing this rock are in Bear Lake County. Phosphate is a necessary soil constituent and it is through the existence of the Idaho deposits that the future of American agriculture is assured. These deposits are practically untouched, as present freight, market, and price conditions are preventing profitable production. They are the greatest potential mineral resources within the State and when properly developed the mining enterprises will dwarf many of the now famous mining districts in the United States. These deposits are fully described, with analyses and tonnage estimates included, in the numerous publications referred to in the bibliography of this county. Four mines are properly equipped with the necessary surface and mining plants, all have a large available tonnage, and production can be started without delay whenever conditions will warrant it.

One of the most outstanding publications issued by the U. S. Geological Survey in recent years is Professional Paper 152, by G. R. Mansfield: "Geography, Geology, and Mineral Resources of Part of Southeastern Idaho." This appeared during 1927; it is profusely illustrated with pictures, maps, and

diagrams, and describes in detail the subjects mentioned in its title, dealing especially with the immense areas of phosphate rock found in this county.

Many structures favorable to the accumulation of gas and petroleum in commercial quantities are found in this county. As the formation is similar to the formations in Wyoming which are producing oil, it is reasonable to expect that the probabilities should be at least equal on the Idaho side of the State line.

1931 Activities

The Solar Development Co., Ltd., a subsidiary of the Consolidated Mining & Smelting Co. of Trail, B. C., which acquired and started work on a phosphate mine near Paris in 1930, was active throughout the entire year. This company maintained a large pay roll, produced a substantial tonnage of phosphate rock, and performed a large amount of development work, the principal part of which was sinking an inclined shaft 200 feet deep and running a large amount of lateral drifts. The phosphate rock is shipped for treatment to the acid phosphate plant of the Consolidated Mining & Smelting Co., at Trail, B. C. This plant was built in 1929 and 1930 at a cost of more than $7,000,000. The manufactured product, a triple superphosphate, is marketed under the trade name of "Elephant Brand." All the other companies holding phosphate mines in this county were idle throughout the year.

The Gold Star Mining Co. and the Utah-Idaho Mining & Milling Co., whose copper properties are located near Bloomington, both performed a considerable amount of development work, and the latter extended its vertical shaft to a depth of 200 feet.

The Sunset Mining Co. did a large amount of development work and produced a substantial tonnage of high-grade lead ore, which was stored.

AGRICULTURAL POTASSIUM-PHOSPHATE CO. OF CALIFORNIA, LTD.

Office: San Pedro, Calif. **Officers:** A. L. Kreiss, Pres.-Mgr.; J. L. Misenheimer, Sec., both of San Pedro, Calif. **Inc.:** Filed in Idaho, Dec. 18, 1930. **Capital:** 90,000 shares; par value $10; 21,975 shares issued. **Property:** 640 acres; owns 320 acres, and 320 acres held under lease from Mary Stucki. **Development:** By 1 tunnel 940 ft. long. **Plant:** Electrically driven 640 cu. ft. Sullivan compressor. **Ore:** Phosphate rock. **Men employed:** Average, 5. **Remarks:** A small amount of work during the early part of the year.

BLACKSTONE MINING & POWER CO.

Office: Portland, Ore. **Officers:** E. B. Cloud, Pres.-Mgr., Baltimore and Bradford Sts., Portland, Ore. **Inc.:** Jan. 28, 1907. **Capital:** 1,000,000 shares; par value $1; shares issued, unknown. **Property:** Blackstone, 1 patented claim, unorganized dist.; St. Charles. **Remarks:** Idle for many years.

COPPER RESERVE MINING & REDUCTION CO.

Office: Care of Walker Brothers Bank, Salt Lake City, Utah. **Officers:** John M. Wallace, Acting Pres.; Wm. J. Fitzpatrick, Acting Sec., both of Salt Lake City. **Inc.:** Filed in Idaho: Aug. 5, 1912. **Capital:** 500,000 shares; par value 10c; 400,000 shares issued. **Property:** Humming Bird group; 4 patented claims, Bear Lake dist.; Paris. **Remarks:** Inactive since 1917. Charter forfeited Nov. 30, 1931.

GOLD STAR MINING CO.

Office: Paris. **Officers:** L. W. Johnson, Pres.-Mgr.; Nancy A. Johnson, Sec., both of Paris. **Inc.:** May 9, 1928. **Capital:** 1,000,000 shares; par value 2c; 562,700 shares issued. **Property:** 9 unpatented claims, unorganized dist.; Paris. **Development:** By one shaft 50 ft. deep. **Ore:** Lead-copper. **Men employed:** Average, 4. **Remarks:** Active development work throughout a large part of the year. A stock assessment of 1½ mills was levied on June 17.

PARIS MINING & MILLING CO., INC.

Office: Paris. **Officers:** F. T. Shepherd, Pres.; F. Leslie Shepherd, Sec., both of Paris. **Inc.:** June 18, 1930. **Capital:** 1,000,000 shares; par value 50c; 540,000 shares issued. **Property:** Blue Bird group; 2 unpatented claims; Bear Lake dist.; Paris. **Development:** By a 60-ft. vertical shaft. **Ore:** Copper-gold-silver. **Men employed:** Average, 4. **Remarks:** A vertical shaft was sunk to a depth of 60 ft. during the year.

SAN FRANCISCO CHEMICAL CO.

Office: 112 Market St., San Francisco, Calif. **Officers:** Wm. F. Kett, Pres., San Francisco, Calif.; Jos. J. Taylor, Mgr., Montpelier. **Inc.:** July 17, 1906. **Capital:** 2000 shares; par value $100; all shares issued. **Property:** Waterloo group; 10 patented claims; 505 acres; Montpelier. **Development:** 3 tunnels; total development, approximately 4000 ft. **Plant:** Gas-driven compressor and complete mining equipment. **Ore:** Phosphate rock. **Men employed:** Average, 5. **Remarks:** Maintenance work only.

SOLAR DEVELOPMENT CO., LTD.

Office: Trail, B. C. **Officers:** J. J. Warren, Pres., Montreal, Quebec; G. A. Wallinger, Acting Sec., Trail, B. C. **Inc.:** Filed in Idaho: Sept. 14, 1928. **Capital:** 500 shares; no par value; 80 shares issued. **Property:** 3 patented claims held under lease and option from Francis A. Jeffs, Rockland, Mich. **Development:** Principally by an inclined shaft, 200 ft. deep, with two intermediate levels. Total development, more than 2300 ft. **Plant:** Gas-driven 310 cu. ft. air compressor; complete equipment. **Ore:** Phosphate rock. **Men employed:** Average, 25. **Remarks:** This company, a subsidiary of the Consolidated Mining & Smelting Co. of Trail, B. C., which acquired and started work on a phosphate mine near Paris in 1930, was active throughout the entire year. It maintained a large pay roll, produced a substantial tonnage of phosphate rock, and performed a large amount of development work, the principal part of which was sinking an inclined shaft 200 feet deep and running a large amount of lateral drifts. The phosphate rock is shipped for treatment to the acid phosphate plant of the Consolidated Mining & Smelting Co., at Trail, B. C. This plant was built in 1929 and 1930 at a cost of more than $7,000,000. The manufactured product, a triple superphosphate, is marketed under the trade name of "Elephant Brand." All the other companies holding phosphate mines in this county were idle throughout the year.



SOLAR DEVELOPMENT CO.

STOCKHOLDERS' SYNDICATE

Office: 1240 So. Main St., Los Angeles, Calif. **Officers:** F. W. Braun, Pres.; Roy V. Boswell, Sec., both of Los Angeles, Calif. **Inc.:** May 27, 1913. **Capital:** 500 shares, par value $100; all shares issued. **Property:** 16 patented claims; approximately 2400 acres; unorganized dist.; George-

town; R. R., Georgetown, 8 miles. **Development:** 9 tunnels, 2 shafts, approximately 800 ft. **Ore:** Phosphate rock. **Remarks:** Idle. This company owns the property formerly owned by the Utah Fertilizer & Chemical Mfg. Co.

SUNSET MINING CO.

Office: St. Charles. **Officers:** Emery Welling, Pres.; Wm. Clark, Sec.-Mgr., both of St. Charles. **Inc.:** A partnership. **Property:** Sunset group; 13 unpatented claims, unorganized district; St. Charles. **Development:** Principally by an inclined shaft 350 ft. long. Total development, approximately 1000 ft. **Plant:** Small gas-driven hoist. **Ore:** Lead. **Men employed:** Average, 5. **Remarks:** Active throughout the year. A substantial tonnage of ore was produced and stored.

UTAH-IDAHO MINING & MILLING CO.

Office: Paris, Idaho. **Officers:** H. R. Shepherd, Pres., Paris; H. H. Broomhead, Sec., Bloomington. **Inc.:** Aug. 23, 1926. **Capital:** 1,000,000 shares; par value 2c; 750,000 shares issued. **Property:** Old Boulder group, 18 unpatented claims, unorganized dist.; Paris. **Development:** By 3 tunnels: No. 1, 600 ft. long; No. 2, 150 ft. long; No. 3, 200 ft. long; and a vertical shaft 200 ft. deep. **Plant:** Small steam-driven compressor. **Ore:** Copper. **Men employed:** Average, 4. **Remarks:** The principal shaft was extended 100 ft. during the year. Stock assessments were levied as follows: Jan. 24, 1 mill; May 11, 1½ mills.

WASATCH MINING & DEVELOPMENT CO.

Office: Preston. **Officers:** G. A. Ransom, Pres.-Mgr., Paris; Chas. Ransom, Sec., both of Preston. **Inc.:** Feb. 6, 1928. **Capital:** 500,000 shares; par value 10c; 282,000 shares issued. **Property:** Midway group; 5 unpatented claims held under lease and option; unorganized dist.; Bloomington. **Development:** By 4 short tunnels. **Remarks:** Failed to file the reports required by law.

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

Fifth and Eleventh Ann. Repts. U. S. Geol. and Geog. Surveys of the Territories, by F. V. Hayden, **1872** and **1879.***

Report on work in the Great Basin, by G. K. Gilbert: U. S. Geol. Survey Second Ann. Rept. 1880-1881, pp. 169-200, **1882.***

Lake Bonneville, by G. K. Gilbert: U. S. Geol. Survey Mon. 1, **1890.***

Phosphate deposits in western United States, by F. B. Weeks and W. F. Ferrier: U. S. Geol. Survey Bull. 315, pp. 449-462, **1907.***

Phosphate rock in Utah, Idaho, and Wyoming, by C. C. Jones: Eng. and Min. Jour., vol. 83, pp. 953-955, May 18, **1907.**§

Phosphate deposits in the western United States, by F. B. Weeks: U. S. Geol. Survey Bull. 340, pp. 441-447, **1908.***

Geology of the copper deposits near Montpelier, Bear Lake County, Idaho, by H. S. Gale: U. S. Geol. Survey Bull. 430, pp. 112-121, **1909.***

Preliminary report on the phosphate deposits in southeastern Idaho and adjacent parts of Wyoming and Utah, by H. S. Gale and R. W. Richards: U. S. Geol. Survey Bull. 430, pp. 457-531, **1909.***

Gems and precious stones, by D. B. Sterrett: U. S. Geol. Survey Mineral Resources **1909,** pt. 2, p. 804.*

Notes on lead and copper deposits in the Bear River Range, Idaho and Utah, by R. W. Richards: U. S. Geol. Survey Bull. 470, pp. 177-187, **1910.***

Preliminary report on a portion of the Idaho phosphate reserve, by R. W. Richards and G. R. Mansfield: U. S. Geol. Survey Bull. 470, pp. 371-439, **1910.***

A geological reconnaissance in southeastern Idaho, by A. R. Schultz and R. W. Richards: U. S. Geol. Survey Bull. 530, pp. 267-284, **1911.***

Discovery and opening of a new phosphate field in the United States, by C. C. Jones: Am. Inst. Min. Eng. Trans., vol. 47, pp. 192-216, August, **1913.**§

Geology of the phosphate deposits northeast of Georgetown, Idaho, by R. W. Richards and G. R. Mansfield: U. S. Geol. Survey Bull. 577, **1914.***
Revision of the Beckwith and Bear River formations of southeastern Idaho by G. R. Mansfield and P. V. Roundy: U. S. Geol. Survey Prof. Paper 98, pp. 75-84, **1916.***
Phosphate deposits in Idaho, by R. N. Bell: Eng. and Min. Jour., vol. 104, pp. 293-294, Aug. 18, **1917.**§
Oil shale in western Montana, southeastern Idaho and adjacent parts of Wyoming and Utah, by D. D. Condit: U. S. Geol. Survey Bull. 711, pp. 15-40, **1920.**‡
Gypsum deposits of the United States, by R. W. Stone and others: U. S. Geol. Survey Bull. 697, pp. 99-100, **1920.***
The Wasatch and Salt Lake formations of southeastern Idaho, by G. R. Mansfield: Am. Jour. Sci., vol. 49, pp. 399-406, June, **1920.**§
Triassic and Jurassic formations in southeastern Idaho and neighboring regions, by G. R. Mansfield: Am. Jour. Sci., vol. 50, pp. 53-64, July, **1920.**§
Types of Rocky Mountain structure in southeastern Idaho, by G. R. Mansfield: Jour. Geology, vol. 29, No. 5, pp. 444-468, July-August, **1921.**§
Notes on the geology of eastern Bear Lake County, Idaho, with reference to oil possibilities, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 7, **1923.***
Geography, geology, and mineral resources of part of southeastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Prof. Paper 152, **1927.**†
The Idaho phosphate field, by G. R. Mansfield: Mining and Metallurgy, vol. 9, pp. 19-20, January, **1928.**§

BENEWAH COUNTY

Benewah is one of the northern counties. It is bounded on the west by the State of Washington, on the north by Kootenai County, and on the east and south by Shoshone and Latah counties. It has an area of 786 square miles and was accredited with a population of 6,371 in the 1930 census. St. Maries, the county seat, is the largest town in the county. Except a small area along the St. Joe and St. Maries Rivers, and the section adjacent to the town of Plummer, which is devoted to agriculture, the entire county is mountainous and heavily timbered. The county is noted for its timber and lumbering industries.

The county is served by lake-boat transportation from Coeur d'Alene to St. Maries, and by two railroads: The Tekoa, Wn.-Wallace, Idaho, branch of the O. W. R. & N. (Union Pacific System), and the main line of the Chicago, Milwaukee & St. Paul Railroad, with its branch line extending from St. Maries to Elk River (Clearwater County).

The principal mineral resources are gold, copper, silver, lead, zinc, iron, and clay. The deposits containing the principal metals have received a small amount of attention; and many of the clays are exceptionally adapted to the ceramic industry. The St. Joe district, which lies east of St. Maries, and the Hoodoo and Camas Cove districts, in the southeastern corner, are the principal mining districts.

1931 Activities

The principal enterprise in this county is that of the Rainbow Mining & Milling Co., Ltd., which is driving a long crosscut. The company was active throughout the year and advanced the crosscut to a total length of 2,400 feet. The Butte Mining Co., whose property adjoins that of the Rainbow Mining & Milling Co., Ltd., did a small amount of development work and constructed approximately 2 miles of trail. The properties of these companies are located in the St. Joe district near Medimont.

Other than annual labor, all of the companies whose properties are located near Round Top Mountain were idle, and no new enterprises were started.

BUTTE MINING CO.

Office: 917 W. Garden St., Coeur d'Alene. **Officers:** Joseph Zwiener, Pres.-Mgr., St. Maries; Simon Doshna, Sec., Coeur d'Alene. **Inc.:** March 27, 1916. **Capital:** 500,000 shares; par value 50c; 305,581 shares issued. **Property:** 7 patented, 5 unpatented claims, St. Joe dist.; St. Maries. **Development:** 1 tunnel, 240 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** A small amount of development work and trail construction. A stock assessment of 3½ mills was levied on Jan. 31, 1931.

OTHELLO MINING CO.

Office: Coeur d'Alene. **Officers:** Allen Kirkwood, Pres., Toppenish, Wash.; Claude M. Smith, Sec., Hillyard, Wash.; Orland A. Scott, Mgr., Coeur d'Alene. **Inc.:** Feb. 7, 1930. **Capital:** 2,000,000 shares; par value 25c; 884,780 shares issued. **Property:** Old Ironsides group; 6 unpatented claims, St. Joe dist., and 400 acres under lease from the State of Idaho; St. Maries. **Ore:** Lead-silver. **Remarks:** Annual labor only.

RAINBOW MINING & MILLING CO.

Office: 301 Mohawk Bldg., Spokane, Wash. **Officers:** Geo. Austin, Pres.-Mgr.; T. W. Schmidt, Sec., Coeur d'Alene. **Inc.:** June 20, 1907. **Capital:** 2,000,000 shares, par value 25c; increased Jan. 16, 1931, to 1,108,998 shares preferred, 991,002 shares assessable common, par value 25c; changed Feb. 21, 1931, to 1,618,771 shares assessable common, par value 25c, 381,229 shares preferred, par value $1; 891,002 shares common issued. **Property:** 16 unpatented claims, St. Joe dist.; Medimont. **Development:** Principally by one tunnel 2400 ft. long. **Plant:** Gas-driven compressor, steel sharpener, and complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 4. **Remarks:** The tunnel was advanced 800 ft. during the year. Funds for this work were derived principally from stock assessments.

ROUND TOP MINING CO.

Office: St. Maries. **Officers:** R. J. Brackett, Pres.-Mgr.; E. W. Trueman, Sec., both of St. Maries. **Inc.:** Jan. 21, 1926. **Capital:** 1,000,000 shares; par value 10c; 265,759 shares issued. **Property:** Round Top group; 12 unpatented claims, St. Joe dist.; St. Maries. **Development:** By 1 tunnel 175 ft. long. **Remarks:** Annual labor only.

SILVER STAR MINING & DEVELOPMENT CO.

Office: St. Maries. **Officers:** Earl H. Kidder, Pres.; Margaret Caines, Sec., both of St. Maries. **Inc.:** Aug. 28, 1929. **Capital:** 1,500,000 shares; par value 25c; 285,839 shares issued. **Property:** 7 unpatented claims, Round Top dist.; St. Maries. **Development:** 1 tunnel, 290 ft. long. **Ore:** Lead-silver-gold-copper. **Remarks:** Failed to file the reports required by law.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Alice Group	Camas Cove	S. R. Walker	St. Maries
Alice Gr.	Grass Mountain	Thos. Egan	St. Maries
Aurora	St. Joe	E. F. Montandon	St. Maries
Bonanza et al.	St. Joe	James M. Warren	St. Maries
Cabin et al.	St. Joe	Fulton Cook	St. Maries
Cedar Creek	Camas Cove	W. I. Hupp et al.	St. Maries
Connelly Bros.	Camas Cove	Connelly Bros.	Tyson
Copperhead	Camas Cove	Bert Whitehead	St. Maries
Donson-Woodard	St. Joe	L. B. Dunson	St. Maries
Flying Stone	Unorganized	William F. Schultz	Plummer
Gladiator Gr.	St. Joe	O. E. Hailey et al.	St. Maries
McLean Placer	Camas Cove	C. A. McLean	Santa
Red Boy	Camas Cove	J. E. Hemmerway	St. Maries
Seledoria	Camas Cove	Sadie Caverni	Clarkia
Tom et al.	Unorganized	William Russell	Chatcolet

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

A geological reconnaissance in northern Idaho and northwestern Montana, by F. C. Calkins, with notes on the economic geology by D. F. MacDonald: U. S. Geol. Survey Bull. 384, **1909.***

Preliminary report on the clays of Idaho, by F. H. Skeels: Idaho Bureau of Mines and Geology Bull. 2, **1920.***

Coeur d'Alene Lake, Idaho, and the overflow lands, by R. W. Davenport: U. S. Geol. Survey Water-Supply Paper 500, pp. 1-31, **1921.***

Ground water for municipal supply at St. Maries, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 17, **1926.***

Some Miocene and Pleistocene drainage changes in northern Idaho, by A. L. Anderson: Idaho Bureau of Mines and Geology Pamphlet 18, **1927.***

A geological reconnaissance in the St. Maries region, Idaho, by A. L. Anderson: Idaho Bureau of Mines and Geology Pamphlet 30, **1928.***

BINGHAM COUNTY

Bingham, a southeastern county, is primarily an agricultural community. It occupies a large part of the Snake River Valley and is bounded by Butte, Blaine, Power, Bannock, Caribou, Bonneville, and Jefferson counties. It has an area of 2184 square miles and was accredited with a population of 18,561 in the census of 1930.

The extensive phosphate beds of southeastern Idaho are exposed in the Blackfoot Mountains which cover the eastern part of the county. Coal also has been found in these mountains, notably along Willow Creek, a small stream which flows in a northerly direction through the east end of the county. The coal beds have received a little attention from prospectors but no coal of commercial importance has been discovered. Structures that appear likely for the presence of petroleum are present also. The fine gold in the placer deposits along Snake River is the only metal resource of the county. In the past these deposits have received the attention of placer miners, but nothing of importance was reported during the year.

MARY LEE GOLD MINING CO.

Office: Gallipolis, Ohio. **Officers:** Harold Wolf, Acting Pres.; J. V. Lee, Sec.-Treas., both of Gallipolis, Ohio. **Inc.:** Jan. 29, 1919. **Capital:** 1,000,000 shares; par value $1; 500,000 shares issued. **Property:** 47½ acres patented land. **Ore:** Placer gold.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Eagle Bend Pl.	Snake River	Alma Clough	Pingree
Eldorado Placer	Snake River	Robert Wheeler	Sterling
Oborn & Coler Pl.	Snake River	John Oborn	Blackfoot
Parsons Placer	Snake River	W. G. Parsons	Aberdeen
Snake River Pl.	Snake River	G. E. Campbell	Blackfoot
Woodruff Bend Pl.	Snake River	James G. Walsh	Blackfoot

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

Fifth, Sixth and Eleventh Ann. Repts. U. S. Geol. and Geog. Survey of the Territories, by F. V. Hayden, **1871, 1873** and **1879.***

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Notes on the Fort Hall mining district, Idaho, by F. B. Weeks and V. C. Heikes: U. S. Geol. Survey Bull. 340, pp. 175-183, **1908.***

A geological reconnaissance in southeastern Idaho, by A. R. Schultz and R. W. Richards: U. S. Geol. Survey Bull. 530, pp. 267-284, **1911.***
Guidebook of the western United States by W. T. Lee and others: U. S. Geol. Survey Bull. 612, pp. 114-147, **1915.**‡
Geology and ore deposits of the Mackay region, Idaho, by J. B. Umpleby: U. S. Geol. Survey Prof. Paper 97, **1917.**‡
Coal in eastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 716, pp. 123-153, **1920.***
Geography, geology, and mineral resources of the Fort Hall Indian Reservation, Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 713, **1920.**‡
Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 60, art. 3, pp. 1-33, **1921.**‡
Geology and oil possibilities of Bingham, Bonneville, and Caribou counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Bull. 8, **1924.****
Geography, geology, and mineral resources of part of southeastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Prof. Paper 152, **1927.**‡

BLAINE COUNTY

Blaine County is bounded on the west by Camas County, on the north by Custer County, and on the east and south, in its greater extent, by Butte and Lincoln counties. Its principal area comprises the drainage basin of Big and Little Wood rivers, which flow in a southerly direction. Its total area is 2797 square miles. The 1930 census accredited the county with a population of 3,768, or 1.3 persons to the square mile. In location it is one of the south-central counties and comprises part of the region known as "Central Idaho's Mineral Empire." The county is primarily recognized as a mining county, but it is also noted for its agricultural and stock raising industries; particularly sheep, as it is one of the largest sheep shipping points in the United States.

The county is served by the Wood River branch of the Oregon Short Line Railroad, which extends from Shoshone to Ketchum; by the Sawtooth Park State highway (U. S. No. 93), State highway No. 22, and a well-kept system of county roads which extend into all of the various mining districts and sections. All roads are kept in good repair and are open to travel during the larger part of the year. Hailey is the largest town and county seat.

The first discovery of lead-silver ore in the State was made in Blaine County, which was then called Alturas County. The first ore was marketed in 1880 and since then this county has been a consistent producer of these metals. Most of the ores are of such high grade that they can be shipped direct to the smelter without preliminary treatment, thus assuring immediate returns from all discoveries. This fact and the possibilities of discovering and opening new ore bodies will continue to hold Blaine County, particularly the Wood River district, in popular esteem as a favorite section of the State for prospectors, development companies, and those seeking a worthy field for mining enterprises.

The high-grade ores of lead and silver are widely distributed throughout the county, as well as those of gold, zinc, and copper. In addition to the five principal metals—lead, silver, zinc, gold, and copper—deposits of arsenic, antimony, bismuth, quicksilver, graphite, barytes and limestone are found in this county. These minerals occur in sufficient extent to be of commercial importance, and many of the deposits offer an excellent opportunity to development companies or to those in search of these minerals or metals. The barytes deposits are the largest that have ever been found west of the Mississippi River. One large deposit on Deer Creek has been purchased by the Bunker Hill & Sullivan Mining & Concentrating Co.

1931 Activities

The two most active enterprises in this county were the Liberty Gem Mines, Inc., whose property is located 7 miles west of Hailey, and the Idaho Mineral Products Co., Ltd., which is operating the Vienna mine in the Sawtooth district. The former extended its vertical shaft an additional 100 feet, did a large amount of drifting and crosscutting on the 100 and 200 foot levels, readjusted its mill, and in December produced a small tonnage of concentrate, which was stored. The Idaho Mineral Products Co., Ltd., maintained active development work throughout the year, installed new milling equipment, and commenced milling operations in December. This company, in cooperation with the State highway department, opened Galena Summit to motor vehicle travel in December in order that the company might complete the storing of winter supplies.

The Triumph mine, of the Hailey Triumph Mines Co., was idle throughout the year. A few lessees maintained work at the mines owned by the Midvale Mining Co. and Ervine Mining Co., and at the Independence and North Star mines of the Federal Mining & Smelting Co. Development work was maintained without interruption at the properties of the Utah-Bellevue Mines Co., near Bellevue, and the Wood River Mining Co., and at the Parker mine, which is being operated under lease and option. The two last-mentioned properties are located in the Elkhorn section of the Warm Springs Creek mining district near Ketchum.

The Silver Star-Queens Mines, Inc., at the Queen of the Hills group, near Bellevue, reopened an additional part of the Lusk tunnel during the early part of the year. Other than annual labor, all of the companies operating in the Muldoon district were idle. The Treasure Vault Mining Co., whose property is located west of Hailey, and Peter L. Kent at the Lone Pine Tree group, near the Red Cloud mine, on Deer Creek, both performed a small amount of work during the summer.

ARGO MINING CORPORATION

Office: 3725 Kate Ave., Baltimore, Md. **Officers:** Henry Mencken, Pres.; F. H. Gettemuller, Sec., both of Baltimore, Md.; T. R. Bowlden, Mgr., Gannett. **Inc.:** Oct. 15, 1926. **Capital:** 500,000 shares; increased Nov. 13, 1929, to 1,000,000 shares; par value $1; 785,000 shares issued. **Property:** Rattler group; 7 unpatented claims, Mineral Hill dist.; Gannett. **Development:** 4 tunnels, giving approximately 580 ft. vertical depth on vein; total development, 2533 ft. **Plant:** Steam-driven compressor on ground not installed; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** Annual labor only.

ARGOSY MINING & MILLING CO., LTD.

Office: 1125 N. Garfield Ave., Pocatello, Idaho. **Officers:** W. E. Smith, Pres.; Priscilla K. Smith, Sec., both of Pocatello. **Inc.:** Feb. 24, 1904. **Capital:** 50,000 shares; par value $1; all shares issued. **Property:** Argosy group; 5 patented claims, Little Wood River dist.; Muldoon. **Development:** By 5 tunnels; total development approximately 800 ft. **Ore:** Lead-silver. **Remarks:** Idle for 16 years.

BALTIMORE & VICTORIA MINING CO.

Office: Care of Terre Haute Nat'l Bank & Trust Co., Terre Haute, Ind. **Officers:** William K. Hamilton, Pres., Terre Haute, Ind.; Eph Daft, Agent, Hailey. **Inc.:** July 3, 1903. **Capital:** 150,000 shares; par value 10c; all shares issued. **Property:** Ida Harland group; 5 patented, 8 unpatented claims, Warm Springs Creek dist.; Hailey. **Remarks:** Idle.

BLACKJACK MINES CORPORATION

Office: Room 2, Ward Bldg., Yakima, Wash. **Officers:** S. J. Arkoosh, Pres.; H. E. Garmo, Sec., both of Yakima, Wash. **Inc.:** Jan. 21, 1930. **Capital:** 1,400,000 shares; par value 25c; 1,020,090 shares issued. **Property:** Blackjack group; 10 unpatented claims, Mineral Hill dist.; Bellevue. **Development:** Approximate total development is 2,125 ft. consisting of 5 short tunnels and a number of crosscuts and drifts. **Ore:** Lead-silver. **Remarks:** Annual labor only.

BUNKER HILL & SULLIVAN MINING & CONCENTRATING CO. (See Shoshone County)

Officers: F. W. Bradley, Pres., 1022 Crocker Bldg., San Francisco, Cal.; Stanly A. Easton, Mgr., Kellogg. **Property:** 10 unpatented claims; Bullion, Mineral Hill dist.; Hailey. **Remarks:** Annual labor only.

DAISY MINING & MILLING CO., LTD.

Office: Burrows Motor Co., Yakima, Wash. **Officers:** A. E. Larsen, Pres.; L. A. Devine, Sec., both of Yakima, Wash. **Inc.:** July 6. 1920. **Capital:** 500,000 shares; par value $1; all shares issued. **Property:** Camas group; 18 patented claims, Mineral Hill dist.; Hailey. **Development:** Principally by 1 tunnel 800 ft. long. **Plant:** MINE: Electrically-driven compressor and complete mining equipment. MILL: Small concentrator, including flotation. **Ore:** Lead-silver-gold. **Remarks:** Idle.

ERVINE MINING CO.

Office: Ketchum. **Officers:** M. A. Costello, Sec., 40 Court St., Boston, Mass.; C. Fred Howe, Mgr., Ketchum. **Inc.:** March 14, 1922. **Capital:** 1,000,000 shares; par value $1; 400,000 shares issued. **Property:** Boyle Mtn. group; 7 patented, 13 unpatented claims, 320 acres, Warm Springs Creek dist.; Ketchum. **Ore:** Silver-lead. **Remarks:** A small amount of work by lessees.

EUREKA DEVELOPMENT CO., LTD.

Office: 319 Dooly Blk., Salt Lake City, Utah. **Officers:** W. A. Wilson, Pres.-Mgr., Salt Lake City, Utah. **Inc.:** June 28, 1905. **Capital:** 200,000 shares; par value 50c; 120,794 shares issued. **Property:** Eureka group; 12 patented, 10 unpatented claims, Mineral Hill dist.; Hailey, 7 miles. **Development:** Total development approximately 12,900 ft., the length of the principal workings being: Bay State, 1000 ft.; Chicagoan, 300 ft.; Whale, 1400 ft.; Eureka, 3920 ft.; Idahoan, 5000 ft. One inclined shaft 700 ft. long; 1 inclined shaft 435 ft. long. **Plant:** MINE: 8x10 Lidgerwood hoist; 40 h. p. C-P oil-driven compressor. MILL: 25-ton concentrator. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Annual labor only.

FEDERAL MINING & SMELTING CO. (See Shoshone County)

Office: Wallace. **Officers:** F. H. Brownell, Pres.; J. L. Martin, Sec., both of 120 Broadway, New York City; H. G. Washburn, Mgr., Wallace. **Property:** Independence, North Star, Koeninger and Malta groups; 45 patented, 4 unpatented claims, 762 acres, Warm Springs Creek dist.; Hailey, 12 miles. **Development:** Approximately 10 miles of underground workings, the principal of which is the Plummer, or main haulage tunnel, which is over 6000 ft. long and connects the North Star and Independence groups. **Plant:** MINE: 1 English Iron Works 202 single drum 25 h. p. electric hoist; 1 Lidgerwood 8x10 air hoist; 1 I-R 420 cu. ft. compressor; 1 C-P 765 cu. ft. compressor. All electrically driven. Electric haulage through Plummer tunnel. One Waugh drill sharpener and complete mine equipment; 4400 ft. Riblet aerial tram from Plummer tunnel to mill, capacity 20 tons an hour. Shops, timber sheds and bunk houses. MILL: 350-ton concentrator; jaw and gyratory crushers; rolls; Marcy ball mills; Hancock jigs; drag classifiers; Wilfley tables; Dorr thickeners; Oliver filters; electric power. **Ore:** Lead-silver. **Remarks:** Active mining operations were suspended on August 1, 1923, after which various parts of the Independence and North Star mines have been operated by lessees. A small tonnage was produced and marketed during the year.

FIELDS MUTUAL DEVELOPMENT CO.

Office: 254 Alder St., Portland, Oregon. **Officers:** Al. W. Field, Pres.-Mgr.; V. F. Rodgers, Sec., both of Portland, Ore. **Inc.:** Nov. 6, 1926. Formerly known as Field Mutual Mining Co. **Capital:** 500,000 shares; par value $1; 101,045 shares issued. **Property:** 15 unpatented claims, Kelly Mountain, Mineral Hill dist.; Hailey. **Development:** Approximately 3000 ft. of underground work, principally 1 tunnel 1000 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Annual labor only.

HAILEY BONANZA MINING CO.
Office: Hailey. **Officers:** Frank R. Karge, Pres., Chicago, Ill.; Alfred Wolff, Sec.-Mgr., Hailey. **Inc.:** Aug. 9, 1919. **Capital:** 500,000 shares; par value $1; all shares issued. **Property:** Imperial group; 1 patented, 24 unpatented claims, Greenhorn Gulch, Warm Springs Creek dist.; Hailey. **Development:** Approximately 3000 ft. of underground workings, the principal of which is 1 tunnel 1200 ft. long. **Plant:** MINE: Electrically-driven compressor and complete mining equipment. MILL: 100-ton concentrator consisting of tables and jigs. **Ore:** Lead-silver. **Remarks:** A small shipment of crude ore was produced and marketed.

HAILEY TRAMWAY CO.
Office: 215 Felt Bldg., Salt Lake City, Utah. **Officers:** E. H. Snyder, Pres.; G. M. Snyder, Sec., both of Salt Lake City. **Inc.:** Aug. 28, 1929. **Capital:** 200,000 shares; par value 50c; all issued. **Property:** Triumph group; 17 unpatented claims, Warm Springs Creek dist.; Hailey. **Plant:** An aerial wire rope tramway 4 1-10 miles long connects the Triumph mine and the railroad. **Remarks:** This company transports the ore produced from the Triumph mine under contract. The mining claims cover the right-of-way of the tramway.

HAILEY TRIUMPH MINES CO.
Offices: 215 Felt Bldg., Salt Lake City, Utah. **Officers:** E. H. Snyder, Pres.; Guy M. Snyder, Sec., both of Salt Lake City; J. C. Jensen, Supt., Hailey. **Inc.:** Aug. 23, 1929. **Capital:** 1,000,000 shares; par value 25c; all shares issued. **Property:** Lease on Triumph mine, owned by Ivanhoe Mining Co.; Warm Springs Creek dist.; Hailey. **Development:** Principally by a vertical shaft 500 ft. deep in which there are 5 levels. Total development approximately 18,000 ft. **Plant:** Electrically driven double-drum hoist and 700 cu. ft. compressor; steel sharpener; complete mining equipment; complete modern mining camp. **Ore:** Lead-zinc-silver. **Remarks:** Idle throughout the year.

HOMESTAKE MINES CORPORATION
Office: Ketchum. **Officers:** H. L. Kaufman, Pres.-Mgr., Ketchum. **Inc.:** July 27, 1927. **Capital:** 1000 shares; par value $100; all shares issued. **Property:** Homestake group; 13 unpatented claims, Warm Springs Creek dist.; Ketchum. **Development:** Approximately 4000 ft. of workings, the principal being: No. 3 tunnel, 500 ft. long; No. 4 tunnel, 800 ft. long; No. 5 tunnel, 1500 ft. long; No. 6 tunnel, 1800 ft. long. **Plant:** Gas-driven C-P compressor; complete mining equipment. **Ore:** Lead-silver-zinc. **Remarks:** Annual labor only.

IDAHO MINERAL PRODUCTS CO.
Office: Hailey. **Officers:** G. P. Williams, Pres., Calgary, Canada; J. G. Hedrick, Sec., Hailey; J. L. Mercer, Mgr., Obsidian. **Inc.:** July 6, 1920. **Capital:** 100,000 shares, par value $1; increased Nov. 25, 1931, to 1,000,000 shares, par value $1; 300,000 shares issued. **Property:** Vienna group; 35 patented, 8 unpatented claims, held under lease and option, Sawtooth dist.; Ketchum. **Plant:** MINE: 75 h. p. Diesel engine driving compressor. MILL: gas-driven jig concentrator. **Ore:** Silver-lead. **Men employed:** Average, 10. **Remarks:** Active development work throughout the year. New milling equipment was installed, and milling operations were commenced in December.

IVANHOE MINING CO.
Office: 485 California St., San Francisco, Calif. **Officers:** Harry L. Tevis, Pres.; William Letson, Sec., both of San Francisco, Calif. **Inc.:** July 28, 1909. **Capital:** 2500 shares; par value $1; all shares issued. **Property:** Durango group, 16 patented claims; Iris group, 5 patented claims; Mineral Hill dist.; Triumph group, 7 patented claims; Warm Springs Creek dist. **Remarks:** Operated by Hailey Triumph Mines Co., lessees.

JENNIE R MINING CO.
Office: Hailey. **Officers:** W. P. Fowler, Pres.-Mgr., Hailey. **Inc.:** Jan. 10, 1929. **Capital:** 50,000 shares; par value $1; 5 shares issued. **Remarks:** Owns no property.

LIBERTY GEM MINES, INC.

Office: 610 Eastman Bldg., Boise. **Officers:** Guy E. Mathews, Pres.; G. Arlon Mathews, Sec., both of Hailey. **Inc.:** Sept. 13, 1927. **Capital:** 250 shares; no par value; all shares issued. **Property:** Liberty group; 20 unpatented claims, Mineral Hill dist.; Hailey. **Development:** Numerous open cuts and 6 4x6-ft. vertical shafts, the deepest of which is 200 ft. Total development, 1000 ft. **Plant:** MINE: 2 electrically driven compressors; air-driven hoist; complete mining equipment and camp. MILL: Fine-grinding selective flotation, 100-ton capacity. **Ore:** Lead-silver-zinc. **Men employed:** Average, 10. **Remarks:** The principal shaft was extended an additional 100 ft.; a large amount of drifting and crosscutting was done on the 100 and 200 ft. levels; the mill was readjusted; and a small tonnage of concentrate was produced in December. The funds were derived from the sale of stock on a basis of $4,000 per share.



LIBERTY GEM MINES, INC.

MIDVALE MINING CO.

Office: Ketchum. **Officers:** M. A. Costello, Sec., 40 Court St., Boston, Mass.; C. Fred Howe, Mgr., Ketchum. **Inc.:** March 14, 1922. **Capital:** 1,000,000 shares; par value $1; 400,000 shares issued. **Property:** Pay group; 8 unpatented claims, Warm Springs Creek dist.; Ketchum. **Ore:** Zinc. **Remarks:** A small amount of work by lessees.

PAYMASTER MINING CO.

Office: 502 Ezra Thompson Bldg., Salt Lake City, Utah. **Officers:** Charles Stone, Pres.; R. A. Mayo, Sec., both of Salt Lake City. **Inc.:** Sept. 26, 1931. **Capital:** 1,000,000 shares; par value 10c; 666,967 shares issued. **Property:** Paymaster group; 8 unpatented claims, Lava Creek dist.; Arco. **Development:** Principally by 2 tunnels. **Ore.:** Lead-silver-zinc. **Remarks:** Annual labor only.

QUINCY JUNIOR MINING CO.

Office: 319 Dooly Block, Salt Lake City, Utah. **Officers:** George L. Erwin, Pres., Grand Rapids, Mich.; C. Browne, Sec.; W. A. Wilson, Mgr., both of Salt Lake City. **Inc.:** Dec. 20, 1903. **Capital:** 150,000 shares; par value $1; 105,951 shares issued. **Property:** Red Elephant group; 12 patented, 2 unpatented claims, Mineral Hill dist.; Hailey. **Development:** Approximately 15,000 ft. underground workings. **Remarks:** Annual labor only.

RED ELEPHANT CONSOLIDATED MINES CO.

Office: 319 Dooly Blk., Salt Lake City, Utah. **Officers:** W. A. Wilson, Pres.-Mgr.; C. Browne, Sec., both of Salt Lake City. **Inc.:** June 16, 1916. **Capital:** 1,500,000 shares; par value $1; 964,709 shares issued. **Property:** Red Elephant Extension group; 1 patented, 16 unpatented claims, Mineral Hill dist.; Hailey. **Remarks:** Annual labor only on unpatented claims.

SILVER SPAR MINING CO.

Office: Idaho Falls. **Officers:** B. M. Rogers, Pres.; Dr. Dwight Lenzi, Sec., both of Idaho Falls. **Inc.:** April 14, 1916, as Falls Mining Co.; name changed April 28, 1917. **Capital:** 200,000 shares; par value $1; 94,449 shares issued. **Property:** Silver Spar group; 20 patented, 6 unpatented claims, Little Wood River dist.; Muldoon. **Development:** By 5 tunnels totaling approximately 1520 ft. in length, and an inclined shaft 200 ft. long. **Plant:** Steam-driven hoist and compressor, complete mining equipment and camp. **Ore:** Silver. **Remarks:** Idle; one watchman.

SILVER STAR-QUEENS MINES, INC.

Office: Wallace. **Officers:** L. K. Stratton, Pres., Spokane, Wash.; Wm. J. Stratton, Sec., Wallace. **Inc.:** Nov. 22, 1929. **Capital:** 10,000,000 shares; par value 10c; 4,949,919 shares issued. **Property:** Queen of the Hills group; 1 patented, 4 unpatented claims, Mineral Hill dist.; Bellevue. **Development:** Principally by 3 tunnels: No. 1, 900 ft. long; No. 2, 700 ft. long; and Lusk tunnel, 2200 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** Active work during the early part of the year in reopening the Lusk tunnel.

TIP TOP GROUP MINING CO.

Office: 40 North Main St., Salt Lake City. **Officers:** Sylvester Q. Cannon, Pres.; Charles S. Hyde, Sec., both of Salt Lake City. **Inc.:** July 17, 1930. **Capital:** 100,000 shares; par value 10c; all shares issued. **Property:** Trapper group; 3 patented claims, Warm Springs Creek dist.; Ketchum. **Remarks:** Idle.

TORBANEHILL MINING CO.

Office: 810 Deseret Bank Bldg., Salt Lake City, Utah. **Officers:** W. F. Armstrong, Pres.; Oscar W. Moyle, Sec., both of Salt Lake City, Utah. **Inc.:** Sept. 14, 1906. **Capital:** 500,000 shares; par value 1c; 300,000 shares issued. **Property:** 7 patented claims, Lava Creek dist.; Carey. **Remarks:** Idle for many years.

TREASURE VAULT MINING CO.

Office: Box 334, Hailey. **Officers:** R. McClure, Pres.; N. Loewen, Sec., both of Hailey. **Inc.:** July 27, 1929. **Capital:** 150,000 shares; par value $1; 84,040 shares issued. **Property:** Treasure Vault group; 10 unpatented claims, Mineral Hill dist.; Hailey. **Ore:** Gold. **Men employed:** Average, 2. **Remarks:** Active throughout the summer.

UNITED MINES CO. OF IDAHO, INC.

Office: 275 Yamhill St., Portland, Ore. **Officers:** Geo. E. Taylor, Pres.; A. Pearson, Sec.; T. Ure Williams, Mgr., all of Portland, Ore. **Inc.:** Feb. 2, 1929. **Capital:** 500,000 shares; par value $1; 130,650 shares issued. **Property:** 5 unpatented claims, held under lease and option from United Mines Co.; Garfield Gulch, Little Wood River dist.; Muldoon. **Development:** Approximately 1400 ft. of underground workings, consisting principally of 3 tunnels: No. 1, 850 ft. long; No. 2, 280 ft. long; No. 3, 90 ft. long. **Plant:** 7x6 I-R compressor, driven by 34-in. Pelton water wheel, and complete equipment. **Ore:** Lead-silver. **Remarks:** Annual labor only.

UTAH-BELLEVUE MINES CO.

Office: Box 1975, Salt Lake City, Utah. **Officers:** E. W. Totten, Pres.; O. R. Totten, Sec.; A. W. Kelley, Mgr.; all of Salt Lake City. **Inc.:** Filed in Idaho Dec. 19, 1914. **Capital:** 500,000 shares; par value 10c; 143,355 shares issued. **Property:** Kelley group; 6 unpatented claims, Mineral Hill dist.; Bellevue. **Development:** Principally by 1 tunnel 300 ft. long and a vertical shaft 125 ft. deep. **Plant:** Small gas-driven compressor and air-driven hoist. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** The principal tunnel was extended during the summer, the funds for the work being derived from stock assessments.

WOOD RIVER MINING CO.

Office: Thorsen Bldg., Blackfoot. **Officers:** F. T. Halvorson, Pres.; L. R. Thomas, Sec.; Carl W. Swager, Mgr., all of Blackfoot. **Inc.:** July 30, 1923. **Capital:** 1,000,000 shares; par value 10c; 385,000 shares issued. **Property:** Puritan group; 8 unpatented claims, Warm Springs Creek dist.; Ketchum. **Development:** By 3 tunnels: No. 1, 170 ft. long; No. 2, 300 ft. long; No. 3, 1034 ft. long. **Ore:** Silver and lead. **Men employed:** Average, 4. **Remarks:** Active throughout the year, the work being done under contract.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Ajax	Mineral Hill	Leo Barrett	Hailey
Alabama	Little Wood R.	Joe Longono	Muldoon
Alexander	Warm Spgs. Cr.	Oscar Griffith	Ketchum
Alturas & Scotia	Sawtooth	Frank Becker	Hailey
Amazon	Mineral Hill	Chas. R. Walters	Hailey
Anabelle	Mineral Hill	Sibbie Tandy	Hailey
Anna	Mineral Hill	Mrs. P. McMonigle	Hailey
Anna et al.	Warm Spgs. Cr.	Frank Langell	Hailey
Bald Eagle	Mineral Hill	Cecelia J. Thomas	Hailey
Barbara	Mineral Hill	John Utsch	Hailey
Battling Jack Gr.	Sawtooth	John F. Garrett	Obsidian
Bavarian	Mineral Hill	H. J. Vorberg	Hailey
B B B	Mineral Hill	Beck Bros.	Bellevue
Beaver Gr.	Sawtooth	Thos. Mizer, Sr.	Hailey
Belmont Gr.	Mineral Hill	Jos. Siker	Hailey
Big Mint	Mineral Hill	H. R. Plughoff Est.	Hailey
Black Barb	Mineral Hill	E. B. Williams	Boise
Black Diamond	Warm Spgs. Cr.	Magnolia Gutches	Hailey
Black Horse	Mineral Hill	Mrs. Cecilia Roark	Bellevue
Blue Bell	Warm Spgs. Cr.	Augustine Johnson	Hailey
Bob Tail	Mineral Hill	Rodney Brown Est.	Hailey
Bonanza	Mineral Hill	J. L. Van Over	Bellevue
Boulder Gr.	Warm Spgs. Cr.	M. W. Wood	Boise
Boyle Mt. Gr.	Warm Spgs. Cr.	C. Fred Howe	Ketchum
Broadway	Warm Spgs. Cr.	Fred Vancil	Hailey
Bromide et al.	Mineral Hill	Ella Bresnahan	Hailey
Bull Whacker	Mineral Hill	G. G. Brown	Hailey
California	Mineral Hill	W. J. Sowden Est.	Hailey
Carboniferous	Mineral Hill	Mark Aukema	Hailey
Chloride Point	Warm Spgs. Cr.	Frank H. Morris	Hailey
Climax	Mineral Hill	Raymond Guyer	San Francisco, Cal.
Climax Frac.	Mineral Hill	Geo. Choate	Hailey
Comet Gr.	Mineral Hill	Davidson Groc.	Boise
Compensation Gr.	Mineral Hill	L. A. Ditmer Est.	Hailey
Con Virginia	Mineral Hill	Mark Aukema	Hailey
Cotton Wood et al.	Mineral Hill	Rodney Brown	Hailey
Croesus Gr.	Mineral Hill	Fred C. Robertson	405 Hyde Bldg., Spokane, Wash.
Crown Point	Warm Spgs. Cr.	E. A. Obenchain	Ketchum
Daisy	Warm Spgs. Cr.	Clarence Bonning	Ketchum
Daisy	Mineral Hill	W. J. Oliver	Hailey
Delsie et al.	Unknown	W. H. Uhrig	Gannett
Dewey Gr.	Mineral Hill	Fred W. Smith Est.	Hailey
Double J Gr.	Mineral Hill	J. J. Connor	Heyburn
Easter	Resurrection	Guy U. Lee	Butte, Mont.
Edris	Mineral Hill	R. B. French et al.	Hailey
Elkhorn	Warm Spgs. Cr.	Mrs. Horace Lewis	Ketchum
Ellen Stilts	Mineral Hill	W. A. Holland Est.	Hailey
Elmo	Mineral Hill	Beck Bros.	Rupert
E. Pluribus Unum	Mineral Hill	Geo. W. Hunter	Bellevue
Evelyn	Warm Spgs. Cr.	A. R. Griffith	Ketchum
Extension	Warm Spgs. Cr.	L. P. McPheters	Ketchum

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Flag Staff Gr.	Mineral Hill	E. F. Spooner	Hailey
Free Coinage	Warm Spgs. Cr.	Jas. Bonning Est.	Ketchum
Galena Gr.	Sawtooth	A. C. Martin	Minneapolis, Minn.
Garfield Gulch	Little Wood R.	Chas. Norris Est.	Hailey
Gate City	Mineral Hill	A. M. Glahn, Agt.	Bellevue
Gem	Mineral Hill	Elmer Brown	Hailey
Gilt Edge	Mineral Hill	Sarah Campbell Est.	Bellevue
Glendale Queen	Mineral Hill	W. D. Schraff Est.	Bellevue
Gold King	Mineral Hill	Mark J. King	Hailey
Grayhound et al.	Warm Spgs. Cr.	H. D. Jones et al.	Hailey
Hardscrabble	Mineral Hill	A. M. Singer	Gooding
Hard Times	Mineral Hill	Jos. Werry, Jr.	Bellevue
High Ore et al.	Little Wood R.	A. M. Glahn	Bellevue
Hill Side	Mineral Hill	Sam Carpenter et al.	Bellevue
Hispanolia	Sawtooth	Chas. H. Furey	Pocatello
Homestake Gr.	Warm Spgs. Cr.	J. A. Nelson	Hailey
Hyndman Gr.	Warm Spgs. Cr.	Andrew Johnson	Hailey
Imperial Gr.	Warm Spgs. Cr.	Leo Snider	Hailey
Jack Dempsey	Mineral Hill	Joseph Teuscher	Bellevue
Jennie R.	Mineral Hill	W. P. Fowler	Hailey
Jupiter	Little Wood R.	E. M. James Est.	Compton, Calif.
Keystone	Warm Spgs. Cr.	James McKelvey	Mackay
Kitty	Mineral Hill	Thos. Povey	Hailey
La Grande	Mineral Hill	Floyd W. Wilson	Hailey
Lake Creek	Warm Spgs. Cr.	Robt. Koeninger	Ketchum
Lark	Mineral Hill	Mrs. A. I. Harris	Bellevue
Last Chance	Warm Spgs. Cr.	P. M. Gray	Ketchum
Lawrence Gr.	Sawtooth	Geo. H. Spongberg et al.	Pocatello
Lead King Gr.	Mineral Hill	Joe Siker	Hailey
Leinster et al.	Mineral Hill	W. H. MacFarlane et al.	Hailey
Les Despencer	Mineral Hill	Edw. Flannery Est.	Hailey
Lone Jack	Sawtooth	John T. Garrett	Obsidian
Lone Pine Gr.	Little Wood R.	J. H. Glahn	Bellevue
Lone Pine Gr.	Warm Spgs. Cr.	Gus Anderson et al.	Ketchum
Lone Pine Tree	Mineral Hill	Peter Lorillard Kent	Union Club, N.Y.C.
Lucky Boy	Sawtooth	H. D. Jones	Hailey
Lucky Coin	Warm Spgs. Cr.	Robert Harrison	Bellevue
Lucky Shot Gr.	Mineral Hill	J. J. McFadden, Agt.	Hailey
Lucky Strike	Mineral Hill	W. D. McKercher	Bellevue
Majestic Gr.	Mineral Hill	Guy U. Lee	Butte, Mont.
Majestic et al.	Warm Spgs. Cr.	Leo P. Snider	Hailey
Mammoth	Mineral Hill	Ralph Edmiston	Gannett
Mary M.	Warm Spgs. Cr.	Gus Anderson	Ketchum
Maybe	Mineral Hill	Chas. Sonneleitner	Hailey
Maybelle	Mineral Hill	Wayne Beck	Bellevue
Minnesota	Warm Spgs. Cr.	Duquette Bros.	Idaho City
Minnie B.	Warm Spgs. Cr.	W. A. Sullivan	Hailey
Mohawk	Warm Springs	Clint Allen	Hailey
Moonlight	Mineral Hill	Sam Carpenter	Bellevue
Moonshine	Warm Spgs. Cr.	Thos. J. Mizer et al.	Hailey
Morning Glory	Warm Spgs. Cr.	Eugene Sorenson	Ketchum
Mountain Lion	Little Wood R.	C. L. Swan	Pocatello
Myrtie	Sawtooth	M. O. Duffy Est.	Hailey
Narrow Gauge	Mineral Hill	Eph Daft	Hailey
Nay Aug	Mineral Hill	J. J. Baker	Hailey
New Hope	Warm Spgs. Cr.	W. H. Warfield	Ketchum
New Year	Mineral Hill	Alex Fischer	Bellevue
New York	Mineral Hill	J. W. Redding	Bellevue

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
O'Neil-Clark Gr.	Mineral Hill	Geo. Westlake	Hailey
Ontario	Mineral Hill	D. F. Dowd	Idaho Falls
Oriental	Mineral Hill	S. M. Friedman Est.	Hailey
Oriole	Mineral Hill	Wm. McWade	Bellevue
Overland	Mineral Hill	R. B. French	Hailey
Owl	Mineral Hill	Arthur Cloughton	Bellevue
Parnell	Mineral Hill	P. McMonigle Est.	Hailey
Paymaster	Lava Creek	J. G. Hedrick	Ketchum
Portland Gr.	Mineral Hill	D. F. Dowd	Idaho Falls
Porto Rico Gr.	Little Wood R.	Wm. O'Connor Est.	Hailey
Prize Taker	Mineral Hill	F. E. Grenfell, Agt.	Bellevue
Queen Bee et al.	Mineral Hill	Antone Peterlin	Bellevue
Queen Bess	Mineral Hill	J. J. Baker	Hailey
Queen Extension	Mineral Hill	Neil Campbell Est.	Bellevue
Radio	Sawtooth	Frank Croner	Fairfield
Rattler	Mineral Hill	Alex McKibben	Hailey
Red Bird	Mineral Hill	W. R. Edmiston	Gannett
Red Cloud	Mineral Hill	M. J. Smith, Agt.	Hailey
Red Leaf	Mineral Hill	Jos. Siker	Hailey
Red Rocket	Little Wood R.	J. W. Pitman	Meridian
Richmond Gr.	Mineral Hill	Jos. Werry Est.	Bellevue
Riverside Gr.	Mineral Hill	J. J. Rowley	Hailey
Roadside	Mineral Hill	J. S. Shotwell	Gooding
Rockcricker	Mineral Hill	Arthur D. Davis	Hailey
Ruth	Mineral Hill	Victor Haupt	Hailey
Saint Idloes	Mineral Hill	Chas. Sheehan	Boise
Saint Joseph et al.	Mineral Hill	Geo. W. Westlake	Hailey
Silver Bell Gr.	Warm Spgs. Cr.	Arvid Johnson et al.	Hailey
Silver Cord Gr.	Warm Spgs. Cr.	Chas. Swanson Est.	Ketchum
Silver Crown	Warm Spgs. Cr.	S. L. Schwartz	Hailey
Silver King	Mineral Hill	A. D. Hunter	Bellevue
Silver King	Sawtooth	F. E. Riddle	Tulsa, Okla.
Silver Knob	Mineral Hill	W. A. Sullivan	Hailey
Silver Pick	Mineral Hill	T. A. Blakeley	San Bernardino, Calif.
Sitting Bull et al.	Mineral Hill	Joe Day	Hailey
Slab Sides	Warm Spgs. Cr.	H. M. Young	Hailey
Smuggler	Little Wood R.	H. L. Watkins	Muldoon
Standard	Warm Spgs. Cr.	Richard Hays Est.	Hailey
Star	Mineral Hill	Leo J. Falk	Boise
Stockholder	Mineral Hill	Ira L. Kilgore	Hailey
Sunrise Gr.	Warm Spgs. Cr.	R. J. Blakeley	Hailey
Surprise	Little Wood R.	F. J. Long	Wendell
Susie S.	Mineral Hill	John Hailey Est.	Boise
Telluride	Mineral Hill	Harry Gordon	Bellevue
Tenbrook et al.	Warm Spgs. Cr.	Alonzo Price, Agt.	Ketchum
Tiger	Mineral Hill	Guy U. Lee	Butte, Mont.
Tiger Frac.	Mineral Hill	Fred Reinhard	Hailey
Tom Cat	Mineral Hill	Chas. Sonneleitner	Hailey
Triumph et al.	Warm Spgs. Cr.	M. W. Wood	Boise
Tungad	Mineral Hill	Peter L. Kent	Hailey
Vindicator Gr.	Warm Spgs. Cr.	Archie Bell	Hailey
Wheelbarrow	Warm Spgs. Cr.	A. T. Farnlund	Ketchum
White Elephant	Warm Springs	Jas. Obenchain	Ketchum
White Wing	Unorganized	C. C. Starcher	Carey
Wolftone	Mineral Hill	W. T. Riley	Boise
Wonder Gr.	Mineral Hill	Robert Justus	Hailey
Wood River Pride	Mineral Hill	Alice Holland	St. Louis, Mo.
Woodrow Gr.	Mineral Hill	V. T. Clark	Bellevue
Woodrow Wilson	Warm Spgs. Cr.	M. A. Morris	Ketchum

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

Graphitic anthracite in the Parker mine, Wood River, Idaho, by W. P. Jenny: Columbia School of Mines Quart., vol. 10, pp. 313-315, **1889.***

A geological reconnaissance across Idaho, by G. H. Eldridge: U. S. Geol. Survey Sixteenth Ann. Rept., pt. 2, pp. 217-276, **1895.***

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey Twentieth Ann. Rept., pt. 3, pp. 65-256, **1900.***

Some Idaho mining districts, by Arthur Lakes: Mines and Minerals, vol. 22, pp. 203-206, December, **1901.***

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

The Bellevue mining district, by Arthur Lakes: Mines and Minerals, vol. 23, pp. 271-272, January, **1903.***

Some of the veins and ore deposits of the Wood River district, by Arthur Lakes: Min. World, vol. 23, pp. 696-697, Dec. 23, **1905.***

A new and large deposit of barite in Idaho, by Arthur Lakes: Min. Reporter, vol. 54, p. 162, Aug. 16, **1906.***

The Bullwhacker mine, near Hailey, Idaho, by Arthur Lakes: Min. Reporter, vol. 53, pp. 168-169, Feb. 15, **1906.***

Faulting in the Red Cloud mine, by H. W. Turner: Min. and Sci. Press, vol. 95, pp. 747-748, Dec. 14, **1907.***

Wood River mining district of Idaho, by Arthur Lakes: Min. World, vol. 34, pp. 307-308, Feb. 4, **1911.***

Barytes and strontium: Idaho, by J. M. Hill: U. S. Geol. Survey Mineral Resources, **1915**, pt. 2, p. 172.*

Ore deposits in the Sawtooth quadrangle, Blaine and Custer counties, Idaho, by J. B. Umpleby: U. S. Geol. Survey Bull. 580, pp. 221-249, **1915.***

Geology and ore deposits of the Mackay region, Idaho, by J. B. Umpleby: U. S. Geol. Survey Prof. Paper 97, **1917.**‡

Geology and ore deposits of Alturas quadrangle, by S. M. Ballard: Idaho Bureau of Mines and Geology Bull. 5, **1922.***

Arsenical ore deposits in the United States, by R. H. Sayre: Eng. and Min. Jour.-Press, vol. 118, pp. 929-932, Dec. 13, **1924.**§

The Vienna district, Blaine County, Idaho, by C. P. Ross: Idaho Bureau of Mines and Geology Pamphlet 21, **1927.****

A lead ore consisting of native lead, leadhillite and lethargite, by E. V. Shannon: Econ. Geology, vol. 22, pp. 826-829, December, **1927.****

A geologic error regarding the Wood River district, by Stewart Campbell: Eng. and Min. Jour., vol. 126, pp. 287-289, Aug. 25, **1928.**§

Craters of the Moon National Monument, Idaho, by H. T. Stearns: Idaho Bureau of Mines and Geology Bull. 13, **1928.***

Geology and ore deposits of the Lava Creek district, Idaho, by A. L. Anderson: Idaho Bureau of Mines and Geology Pamphlet 32, **1929.****

Geology and ore deposits of the Wood River region, Idaho, by D. F. Hewett: U. S. Geol. Survey Bull. 814, **1930.**‡

BOISE COUNTY

Boise is one of the principal mining counties in the southwestern part of the State. It is bounded by Ada, Gem, Valley, Custer, Blaine and Elmore counties. Included within its area are a part of the drainage basin of the Payette River, practically all of the drainage basin of the South Fork of the Payette River, and all of the drainage basins of Grimes Creek and Moore Creek. The last two comprise the area generally known as the Boise Basin. The county has a total area of 1,840 square miles, and was accredited with a population of 1,847 in the 1930 census, or one person to the square mile. The principal industries are mining, stock raising, timber and lumbering.

Different sections of the county are served by Federal and State highways, which are supplemented by well-maintained county roads. These roads extend into all the various mining districts and are open to automobile travel during the larger part of the year. The western part of the county is traversed by the Nampa-McCall branch of the Oregon Short Line Railroad; the central part, or Boise Basin, is served by the Intermountain Railroad, which extends from Barber, near Boise, to Stierman and Idaho City. Idaho City, the county seat, and one of the oldest towns in the State, dates its existence from 1863, the time of the original gold rush to the Basin. It once boasted of a population as high as seven to ten thousand.

The history of Boise County dates back to the formation of the State in 1860, when placer gold was first discovered near Pierce City (Clearwater County). The overflow from this stampede resulted in the discoveries of Elk City, Florence, and Boise Basin, in quick succession; and by 1863 Boise Basin was one of the most thriving communities in the western part of the United States. In July, 1864, more than nine thousand 20-acre placer claims had been recorded in the three principal mining districts.

During the first few years after the discovery of gold all mining was confined to the placers which were susceptible to hand methods. After these became less profitable, numerous ditches 5 to 30 miles in length were constructed, and hydraulic mining of the higher bench gravels was started. These operations were conducted for many years, and a few have survived to the present day.

Shortly after the placer rush had subsided, attention was given to quartz mining; many discoveries soon were made, mills were constructed, and deep mining started. The principal discovery was the Gold Hill mine at Quartzburg. In 1863 the vein was exposed by placer mining, and by 1867 a mill had been built and was in operation. Except at brief periods when it was being repaired, the mill was operated continuously for 12 years. The mine has been in almost continuous operation since the day of discovery and is credited with a production of six to eight million dollars. This record gives it the distinction of being the oldest and largest producing gold mine in the State. The vein has been opened to a vertical depth of 850 feet only; at this point the ore is still persistent both in grade and extent, and there appears to be no reason why it should not continue deeper.

In addition to the Gold Hill, many other gold mines have a large production record. This production, combined with that derived from placer mining, both hydraulic and dredging, held Boise County in first place in gold production in the State until the year 1923, and it regained this position in 1928. The opening of the ore bodies on the 850-ft. level of the Gold Hill mine, the production from the Belshazzar mine, and the new ore disclosures made during 1930 were instrumental in attracting much attention to the county, as well as proving the permanence of the ore bodies.

As the early-day miner was interested only in the precious metals, gold and silver, which could be recovered by the methods then in use, he disregarded all veins containing the sulphide, or base, ores. Before these ores became valuable prospecting had practically ceased, so the result is that this county offers one of the best fields in the State to prospectors or small development companies in search of lead-zinc-silver ores. Deposits of these metals are widely distributed throughout the county; and a few have been

partially developed. When properly exploited and intelligently managed, they will become an important factor in the future prosperity of Boise County and the City of Boise, and will give the State an additional lead-zinc producing district. Although Boise County has always been known as a gold producing county, there are numerous widely distributed deposits of lead, silver, zinc, copper, bismuth, and antimony; in addition to these, monazite is found in the placer deposits in sufficient quantity to be of commercial importance.

1931 Activities

The gold resources of this county, both placer and lode, received much attention. A number of new mining companies were organized to develop the quartz properties, and during the summer scores of placer miners were active in almost every gulch in Boise Basin. The larger companies increased their production in the early part of the year, and the outlook was favorable for a considerable increase in gold production; but the burning of the dredge owned by the Idaho Gold Dredging Corporation in July and the disastrous forest fire which swept over the county in August, destroying the town of Quartzburg and the entire surface plant of the Gold Hill & Iowa mine of the Talache Mines, Inc., greatly curtailed the output. The surface plant at the Golden Age Junior mine and the plants of a number of small companies were also destroyed in the August fire.

Until its surface plant was burned, the Talache Mines, Inc., at the Gold Hill and Iowa mine, continued to be the largest gold-producing mine in the State. The shaft was extended from the 850-foot level to the 1,100-foot level, and a large amount of new ore was opened on the 850, 700, and 600 foot levels. After the wreckage of the fire was cleared away, and the electric power line was rebuilt, a new electrically driven hoist, pump, and compressor were installed, the mine was unwatered, and work was started on crosscutting to the ore body on the 1,100-foot level.

The Idawa Gold Mining Co. continued to be an important gold producer and maintained milling and development work throughout the larger part of the year. However, late in the year the mine was closed, and all operations were suspended pending a readjustment of the company's corporate affairs.

The Mineral Mining Co. performed a large amount of mine development work, operated its mill intermittently, and marketed a substantial tonnage of high-grade gold-lead concentrate. Mayflower Gold Mines, Inc., a new organization, operating the Mayflower group, which is adjacent to the Gold Hill & Iowa mine at Quartzburg, maintained work throughout the year. The management reported the development of a sufficient tonnage of ore to justify the installation of a mill, plans for which were completed at the close of the year. The Ideal Mining Co., operating the Mountain Chief group under lease and option, conducted mine development work throughout the year and operated the mill for a short period. The Come-Back Mining Co., whose property is located near Pioneerville, at Grimes Pass, was active throughout the year, performing a large amount of development work and producing and marketing a small tonnage of high-grade gold-silver ore. Press reports were to the effect that this company commenced installing a small milling plant.

The Idaho Gold Dredging Corporation, which was operating a dredge on Grimes Creek near Pioneerville, was active during the early part of the year and increased its production over that of the previous year. However, a fire destroyed the dredge in July, and the company then suspended all operations.

The Crooked River Mining Co. gave an option on its property and dredge at the Kempner Ranch placer to M. T. Rowland, who further altered the dredge and then operated it for a short period. Again the dredge proved to be improperly constructed, and all operations were suspended pending further refinancing and reconstruction.

New companies which entered this county during the year and which conducted a substantial amount of development work and installed a small amount of mining equipment were: Alandoc Mining Co., a placer mine enterprise at old Centerville; June Mining Corporation, at the Boulder mine; Clear Creek Development Co., near Pioneerville; and Golden Dream Mining Co., a placer enterprise, on the North Fork of the Boise River.

The "Continental Mining Co. and Inc." completed the installation of a small jig concentrating plant, performed a small amount of mine work, and marketed two small lots of concentrate. The property of the Boise Placer Co. was sold under foreclosure proceedings and was idle throughout the year. The Grandview mine and the calcite plant at Banks, of the American Mines Development Co., Inc., and the mine of the Missouri Mining Co., Ltd., were idle. The Franklin Placer Co. rebuilt part of its ditch and flume lines and washed a small amount of gravel. Jarvis Bros., at the Hay Fork mine, did a small amount of mine work and constructed one-half mile of new road.

The increase in the gold content of the ore of the Gold Hill and Iowa mine as greater depth was obtained greatly stimulated prospecting, new development work, and investigations by those seeking gold mines. Much of the new work was intelligently directed, but some of it proved disappointing because it was based upon incorrect assays.

ALANDOC MINING CO.

Office: 304 Noble Bldg., Boise. **Officers:** A. L. Heine, Pres.; James H. Hawley, Jr., Sec., both of Boise; A. L. Ternan, Mgr., Quartzburg. **Inc.:** June 22, 1931. **Capital:** 400,000 shares; par value 25c; 204,000 shares issued. **Property:** Centerville placer; 1 patented placer claim, Centerville dist.; Centerville. **Plant:** 2 electrically operated pumps. **Ore:** Gold. **Men employed:** Average, 2. **Remarks:** Pumps and placer mining equipment were installed, and a small amount of ground was mined during the early part of the year.

AMERICAN MINES DEVELOPMENT CO.

Office: 209 N. 10th St., Boise. **Officers:** B. C. Beetham, Pres., Boise; Vance Naylor, Sec., Hansen. **Inc.:** Mar. 15, 1928. **Capital:** 1,000,000 shares; par value $1; 428,334 shares issued.

GRANDVIEW GROUP

Property: 6 unpatented claims held under lease and option, Pioneerville dist.; Grimes Pass. **Development:** By 2 tunnels: No. 1, 210 ft. long; No. 2, 450 ft. long. **Plant:** Gas-driven G-D compressor; complete mining equipment and camp. **Ore:** Gold. **Remarks:** Annual labor only.

BANKS MINE

Property: 144 acres patented farm land, unorganized dist.; Banks. **Plant:** 150-ton ore bin and 70-ton gas-driven dry-crushing equipment; aerial tramway connecting mine and grinding plant, which is located on the railroad siding. **Ore:** Agricultural limestone. **Remarks:** Idle.

BANKS LIME & MINERAL PRODUCTS CO.

Officers: J. W. Raine, Hazelton. **Inc.:** Nov. 18, 1931. **Capital:** 500 shares; par value $100. **Remarks:** Failed to file the reports required by law.

BOISE BASIN MINING & MILLING CO.

Office: Boise. **Officers:** Frank Williams, Pres.; C. F. Elford, Sec.; T. W. Gillson, Mgr., all of Boise. **Inc.:** Jan. 15, 1931. **Capital:** 100,000 shares; par value $1; 5000 shares issued. **Property:** 6 patented, 2 unpatented claims, held under lease and option, Centerville dist.; Centerville. **Development:** Principally by 5 tunnels and 2 shafts; approximate total development 2788 ft. **Plant:** Small stamp mill. **Ore:** Gold.

BOISE PLACER CO.

Remarks: Property was sold under mortgage foreclosure to Carl L. Master, Oil City, Pa.

CLEAR CREEK DEVELOPMENT CO.

Office: Pioneerville. **Officers:** Louis Painich, Pioneerville. **Inc.:** Nov. 26, 1930. **Capital:** 1,000,000 shares; par value 25c; 300,200 shares issued. **Property:** 2 unpatented claims, Pioneerville dist.; Pioneerville. **Development:** By 1 tunnel, 100 ft. long. **Ore:** Gold. **Men employed:** Average, 2. **Remarks:** Two miles of trail was constructed, and a new tunnel, 75 ft. long, was driven.

COME-BACK MINING CO.

Office: Pioneerville. **Officers:** Jos. Gornick, Pres.; Louis Painich, Mgr., both of Pioneerville. **Inc.:** Apr. 30, 1928. **Capital:** 1,000,000 shares; par value 25c; 741,050 shares issued. **Property:** Come-Back group; 16 unpatented claims, Pioneerville dist.; Pioneerville. **Development:** Principally by 4 tunnels: No. 1, 340 ft. long; No. 2, 45 ft. long; No. 3, 385 ft. long; No. 4, 996 ft. long; approximate total development, 2763 ft. **Ore:** Lead-silver-gold. **Men employed:** Average, 8. **Remarks:** Active throughout the year. A large amount of development work was done, and a small tonnage of high-grade ore was produced and marketed.

CONSOLIDATED MINES SYNDICATE

Office: 623 First Nat. Bank Bldg., Boise. **Officers:** Frank E. Johnesse, Pres.; Paul L. Oakes, Sec., both of Boise. **Inc.:** May 6, 1924. **Capital:** 10,000 shares; no par value. On August 15, 1924, the capitalization was changed to 10,000,000 shares, $2.50 par value; and on May 2, 1925, the capitalization was decreased to 10,000,000 shares, par value $1; 2,959,850 shares issued. **Property:** Washington and Subrosa groups; 4 patented, 14 upatented claims, Gambrinus dist.; Idaho City. **Development:** Total development, approximately 12,000 ft., the principal part of which is the main crosscut tunnel 3700 ft. long, which intersects the bottom of a vertical shaft 414 ft. deep, near the bottom of which is a winze 150 ft. deep. **Plant:** MINE: Diesel oil engine driving a 480-cu.-ft. compressor, and complete mining equipment. Saw mill, modern boarding and bunk houses, change house, and complete camp. **Ore:** Silver-gold. **Remarks:** Idle since 1926.

CONTINENTAL MINING CO. AND INC.

Office: 1310 Main St., Boise. **Officers:** Fred A. Williams, Pres.-Mgr.; M. M. Stevens, Sec., both of Boise. **Inc.:** Oct. 15, 1929. **Capital:** 500,000 shares; par value $1; 50,000 shares issued. **Property:** Long Chance group; 12 unpatented claims, unorganized dist.; Shafer Creek; Horse Shoe Bend. **Development:** Principally by 1 tunnel, 250 ft. long. **Ore:** Gold. **Men employed:** Average, 3. **Remarks:** Completed the installation of a small jig concentrating plant, performed a small amount of mine work, and marketed two small lots of concentrate.

CROESUS GOLD MINING CO.

Office: Wallace. **Officers:** John J. Stanford, Pres.-Mgr., 324 Lindelle Blk., Spokane, Wash.; Roy H. Kingsbury, Sec., Wallace. **Inc.:** Sept. 12, 1931. **Capital:** 300,000 shares; par value $1; 3000 shares issued. **Property:** Big Ben group; 3 unpatented claims, Centerville dist.; Centerville. One of these held under lease and option. **Development:** Principally by 1 tunnel, 240 ft. long. **Ore:** Gold.

CROOKED RIVER MINING CO.

Office: Dayton, Ohio. **Officers:** Melvin T. Rowland, Pres.-Mgr., Nampa; N. S. Talbott, Sec., Dayton, Ohio. **Inc.:** Oct. 5, 1927. **Capital:** 2000 shares common, no par value; 2000 shares preferred, par value $100; no shares issued. **Property:** Kempner Ranch placer; 1 patented, 60 unpatented claims, 1960 acres, Banner dist.; Idaho City. **Plant:** Screen-type dredge, 3-cu. ft. buckets; this dredge is driven by two 60-h. p. Diesel engines. **Ore:** Placer gold. **Men employed:** Average, 9. **Remarks:** This company gave an option on its property and dredge at the Kempner Ranch placer to M. T. Rowland, who further altered the dredge and then operated it for a short period. Again the dredge proved to be improperly constructed, and all operations were suspended pending further refinancing and reconstruction.

CURRY DITCH GOLD PLACER MINES ASSOCIATION

Office: Oakland, Calif. **Officers:** P. E. Hall, Jr., Pres.-Mgr., 3118 Rawson Ave., Oakland, Calif. **Inc.:** An association. **Capital:** 500,000 shares; par value unfixed; 48,693 shares issued. **Property:** 3 patented, 2 unpatented placer claims, Pioneerville dist.; Pioneerville. **Remarks:** Idle.

DIAMOND L MINING CO., LTD., OF IDAHO

Office: Boise. **Officers:** Lottie Morehead, Pres.-Sec.-Mgr., 1674 W. Beach St., Biloxi, Miss. **Inc.:** July 1, 1918. **Capital:** 500,000 shares; par value 1 mill; 282,220 shares issued. **Property:** Buckskin group; 13 unpatented claims, Pioneerville dist.; Pioneerville. **Development:** Approximately 2900 ft. of underground workings, the most important of which are 2 tunnels, 1 900 ft. long, and the other 500 ft. long. **Ore:** Lead-silver-gold. **Remarks:** Failed to file the reports required by law. Charter forfeited Nov. 30, 1931.

EDNA MINES CO.

Office: Idaho City. **Officers:** D. J. Atkins, Pres., 124 Front St., New York City. **Inc.:** Aug. 9, 1926. **Capital:** 200 shares; par value $100; all shares issued. **Property:** Edna group; 1 patented, 8 unpatented claims, Banner dist.; Idaho City. **Development:** Principally by 1 tunnel 1100 ft. long, and a vertical shaft 350 ft. deep with 3 intermediate levels. **Ore:** Silver-gold. **Remarks:** Idle.

FRANKLIN PLACER CO.

Office: Idaho City. **Officers:** W. W. Miller, Pres.; Paul C. Moore, Sec., both of Franklin, Pa.; E. F. Blain, Mgr., Idaho City. **Inc.:** July 21, 1928. **Capital:** 300,000 shares; par value $1; 115,000 shares issued. **Property:** Leary and Brogan group, Placerville dist.; Placerville. **Ore:** Placer gold. **Men employed:** Average, 8. **Remarks:** An additional part of the ditch and flume lines was rebuilt, and hydraulicking was done for a short period.

FRYETT MINING CO., INC.

Office: Idaho City. **Officers:** F. G. Reeve, Pres.-Mgr., Bremerton, Wash.; G. A. McGuire, Sec., Idaho City. **Inc.:** Nov. 21, 1930. **Capital:** 500 shares; par value $100; all shares issued. **Property:** Mascot group; 6 unpatented claims, held under lease and option from Cora Banwell, Gambrinus dist.; Idaho City. **Development:** By 3 tunnels: No. 1, 160 ft. long; No. 2, 288 ft. long; No. 3, 300 ft. long. **Ore:** Gold. **Men employed:** Average, 5. **Remarks:** Active during part of the year.

GOLDEN DREAM MINING CO.

Office: 301 Sonna Bldg., Boise. **Officers:** W. J. Wills, Pres., Boise; C. M. Williams, Sec.-Mgr., Mayfield. **Inc.:** Oct. 25, 1930. **Capital:** 500,000 shares; par value $1; 300,030 shares issued. **Property:** 8 unpatented placer claims, on North Fork of Boise River, unorganized dist.; Idaho City. **Ore:** Gold.

GOLDEN SEAL MINING & MILLING CO.

Office: 919 Idaho St., Boise. **Officers:** C. V. Dowlin, Pres., Boise; Wm. B. Davidson, Sec., Meridian. **Inc.:** Oct. 28, 1924. **Capital:** 1,000,000 shares; par value 25c; 937,000 shares issued. **Property:** 19 unpatented claims, unorganized dist.; Dry Creek; Boise. **Development:** By 3 tunnels: No. 1, 100 ft. long; No. 2, 150 ft. long; No. 3, 710 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

GOLD HILL & IOWA MINES CO.

Office: 605 Eastman Bldg., Boise. **Officers:** Jess Hawley, Pres., Boise; Wendell H. Marden, Sec., Boston, Mass.; James H. Hawley, Jr., Mgr., Boise. **Inc.:** June 10, 1908. **Capital:** 200,000 shares; par value $10; 194,622 shares issued. **Property:** Gold Hill & Iowa groups; 19 patented, 26 unpatented claims, Quartzburg dist.; Quartzburg. **Remarks:** Under option to Talache Mines, Inc., which see.

HALLEY PLACER CO.

Office: Idaho City. **Officers:** E. F. Blain, Mgr., 1601 N. 12th St., Boise. **Inc.:** An association. **Property:** Halley Placers; 7 unpatented placer claims, Placerville dist.; Placerville. **Remarks:** Annual labor only.

IDAHO DEVELOPMENT CO.

Office: 605 Eastman Bldg., Boise. **Officers:** Wendell H. Marden, Pres., Boston; James H. Hawley, Jr., Mgr., Boise. **Inc.:** Dec. 16, 1920. **Capital:** 1000 shares; par value $10; all shares issued. **Property:** 4 unpatented claims, Placerville dist.; Placerville.

IDAHO GOLD DREDGING CORPORATION

Office: 615 First Nat'l Bank Bldg., Boise. **Officers:** S. K. Atkinson, Pres.-Mgr.; W. A. Buis, Sec., both of Boise. **Inc.:** Apr. 9, 1928. **Capital:** 4,000,000 shares; par value 25c; 908,359 shares issued. **Property:** 142 patented, 8 unpatented claims, Placerville dist.; Centerville. **Plant:** Electrically driven Risdon dredge, 2½ cu. ft. buckets close connected, wood hull. **Ore:** Placer gold. **Men employed:** Average, 14. **Remarks:** This company, which was operating a dredge on Grimes Creek near Pioneerville, was active during the early part of the year and increased its production over that of the previous year. A fire destroyed the dredge in July, and the company then suspended all operations.

IDAWA GOLD MINING CO.

Office: 521 Idaho Bldg., Boise. **Officers:** W. N. Harris, Pres., Turtle Lake, N. D.; E. A. Nordquist, Sec.-Mgr., Boise. **Inc.:** Jan. 3, 1919. **Capital:** 2,000,000 shares; par value 25c; 798,926 shares issued. **Property:** Belshazzar group, 22 unpatented claims, Quartzburg dist.; Quartzburg. **Development:** By 5 tunnels, the principal of which are No. 4, 1200 ft. long, and No. 5, 3000 ft. long. Total development, approximately 11,000 ft. **Plant:** MINE: Electrically driven compressor; complete mining equipment and camp. MILL: 25-ton amalgamation and table-concentration. **Ore:** Gold. **Men employed:** Average, 32. **Remarks:** Continued to be an important gold producer and maintained milling and development work throughout the larger part of the year. Late in the year the mine was closed, and all operations were suspended pending a readjustment of the company's corporate affairs.

IDEAL MINING CO.

Office: Boise City Nat. Bank Bldg., Boise. **Officers:** H. P. Taylor, Pres.-Mgr.; Lois Taylor, Sec., both of Boise. **Inc.:** Sept. 17, 1927. **Capital:** 200,000 shares; par value $1; 180,000 shares issued. **Property:** Mountain Chief group; 11 unpatented claims, held under lease and option from National Mining & Development Co., Quartzburg dist.; Placerville. **Development:** By 5 tunnels, the principal one of which is more than 2000 ft. long. **Plant:** MILL: 50-ton amalgamation. **Ore:** Gold. **Men employed:** Average, 10. **Remarks:** This company acquired the property early in the year and rehabilitated two of the principal tunnels. A small amount of development work was done, and a small tonnage of ore was mined and milled, the work proceeding without interruption except during the interval the electric power was cut off as a result of the forest fire.

INDEPENDENT MINES SYNDICATE

Office: Owyhee Hotel, Boise. **Officers:** Leo J. Falk, Boise. **Remarks:** Failed to file the reports required by law.

IRON DYKE MINES CO.

Office: 326-7 Noble Bldg., Boise. **Officers:** S. T. Schreiber, Pres.-Mgr., Boise. **Inc.:** Apr. 16, 1923. **Capital:** 150,000 shares; par value $1; 100 shares issued. **Property:** Iron Dyke group; 2 patented, 19 unpatented claims, unorganized dist.; Holcomb. **Development:** By 3 tunnels; No. 1, 50 ft. long; No. 2, 25 ft. long; No. 3, 25 ft. long. **Ore:** Gold, silver-lead. **Remarks:** Annual labor only.

JUNE MINING CORPORATION

Office: 806 6th Ave. So., Seattle, Wash. **Officers:** J. C. Marmaduke, Pres.; U. S. McKenny, Sec., both of Seattle, Wash. **Inc.:** Aug. 13, 1931. **Capital:** 2500 shares; par value $1; 1650 shares issued. **Property:** Boulder group; 2 patented, 9 unpatented claims, held under lease and option, Idaho City dist.; Idaho City. **Development:** By 3 tunnels: No. 1, 1000 ft. long; No. 2, 550 ft. long; No. 3, 500 ft. long. **Ore:** Gold. **Men employed:** Average, 8. **Remarks:** An active prospecting and development campaign was maintained throughout the year.

MAYFLOWER GOLD MINES, INC.

Office: Boise. **Officers:** J. B. Eldridge, Pres.; G. R. Eldridge, Sec., both of Boise. **Inc.:** May 20, 1931. **Capital:** 300,000 shares; par value $1; 91,905 shares issued. **Property:** Mayflower group; 2 patented, 6 unpatented claims, Quartzburg dist.; Quartzburg. **Development:** By 4 tunnels: No. 1, 640 ft. long; No. 2, 700 ft. long; No. 3, 55 ft. long; No. 4, 120 ft. long; and an inclined shaft 240 ft. deep, in which are two intermediate levels. **Plant:** Electrically driven hoist; complete mining equipment and camp. **Ore:** Gold. **Men employed:** Average, 6. **Remarks:** In 1929 the president of this company erected camp and mine buildings, installed the mining equipment, and commenced sinking the shaft. The shaft was sunk to a depth of 240 ft. and a large amount of lateral development on the two intermediate levels was done during 1930. This work continued without interruption throughout 1931. Late in the year the company reported that a sufficient tonnage of ore to justify the installation of a mill had been developed, and that plans had been completed for the construction of the mill. This enterprise was incorporated in May, 1931.

MEADOW CREEK GOLD PLACER CO.

Office: Boise. **Officers:** S. O. Kerley, Pres.; Fred E. Lukens, Sec., both of Boise. **Inc.:** Sept. 13, 1924. **Capital:** 500,000 shares; par value 10c; all shares issued. **Ore:** Placer gold. **Remarks:** Failed to file the reports required by law.

MINERAL MINING CO.

Office: Placerville. **Officers:** A. C. Gallupe, Pres.-Mgr., Placerville; C. C. Fairchild, Sec., Idaho City. **Inc.:** Feb. 6, 1920. **Capital:** 2,500,000 shares; par value 6c; Aug. 23, 1930, increased to 5,000,000 shares; 3,000,000 shares issued. **Property:** Enterprise and Smuggler groups; 12 patented, 21 unpatented claims; Enterprise group held under lease and bond from Exta Lightfoot, Pioneerville; Pioneerville dist.; Pioneerville. **Development:** Approximately 8000 ft. of underground workings. **Plant:** MINE: 25-h. p. steam-driven hoist on Smuggler group; complete mining equipment and camp. MILL: 100-ton concentrator. POWER: Small hydroelectric power plant. **Ore:** Gold-silver-lead. **Men employed:** Average, 8. **Remarks:** A large amount of development work was done, the mill was operated intermittently, and a substantial tonnage of high-grade lead concentrate was marketed.

MISSOURI MINING CO., LTD.

Office: 2035 Osgood St. N. S., Pittsburgh, Pa. **Officers:** T. H. Reiners, Pres.; H. H. Rogge, Sec., both of Pittsburgh, Pa.; Harry A. Foreman, Mgr., Pioneerville. **Inc.:** Feb. 4, 1914. **Capital:** 50,000 shares; par value $1; on June 1, 1925, capitalization was increased to 1,000,000 shares, par value $1; 693,152 shares issued. **Property:** 12 unpatented claims, Pioneerville dist.; Pioneerville. **Development:** Approximately 1400 ft. of underground workings, the principal of which is an inclined shaft 210 ft. long. **Plant:** MINE: 210-cu. ft. C-P gas-driven compressor; complete mining equipment and camp. MILL: 50-ton flotation concentrator. **Ore:** Lead-silver-zinc. **Remarks:** Idle.

NATIONAL MINING & DEVELOPMENT CO.

Office: Placerville. **Officers:** A. C. Gallupe, Pres.; E. A. Gallupe, Sec., both of Placerville. **Inc.:** Sept. 23, 1911. **Capital:** 1,000,000 shares; par value $1; 236,540 shares issued. **Property:** Mountain Chief group; 11 unpatented claims, Quartzburg dist.; Placerville. **Ore:** Gold. **Remarks:** Property under option to Ideal Mining Co.

PENN MINING CO.

Office: Placerville. **Officers:** W. W. Miller, Pres.; Paul C. Moore, Sec., both of Franklin, Pa.; E. F. Blain, Mgr., Boise. **Inc.:** Jan. 8, 1929. **Capital:** 200,000 shares preferred, 750,000 shares common; par value $1; 72,500 shares preferred, all shares common issued. **Property:** Coin Bond group; 34 unpatented claims, Placerville dist.; Placerville. **Development:** Principally by 2 tunnels, one of which is 1555 ft. long, the other 1280 ft. long. **Ore:** Gold-lead-silver. **Men employed:** Average, 3. **Remarks:** During the year 1250 ft. of tunnel was entirely retimbered.

PIONEER DEVELOPMENT CO.

Office: 2501 Heron St., Boise. **Officers:** Chas. G. Hall, Boise. **Inc.:** Nov. 3, 1931. **Capital:** 250,000 shares; par value $1. **Mineral sought:** Coal. **Remarks:** Company's report stated: "Company proposes to drill to locate a coal mine near Horse Shoe Bend."

SEMI-ANTHRACITE COAL MINING CO.

Office: Horse Shoe Bend. **Officers:** A. H. Meyers, Pres., McCall; J. W. Clarke, Sec.-Mgr., Horse Shoe Bend. **Inc.:** Oct. 6, 1928, as Payette Coal Mining Co.; name changed Aug. 7, 1930. **Capital:** 500 shares, no par value; changed to 5000 shares, par value $10, on Aug. 7, 1930; 2500 shares issued. **Property:** 320 acres of patented land; Horse Shoe Bend. **Mineral sought:** Coal. **Men employed:** Average, 3. **Remarks:** A small amount of prospecting work during the summer.

TALACHE MINES, INC.

Office: Quartzburg. **Officers:** A. H. Burroughs, Jr., Pres.-Mgr.; B. K. Burroughs, Sec., both of Quartzburg. **Inc.:** Apr. 21, 1917, as Armstead Mines, Inc.; name changed June 8, 1922. **Capital:** 1,000,000 shares common, 600,000 shares preferred; par value $1; 983,000 shares common, 579,233 shares preferred issued. **Property:** Lease and option on property owned by Gold Hill & Iowa Mines Co., which see. **Development:** Principally by an 1100-ft. 3-compartment, vertical shaft with 7 intermediate levels. Total development, over 40,000 ft. in Gold Hill mine. **Plant:** MINE: 250-h. p. double-drum and 600 cu. ft. I-R compressor, both electrically driven. MILL: 150-ton, including crusher, rolls, Hardinge ball mill,



GOLD HILL MINE, BEFORE FIRE OF AUG. 20, 1931

amalgamating plates, concentrating tables, and regrinding. **Ore:** Gold. **Men employed:** Average, 80. **Remarks:** Until its surface plant was destroyed in the disastrous fire of August 20, this company continued to be the largest gold producer in the State. The shaft was extended from the 850-ft. level to the 1100-ft. level, and a large amount of new ore was opened on the 850, 700, and 600-ft. levels. After the wreckage of the fire was cleared away, and the electric power line was rebuilt, a new electrically driven hoist, pump, and compressor were installed, the mine was unwatered, and work was started on crosscutting to the ore body on the 1100-ft. level.



GOLD HILL MINE, AFTER THE FIRE: TALACHE MINES, INC.

WASHOE MINING CO.

Office: 605 Eastman Bldg., Boise. **Officers:** Jess Hawley, Pres.; C. W. Mack, Sec,. both of Boise; Vivian Thorn, Mgr., Banner. **Inc.:** Dec. 16, 1911. **Capital:** 100,000 shares; par value $1; all shares issued. **Property:** Banner group; 7 patented, 15 unpatented claims, Banner dist.; Idaho City. **Development:** 2 tunnels, the principal one of which is 4000 ft. long. **Plant:** 30-ton mill, tables and flotation. **Ore:** Silver. **Remarks:** Idle.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Adonis	Unknown	Herman Schultz	Boise
Alameda	Unknown	Wm. S. Bella	Boise
Alpine Gr.	Alpine	J. T. C. Harrington	Nampa
American Girl Gr.	Gambrinus	Louise D. Stewart	Boise
Annie Lee	West View	Chas. Smith	Horseshoe Bend
Argonne	Granite Creek	Fred C. Brown	Boise
Argonne Forest	Gambrinus	H. Mauernhamer	Boise
Ashcroft Pl.	Placerville	H. Ashcroft	Placerville
Banner	Banner	V. A. Thorn	Idaho City
Atlast	Unknown	J. F. Thompson	Horseshoe Bend
Beaver Cr. Pl.	Banner	J. D. Demming	Idaho City
Belmont Gr.	Quartzburg	Murty Driscol & F. Daly	Quartzburg
Big Ben	Centerville	Frank H. Cooper	Boise
Blackbird	Pioneerville	Exta Lightfoot	Pioneerville
Blackbird et al.	Cold Springs	Anderson & Newbrand	Idaho City
Black Crook Gr.	West View	Bincord Realty Co.	Denver, Colo.
Black Hawk	Centerville	Homer Granger	Centerville
Black Jack	Summit Flat	Jerry Dowling	Idaho City
Bluebird et al.	Banner	G. R. Moland	Boise
Blue Jet Pl.	Centerville	Archie R. Koppes	Centerville
Blue Grouse	Unknown	Thos. C. Mayne	Idaho City
Blue Ribbon Gr.	Dry Buck	Lee Davis	Horseshoe Bend
Blue Rock	Quartzburg	Allen B. Eaton	Boise
Blue Stone	Idaho City	Henry Holsmeier	Idaho City
Boston Girl	Placerville	Wm. W. Thorn	Centerville
Boulder Gr.	Elk Horn	Patrick Moriarty Est.	Idaho City

Boundary	Dry Buck	Lee Davis	Horseshoe Bend
Buffalo Gr.	Elk Creek	Frank Cooper	Boise
Bull Durham Pl.	Boise River	I. I. Youngblood	Boise
Bummer Hill	Quartzburg	H. C. Granger	Centerville
Calumet	West View	G. Faull	Horseshoe Bend
Cash Register	Placerville	Frank H. Cooper	Centerville
Catherine	Placerville	Pat H. Quirk	Boise
Claude Marsh	Summit Flat	Edward Brisbin	616 S. 17th St., Boise
Clay Gulch	Placerville	J. T. Blair	Centerville
Clear Cr. Pl.	Pioneerville	J. A. Adams	Pioneerville
Cleopatra et al.	Pioneerville	Skidmore & McDonald	Pioneerville
Climax	Banner	Chris Smith	Idaho City
Cold Springs	Idaho City	O. F. Sibley	Boise
Coon Dog	Pioneerville	C. C. Fairchild	Idaho City
Deer Horn Pl.	Gambrinus	Joe Elliott	Idaho City
Dew Drop	Centerville	Warren J. Cooper	Centerville
Dog Tooth	Quartzburg	Allen B. Eaton	Boise
Eldorado Gr. Pl.	Banner	Harold Rowland	Nampa
Elkhorn	Gambrinus	Lippincott & Warner	Idaho City
Elkmeat	Idaho City	R. Pappoff	107 S. 9th St., Boise
Etta B. Gr.	Placerville	Robt. S. Bunch	Centerville
Eureka Gr.	Gambrinus	Mrs. P. J. Hall	Boise
Fall Creek	Placerville	Albert Elster	Placerville
Florence	Quartzburg	C. C. Fairchild et al.	Idaho City
Franklin	Idaho City	H. A. Schlosser	Idaho City
Gambrinus	Gambrinus	V. A. Thorn	Idaho City
Gem of the Mts.	Placerville	C. C. Fairchild	Idaho City
Golconda	Idaho City	B. F. Kloppenburg	Idaho City
Gold Coin	Gambrinus	M. L. Phelps	Idaho City
Gold Dollar	Summit Flat	James H. Hawley	Boise
Gold Lodge Pl.	Idaho City	Henry Holsmeier	Idaho City
Golden Seal	Unorganized	Jas. Curtin	905 Idaho St., Boise
Goodenough Pl.	Idaho City	Jas. King	Idaho City
Gornick Pl.	Pioneerville	Joe Gornick	Pioneerville
Grant Gr.	Idaho City	John Jamieson	Idaho City
Great Western	Gambrinus	J. W. Duquette	Idaho City
Grooms Pl.	Payette River	James L. Tyson	Banks
Hamilton Pl.	Pioneerville	Ezra E. Howard	Pioneerville
Hard Times	Unorganized	C. M. Hunt	Twin Springs
Hay Fork	Moore Creek	H. R. Jarvis	Idaho City
Hidden Treasure	Pioneerville	J. D. Branson	Pioneerville
Highland Valley	Barber	P. J. Smith	Barber
Hilltop	Quartzburg	Louis Klein	Grand Hotel, Boise
Hilltop	West View	L. C. Hall	Horseshoe Bend
Homestake	Summit Flat	Joe Labbee	Idaho City
Honey Bee	Shaw Mountain	Elmer Gettys	Boise
Hooch Can Gr.	Pioneerville	J. O. McDonald	Pioneerville
Hoodoo Pl.	Pioneerville	C. R. Poncia	Pioneerville
Idaho Pl.	Idaho City	James Farrell	Idaho City
Illinois	Idaho City	Abraham Duquette	Idaho City
I. X. L. Pl.	Pioneerville	P. J. Shaughnessy	Pioneerville
J. S. Gr.	Pioneerville	A. E. Anderson	Garden Valley
K. C. Fraction	Pioneerville	Damien Ader	Pioneerville
Kentuck	Placerville	John Golden	Centerville
King Lead Gr.	Pioneerville	A. E. Yoder	Pioneerville
Kirkham	Banner	Ira R. Cromwell	Idaho City
K. M. Gr.	Cold Springs	M. Marchmonte	Idaho City
Last Chance et al.	Quartzburg	Frank Daly	Quartzburg
Leary & Brogan	Placerville	Michael Leary	Placerville

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Long Chance	Shaffer Creek	R. C. Hall	Horseshoe Bend
Lucky Boy Gr.	Gambrinus	Lucky Boy Mining Assoc.	Idaho City
McKinley	Idaho City	Thos. Hardin	Boise
Mamie Pl.	Summit Flat	S. Frank Smith et al.	Idaho City
Mammoth	Pioneerville	Nelson Bottcher	Idaho City
Mary Lou	Elk Horn	Garrecht & Campbell	Idaho City
May Flour	Gambrinus	John McCarthy	Idaho City
Mayflower	Quartzburg	Stephen Mackin	Placerville
Nally Placers	Pioneerville	Stephen Nally	Pioneerville
New Era Gr.	Pioneerville	Jos. Gornick	Pioneerville
New York	Gambrinus	D. R. Morgan	Idaho City
Nighthawk	Pioneerville	John Miller	Pioneerville
Olympia	Summit Flat	Mary Berry	701 E. Jefferson St., Boise
Ophir & Ophir 2	Pioneerville	Peter Reichert	Pioneerville
Orofino	Elkhorn	Janette Jordan	San Francisco, Cal.
Oxbow Gr. Pl.	Grimes Pass	Mary L. Bunch et al.	Boise
Paul's Gulch et al.	Pioneerville	Andrew Hansen	Pioneerville
Pioneer	Quartzburg	P. J. Evans	Quartzburg
Poor Man	Willow Creek	J. J. Shanahan	Idaho City
Pot Latch	Pioneerville	Sherman O. Barker	Grimes Pass
Printer	Idaho City	Amelia Garrecht	Idaho City
Queen of the Mts.	Rock Creek	James E. Fox	Boise
Riley & Farren	Placerville	J. J. Brogan	Placerville
Riverside	South View	Robt. W. Clarke	Horseshoe Bend
Rough & Ready	Unorganized	P. S. Smith	Barber
St. Clair Gr.	Pioneerville	Damien Ader	Placerville
Saunders	Placerville	W. F. Hiatt	Placerville
Seventeen Pl.	Placerville	Lee Bunch	Boise
Seventy-four	Pioneerville	C. R. Poncia	Pioneerville
Shamrock	Summit Flat	Mrs. E. W. Barry	Boise
Silver Bell	Placerville	W. F. Hiatt	Placerville
Sniveley Pl.	Centerville	H. C. Granger	Centerville
Sourdough	Summit Flat	J. D. Smith	Idaho City
Standby Pl.	Placerville	August Michelson	Beaverton, Ore.
Stanton Gulch	Placerville	John Stanton	Placerville
Sunny Day Gr.	Alpine	E. R. Swindler	Banks
Sunrise Pl.	Placerville	Nellie T. Wood et al.	Boise
Swede Gulch et al.	Pioneerville	Carlo Poncia	Centerville
Terry Gr.	Willow Creek	J. T. Blair	Centerville
Trader	Idaho City	J. H. Eggars	Idaho City
Tuxedo Pl.	Boise River	C. J. Schooler et al.	Boise
Venture	Unorganized	John Benzer	Hailey
Windfall	Pioneerville	Robt. D. Aikens	Boise

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

The Boise basin in Idaho, by J. B. Hastings: Sci. Am. Suppl., vol. 38, Aug. 18, 1894; Eng. and Min. Jour., vol. 58, p. 56, July 21, **1894.**§

A geological reconnaissance across Idaho, by G. H. Eldridge: U. S. Geol. Survey Sixteenth Ann. Rept., pt. 2, pp. 211-276, **1895.***

Monazite in Idaho, by Waldemar Lindgren: Am. Jour. Sci., 4th ser., vol. 64, p. 63, July, 1897; Eng. and Min. Jour., vol. 64, pp. 63-67, July 17, **1897.**§

Description of the Boise quadrangle, by Waldemar Lindgren, U. S. Geol. Survey Geol. Atlas, Folio No. 45, **1898.***

Mining districts of the Idaho Basin and the Boise Ridge, Idaho, by Waldemar Lindgren: U. S. Geol. Survey Eighteenth Ann. Rept., pt. 3, pp. 625-736, **1898.***

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey Twentieth Ann. Rept., pt. 3, pp. 65-256, 1900.*
The Boise Basin mining district, by Robert Nye: Min. and Sci. Press, vol. 81, p. 400, Oct. 6, 1900.*
Preliminary report on artesian basins in southwestern Idaho and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Water-Supply Paper 78, pp. 29-30, 1903.‡
Boise Basin, Idaho, by W. A. Scott: Min. and Sci. Press, vol. 101, pp. 76-78, July 16, 1910.*
Coal at Horseshoe Bend and Jerusalem Valley, Boise County, Idaho, by C. F. Bowen: U. S. Geol. Survey Bull. 531, pp. 245-251, 1911.*
Boise Basin, Idaho, by W. L. Brown: Pacific Miner, vol. 18, February, 1911.*
Gold dredging in the Boise Basin of Idaho, by J. H. Miles: Min. and Sci. Press, vol. 105, pp. 330-332, Sept. 14, 1912.*
Winter dredging in Idaho, by J. H. Miles: Min. and Sci. Press, vol. 108, p. 455, Mar. 14, 1914.*
Lode mining in the Quartzburg and Grimes Pass porphyry belt, Boise Basin, Idaho, by E. L. Jones, Jr.: U. S. Geol. Survey Bull. 640, pp. 83-111, 1916.‡
The Boise Basin district in Idaho, by S. M. Ballard: Eng. and Min. Jour., vol. 109, pp. 881-882, Apr. 10, 1920.§
Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 60, art. 3, pp. 1-33, 1921.‡
Ore deposits of Gold Hill mine, at Quartzburg, Idaho, by A. J. McDermid: Eng. and Min. Jour.-Press, vol. 114, pp. 537-540, Sept. 23, 1922.§
Geology and gold resources of Boise Basin, Boise County, Idaho, by S. M. Ballard: Idaho Bureau of Mines and Geology Bull. 9, 1924.**
A disseminated lead prospect in northern Boise County, Idaho, by C. P. Ross: Idaho Bureau of Mines and Geology Pamphlet 20, 1926.*
Idawa Gold Mining Co.: Belshazzar mill, by S. M. Ballard: Idaho Twenty-ninth Ann. Rept. Min. Industry, 1927.*

BONNER COUNTY

Bonner constitutes an important part of the Idaho Panhandle and is one of the extreme northern counties. It is bounded on the east by the State of Montana, and on the west by the State of Washington; Boundary County adjoins it on the north, and Kootenai and Shoshone counties on the south. It contains an area of 1748 square miles and was accredited with a population of 13,152 in the 1930 census. The principal industries are lumbering mining, stock raising, and agriculture. Although the county is recognized as one of the important mining counties of the State, the proportion of the population that is interested in mining is very small.

The county is exceptionally fortunate with respect to transportation facilities, as it is served by two State highways, lake boats, and three transcontinental railroads. Boats that can reach any point on Lake Pend d'Oreille give connection with the railroads at Sandpoint and Bayview.

Practically all the mining has been devoted to the areas adjacent to Pend d'Oreille and Priest lakes and the Clark Fork River. However, mining locations are numerous and widely scattered throughout the county. The mining history of the county dates back to the discovery of silver ores near Lakeview in 1888, which resulted in a stampede from the Coeur d'Alene district. Since that time there has always been a small amount of mining, but the county did not attract attention in recent years until the Talache mine was a proved and successful operation. The Talache has been a big factor in drawing attention to the mineral possibilities and prospecting opportunities of the county, resulting in a large increase in mining activities during the past few years.

The principal minerals are those of silver, lead, copper, zinc, and gold. These metals, and the limestone quarried near Lakeview, constitute the chief mineral resources. Silver is the most widely distributed metal and constitutes the most important part of the ores.

1931 Activities

The Whitedelf Mining & Development Co. continued to be the largest operator in this county. In addition to producing and marketing a substantial tonnage of high-grade lead-silver concentrate, the company extended its shaft to the 400-foot level, on which it did a large amount of development work. The new ore encountered on the lower levels greatly added to the known resources of the mine. The Hope Mining Co. completed construction and installation of a new 100-ton flotation concentrator, installed an electrically driven compressor, performed a large amount of mine development work, conducted milling operations, and produced and marketed a substantial tonnage of high-grade lead-silver concentrate throughout the greater part of the year.

The success with which the Whitedelf and Hope mines are meeting has greatly stimulated prospecting and development in the Clark Fork area, and most of the companies maintained a small crew during the greater part of the year. The Goat Mountain Leasing Co., a new organization, installed a gas-driven compressor and commenced driving a long crosscut. Gene-Lee Mines, Inc., was active in driving a new tunnel on the vein. Press reports were to the effect that a substantial showing of ore was encountered. Lucky Strike Mining Co. extended its principal tunnel approximately 100 feet. A small amount of development work was done by the Lawrence Consolidated Mining Co., and a car of hand-sorted ore was marketed. Explorers Prospecting Co., at the Boyer group, near Sandpoint, did a large amount of diamond drilling, constructed a new building, installed a compressor and complete mining equipment, and sunk a 100-foot inclined shaft. Minerva Silver, Inc., near Hope, installed a new compressor and maintained work throughout the greater part of the year. Amazon Mining Co., which was operating the Fall Creek mine under lease and option, employed two men during part of the year. The Silver Leaf Mines Corporation, a new organization, whose property is in the Lakeview district, constructed new camp buildings, installed a new compressor, and commenced an active development campaign. No work of any consequence was done in the Priest Lake district except annual labor, and this was greatly hampered and set back by the disastrous fire, which swept the district in September. The surface plants and buildings of practically all of the mining companies and prospectors were destroyed.

AMALGAMATED GOLD MINING CO.

Office: 101 E. Nora St., Spokane, Wash. **Officers:** T. W. Roberts, Pres.-Mgr.; Dorothy A. Roberts, Sec., both of Spokane, Wash. **Inc.:** May 22, 1931. **Capital:** 10,000,000 shares; par value 10c; shares issued, unknown. **Remarks:** Failed to file the reports required by law, although notified three times to do so. Press reports, as a result of court proceedings, were to the effect that this company was incorporated to succeed the Silver Star Options, which the president had sold to finance the development of the Silver Star group, and that option holders who were not recognized in the corporate organization had their rights restored through the court action.

AMAZON MINING CO.

Office: Sandpoint. **Officers:** A. D. Gabbert, Pres., 412 Columbia Bldg., Spokane, Wash.; R. M. Taylor, Sec., Sandpoint. **Inc.:** Sept. 2, 1931. **Capital:** 1,000,000 shares; par value 10c; shares issued, unknown. **Property:** Falls Creek group; 11 unpatented claims, held under lease and option; Pend d'Oreille dist.; Hope. **Development:** 3 tunnels, 1 about 1900 ft. long. **Plant:** MINE: Water-driven compressor, complete mining equipment and camp. MILL: 50-ton gravity concentrator. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** A small amount of work in rehabilitating the principal tunnel.

AMERICAN EAGLE MINING CO.
Office: Sandpoint. **Officers:** R. A. Martin, Pres., Martinsdale, Mont.; H. L. Thomason, Sec.; James A. Evans, Mgr., both of Sandpoint. **Inc.:** May 28, 1919. **Capital:** 10,000 shares; par value $100; 644 shares issued. **Property:** American Eagle group; 7 unpatented claims, Pend d'Oreille dist.; Sandpoint. **Development:** 1 tunnel 1860 ft. long, which is principally a drift on the vein. **Ore:** Lead-silver. **Remarks:** Principal tunnel advanced 100 ft. during the year.

AUXER GOLD MINES CO.
Office: Sandpoint. **Officers:** James Campbell, Pres.-Mgr., Hope; H. H. Braden, Sec., Sandpoint. **Inc.:** June 24, 1920. **Capital:** 500,000 shares; par value $1; 395,285 shares issued. **Property:** Boston group; 9 unpatented claims, Pend d'Oreille dist.; Hope. **Development:** Approximately 2000 ft. of underground workings, the principal one of which is a tunnel 1000 ft. long. **Plant:** Gas-driven compressor and complete mining equipment. **Ore:** Gold. **Remarks:** Annual labor only.

BIG FIVE MINING CO.
Officers: Earl Eagan, Sec., Hope. **Inc.:** June 10, 1910. **Capital:** 1,500,000 shares; par value $1; 1,079,852 shares issued. **Property:** Big Five group; 7 unpatented claims, Pend d'Oreille dist.; Hope. **Development:** 1 tunnel 640 ft. long. **Plant:** Steam-driven Sullivan compressor; complete mining equipment. **Ore:** Lead-silver. **Remarks:** Annual labor only.

BINARCH CREEK MINING CO.
Office: 501 City Hall Bldg., Spokane, Wash. **Officers:** Arthur L. Hooper, Pres.-Mgr.; W. W. Greenwood, Sec., both of Spokane, Wash. **Inc.:** July 30, 1928. **Capital:** 500,000 shares; par value $1; 401,200 shares issued. **Property:** Idaho-Washington group; 13 unpatented claims, Priest Lake dist.; Nordman. **Development:** By 3 short tunnels and 2 short shafts. **Ore:** Gold-silver-zinc. **Remarks:** Annual labor only.

BONNER MINING CO.
Office: Oakesdale, Wash. **Officers:** H. E. Kendall, Pres.; J. A. Henderson, Sec., both of Oakesdale, Wash. **Inc.:** Unknown. **Capital:** 1,500,000 shares; par value 5c; 1,244,150 shares issued. **Property:** 1 patented, 10 unpatented claims, Pend d'Oreille dist.; Hope. **Development:** 3 tunnels; approximate total development 1750 ft. **Plant:** Water-driven I-R compressor. **Ore:** Gold-silver-lead-copper-zinc. **Men employed:** Average, 3. **Remarks:** Annual labor only, the funds for which were derived from stock assessments.

BOYER MINES, INC.
Office: Sandpoint. **Officers:** J. B. Gardner, Pres.; Bruce Turnbull, Sec., both of Sandpoint. **Inc.:** Sept. 3, 1929. **Capital:** 2,500,000 shares; par value $1; 1,100,000 shares issued. **Property:** Boyer group; 2 patented claims, Pend d'Oreille dist.; Sandpoint. **Development:** By 2 tunnels: No. 1, 350 ft. long; No. 2, 600 ft. long; and a vertical shaft 43 ft. deep. **Ore:** Gold-silver-lead-zinc. **Remarks:** Property under option to Explorers Prospecting Co.

CAMP BIRD MINING & DEVELOPMENT CO.
Office: Sandpoint. **Officers:** J. W. Lloyd, Pres., Spokane, Wash.; L. W. Peterson, Sec.; E. W. Driesbach, Mgr., both of Sandpoint. **Inc.:** Aug. 21, 1911. **Capital:** 1,500,000 shares; par value $1. **Remarks:** Failed to file the reports required by law.

CARPIE MINING CO.
Office: Cabinet, Idaho. **Officers:** J. W. Powell, Pres.-Mgr.; Cabinet. **Inc.:** Unknown. **Capital:** 750,000 shares; par value $1; 400,000 shares issued. **Property:** Carpie group; 4 unpatented claims, Pend d'Oreille dist.; Cabinet. **Development:** By a vertical shaft 300 ft. deep, in which are 5 levels. **Plant:** Steam-driven hoist and small Sullivan compressor. **Ore:** Copper. **Remarks:** Idle.

CLARINDA COPPER MINING CO.
Office: 50 Broad St., New York City. **Officers:** John P. Delaney, Pres., New York City; Compton I. White, Sec.-Mgr., Clark Fork. **Inc.:** July 30, 1920. **Capital:** 1,500,000 shares; par value $1. **Property:** 9 unpatented claims, Pend d'Oreille dist.; Clark Fork. **Development:** By 5 tunnels, the longest of which is No. 5, totaling 2100 ft. in length. **Plant:** Electrically driven compressor and complete mining equipment. **Ore:** Copper. **Remarks:** Failed to file the reports required by law.

EMPIRE TUNGSTEN MINING CO.
Office: 2808 Sheridan Road, Evanston, Ill. **Officers:** Frank G. Forbes, Pres.; George S. Smith, Sec., both of Evanston, Ill. **Inc.:** March 20, 1914. **Capital:** 1,500,000 shares; par value 1c; all shares issued. **Property:** Rainbow; 1 patented claim, Lakeview dist.; Lakeview. **Remarks:** Idle.

EXPLORERS PROSPECTING CO.
Office: 317 Lindelle Bldg., Spokane, Wash. **Officers:** John L. Dirks, Pres.; Rowland King, Sec., both of Spokane, Wash. **Inc.:** Aug. 5, 1930. **Capital:** 1,250,000 shares; par value $1; 251,900 shares issued. **Property:** Boyer group; 2 patented, 1 unpatented claim, held under lease and option, Pend d'Oreille dist.; Sandpoint. **Development:** By 2 tunnels and an inclined shaft 100 ft. deep. **Ore:** Gold-silver-lead. **Men employed:** Average, 4. **Remarks:** The company did a large amount of diamond drilling, constructed a new building, installed a compressor and complete mining equipment, and sunk a 100-ft. inclined shaft.

FALLS CREEK MINING CO.
Office: Sandpoint. **Officers:** W. C. Ames, Pres.-Mgr.; W. M. Hollembaek. Sec., both of Sandpoint. **Inc.:** Nov. 11, 1911. **Capital:** 500,000 shares; par value $1; shares issued, unknown. **Property:** Falls Creek group; 11 unpatented claims, Pend d'Oreille dist.; Sandpoint. **Remarks:** Under lease and option to Amazon Mining Co.

GENE LEE MINES, INC.
Office: Clark Fork. **Officers:** C. L. Heffron, Pres.-Mgr.; Gene Heffron, Sec., both of Clark Fork. **Inc.:** May 21, 1930. **Capital:** 500,000 shares; par value $1; 230,159 shares issued. **Property:** Gene Lee group; 9 unpatented claims, Pend d'Oreille dist.; Clark Fork. **Development:** By a 160-ft. tunnel. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Drift on vein extended 100 ft. during the year.

GOAT MOUNTAIN LEASING CO.
Office: Clark Fork. **Officers:** D. C. Stilwell, Pres.; Floyd Cebell, Sec.-Mgr., both of Clark Fork. **Inc.:** Feb. 11, 1931. **Capital:** 500,000 shares; par value 10c; 306,670 shares issued. **Property:** 4 unpatented claims, held under lease from North Idaho Mining & Development Co., Clark Fork dist.; Clark Fork. **Development:** By 1 short tunnel. **Plant:** Gas-driven C-P compressor, complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Trail constructed, compressor and equipment installed, and work started in driving a long crosscut.

HOPE MINING CO.
Office: Clark Fork. **Officers:** O. A. Holte, Pres., Coeur d'Alene; C. C. Jensen, Sec., Clark Fork. **Inc.:** Nov. 19, 1927. **Capital:** 1,500,000 shares; par value 10c; increased Aug. 13, 1930, to 2,000,000 shares; 1,957,394 shares issued. **Property:** Elsie K group; 14 unpatented claims, Pend d'Oreille dist.; Clark Fork. **Development:** By 4 tunnels, the principal one of which is No. 1, 1400 ft. long. Total development about 5500 ft. **Plant:** MINE: Electrically driven 700 cu. ft. compressor; complete mining equipment. MILL: 100-ton flotation concentrator. **Ore:** Lead-silver. **Men employed:** Average, 30. **Remarks:** The mill was constructed, a new compressor installed, a large amount of mine work done, and milling started. A substantial tonnage of high-grade lead-silver concentrate was produced and marketed.

IDAHO LAKEVIEW MINES CO.
Office: Lakeview. **Officers:** D. M. Drumheller, Jr., Pres., Spokane, Wash.; E. G. Randall, Sec., Trail, B. C.; F. A. Fortier, Mgr., Kimberley, B. C. **Inc.:** June 28, 1928. **Capital:** 2,100,000 shares; par value 20c. Increased Nov. 23, 1929, to 2,310,000 shares; increased Apr. 3, 1930, to 2,510,000 shares; par value 20c; all shares issued. **Property:** Hewer group; 4 patented, 11 unpatented claims, Lakeview dist.; Lakeview. **Development:** Total development approximately 13,500 ft.; principally by 1 tunnel 2,200 ft. long, in which is an inclined shaft 1372 ft. long. **Plant:** MINE: 500 cu. ft. I-R compressor; electrically driven hoist; 75-kw. generator, driven by 100 h. p. semi-Deisel engine; complete mining equipment. MILL: 100-ton concentrator, fine grinding and flotation; driven by semi-Deisel oil engine. **Ore:** Silver-lead-zinc. **Men employed:** Average, 1. **Remarks:** Annual labor only.

INTERNATIONAL PORTLAND CEMENT CO., LTD.
Office: 1124 Old Nat. Bank Bldg., Spokane, Wash. **Officers:** R. K. Neill, Pres.; G. M. Bell, Sec., both of Spokane, Wash. **Inc.:** Filed in Idaho: Sept. 9, 1911. **Capital:** 15,000 shares common, 15,000 shares preferred; both, par value $100; 13,218 shares common, 14,015 shares preferred issued. **Property:** 5 patented claims, 524 acres, near Bayview. **Development:** Open quarry. **Ore:** Limestone. **Remarks:** Equipment removed and all operations abandoned.

KANIKSU MINING CO.
Office: 302 Paulsen Bldg., Spokane, Wash. **Officers:** J. W. Lloyd, Pres.; Dr. Earl H. Current, Sec., both of Spokane, Wash. **Inc.:** Sept. 16, 1922. **Capital:** 100,000 shares; par value $1. Increased July 13, 1929, to 3,000,000 shares; par value 10c; 1,300,000 shares issued. **Property:** Wood Rat group; 11 unpatented claims, Priest Lake dist.; Priest River. **Development:** By a shaft 400 ft. long, which is part vertical and part inclined. **Plant:** Steam-driven hoist and complete hand-mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Annual labor only.

KEEP COOL MINING CO.
Office: P. O. Box 2181, Spokane, Wash. **Officers:** T. S. Griffith, Pres.; R. Insinger, Sec., both of Spokane, Wash. **Inc.:** June 16, 1922. **Capital:** 1,500,000 shares; par value 5c; 1,018,167 shares issued. **Property:** Keep Cool group; 4 patented claims, Lakeview dist.; Lakeview. **Ore:** Lead-silver. **Remarks:** Idle.

KING SOLOMON'S MINES CO.
Office: Sandpoint. **Officers:** J. W. Newton, Pres.; W. M. Hollembaek, Sec.-Mgr., both of Sandpoint. **Inc.:** Oct. 1, 1921. **Capital:** 500,000 shares; par value $1; shares issued, unknown. **Property:** King Solomon group; 5 unpatented claims, Pend d'Oreille dist.; Sandpoint. **Development:** By 2 tunnels: No. 1, 100 ft. long; No. 2, 900 ft. long. **Ore:** Gold. **Remarks:** Annual labor only.

LAWRENCE CONSOLIDATED MINING CO.
Office: Clark Fork. **Officers:** Joseph Reed, Pres.-Mgr., Clark Fork; Ada I. Bungay, Sec., Spokane, Wash. **Inc.:** Mar. 3, 1923. **Capital:** 1,500,000 shares; par value 1c; 954,076 shares issued. **Property:** Lawrence group; 14 unpatented claims, Pend d'Oreille dist.; Clark Fork. **Development:** 7 tunnels, the principal one being 1240 ft. long; approximate total development 4940 ft. **Plant:** MINE: Water-driven compressor; complete mining equipment. MILL: 50-ton concentrator, crushers, 2 sets rolls, 2 jigs, 3 tables. **Men employed:** Average, 3. **Ore:** Lead-silver. **Remarks:** A small amount of development work was done and a car of hand-sorted ore marketed.

LUCKY STRIKE MINING CO.
Office: Clark Fork. **Officers:** W. W. Webb, Pres.-Mgr., Clark Fork. **Inc.:** Oct. 25, 1913. **Capital:** 1,000,000 shares; par value $1; 718,740 shares issued. **Property:** Lucky Strike group; 8 unpatented claims, Pend d'Oreille dist.; Clark Fork. **Development:** 2 tunnels: No. 1, 55 ft. long; No. 2, 250

ft. long. **Plant:** Water-driven 10 x 10 I-R compressor. **Men employed:** Average, 2. **Ore:** Silver-lead. **Remarks:** Principal tunnel extended approximately 100 ft. during the year.

MILWAUKEE MINES, INC.

Office: 501 City Hall Bldg., Spokane, Wash. **Officers:** Arthur L. Hooper, Pres.-Mgr.; W. W. Greenwood, Sec., both of Spokane, Wash. **Inc.:** Apr. 6, 1928. **Capital:** 2,000,000 shares; par value 25c; increased Jan. 22, 1930, to 5,000,000 preferred, par value 10c, and 5,000 common, no par value; changed July 30, 1930, to 250,000 preferred, par value $10, and 500,000 common, no par value; 75 shares preferred issued. **Property:** 100 unpatented claims, Priest Lake dist.; Priest River. **Ore:** Gold-silver-zinc-lead-aluminum. **Remarks:** Annual labor only.

MINERVA SILVER, INC.

Office: Granite Creek. **Officers:** E. R. Lindsey, Pres.-Mgr.; E. Mahoney, Sec., both of Spokane, Wash. **Inc.:** July 25, 1929. **Capital:** 1,500,000 shares; par value 25c; 709,058 shares issued. **Property:** Minerva group; 4 patented claims, Pend d'Oreille dist.; Sandpoint. Held under lease and option. **Development:** By 6 tunnels; approximate total development 2900 ft. **Plant:** 220-ft. compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** Compressor and complete mining equipment installed and a small amount of exploration work, the results of which were very encouraging to the management.

NAOMI MINING CO.

Office: Glengary. **Officers:** Leslie Kipper, Pres., Tacoma, Wash.; Fred Kipper, Sec., R. 1, Eatonville, Wash.; Albert Buehlmann, Mgr., Lakeview. **Inc.:** Mar. 16, 1929. **Capital:** 32,000 shares; par value $1; 17,000 shares issued. **Property:** 2 unpatented claims, Pend d'Oreille dist.; Glengary. **Development:** By 1 tunnel 800 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

NEVADA MINES

Office: 501 City Hall Bldg., Spokane, Wash. **Officers:** J. V. Campbell, Pres.; Arthur L. Hooper, Sec.-Mgr., both of Spokane, Wash. **Inc.:** Aug. 20, 1928. **Capital:** 250,000 shares; par value 10c; all shares issued. **Property:** 29 unpatented claims, Priest Lake dist.; Priest River. **Development:** By 2 short tunnels. **Ore:** Silver-lead-zinc-gold. **Remarks:** Annual labor only.

NORTH IDAHO MINING & DEVELOPMENT CO.

Office: Sandpoint. **Officers:** I. J. Brant, Pres., Clark Fork; D. A. Alcorn, Sec., Sandpoint. **Inc.:** Mar. 14, 1929. **Capital:** 2,000,000 shares common, par value 20c; 100,000 shares preferred, par value $1; 1,217,534 shares common, 35,000 shares preferred issued. **Property:** I. J. Brant group; 11 unpatented claims, Clark Fork dist.; Clark Fork. **Development:** Principally by 1 tunnel 825 ft. long. **Plant:** Gas-driven C-P compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Remarks:** Under lease to Goat Mountain Leasing Co.

NORTHWESTERN GOLD MINES CO.

Officers: John M. Roberts, Laclede. **Inc.:** Aug. 31, 1931. **Capital:** 1000 shares; par value $1. **Remarks:** Failed to file the reports required by law.

OPPORTUNITY MINING CO.

Office: Sagle. **Officers:** Peter Johnson, Pres., Sandpoint; A. A. Heskestad, Sec.-Mgr., Sagle. **Inc.:** Aug. 18, 1919. **Capital:** 1,500,000 shares; par value 5c; 507,295 shares issued. **Property:** 11 unpatented claims, Pend d'Oreille dist.; Sagle. **Development:** Approximately 2440 ft. of underground workings, consisting of 6 tunnels and 5 shafts, the principal tunnel being 650 ft. long. **Plant:** Steam-driven compressor, complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 1. **Remarks:** A small amount of development work during the early part of the year, the funds for which were derived from stock assessments. Entire surface plant destroyed by fire.

PONDERA MINING & POWER CO.

Office: Fargo, N. D. **Officers:** Joseph Bilden, Pres., Northwood, N. D.; J. D. Runswold, Jr., Sec.-Treas., 1316 11th Ave. S., Fargo, N. D. **Inc.:** July 2, 1912. **Capital:** 2,000,000 shares; par value $1; 379,675 shares issued. **Property:** 3 patented, 7 unpatented claims, Pend d'Oreille dist.; Sandpoint. **Remarks:** Idle.

PONDOROSA MINING CO.

Office: Clark Fork. **Officers:** J. P. Delaney, Pres., New York City; Compton I. White, Sec., Clark Fork. **Inc.:** Jan. 18, 1927. **Capital:** 1,500,000 shares; par value $1; shares issued, unknown. **Property:** Pondorosa group; 6 unpatented claims, Pend d'Oreille dist.; Clark Fork. **Remarks:** Annual labor only.

PRIEST RIVER MINING CO.

Office: Sandpoint. **Officers:** C. P. Stackhouse, Sandpoint. **Inc.:** Nov. 29, 1930. **Capital:** 1,500,000 shares; par value 10c; 750,000 shares issued. **Property:** Farmer Jones group; 5 patented claims, Priest Lake dist.; Priest River. **Development:** By 3 tunnels, the principal one being 500 ft. long. **Ore:** Gold-silver. **Remarks:** This company is a reorganization of Farmer Jones Gold Mining Co. Annual labor only.

REGAL MINING CORPORATION

Office: 50 Broad St., New York City. **Officers:** J. P. Delaney, Pres., W. M. Thompson, Sec., both of New York City; Compton I. White, Mgr., Clark Fork. **Inc.:** Feb. 10, 1928. **Capital:** 1,000,000 shares; par value $1; 900,000 shares issued. **Property:** 8 unpatented claims, Pend d'Oreille dist.; Clark Fork. **Development:** By 2 short tunnels. **Plant:** Water-driven I-R compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Remarks:** Annual labor only.

R. J. PRICE MINING CO.

Office: Pasco, Wash. **Officers:** J. W. Blanton, Pres.; E. J. O'Connor, Sec., both of Pasco, Wash. **Inc.:** Sept. 20, 1923. **Capital:** 500,000 shares; par value $1. On June 5, 1928, increased to 1,000,000 shares; par value $1; 629,636 shares issued. **Property:** 3 patented claims, Pend d'Oreille dist.; Cabinet. **Development:** By 1 tunnel 200 ft. long. **Remarks:** Idle.

SILVER LEAF MINES CORPORATION

Office: Lakeview. **Officers:** W. H. Latta, Pres.-Mgr., Lakeview; E. I. Fisher, Sec., Spokane, Wash. **Inc.:** July 2, 1931. **Capital:** 2,000,000 shares; par value 5c; 600,000 shares issued. **Property:** Silver Leaf group; 10 unpatented claims, part of which are held under lease and option, Lakeview dist.; Lakeview. **Development:** By 5 tunnels, the longest of which is 820 ft. **Plant:** Gas-driven F-M compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Camp buildings constructed, compressor and complete mining equipment installed; after which underground work was started.

SILVER MOUNTAIN MINING CO.

Office: Sandpoint. **Officers:** John T. Elsasser, Mgr., Sandpoint. **Inc.:** July 24, 1909. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Silver Mountain group; 6 unpatented claims, Priest Lake dist.; Priest River. **Development:** 2 tunnels: No. 1, 400 ft. long; No. 2, 625 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

SYRINGA MINING CO.

Office: Sandpoint. **Officers:** B. I. Hunt, Pres.; Frank E. Kempt, Sec., both of Sandpoint. **Inc.:** Dec. 17, 1928. **Capital:** 300 shares; par value $100. Increased Oct. 25, 1929, to 1,000,000 shares; par value $1; shares issued unknown. **Remarks:** Failed to file the reports required by law.

TALACHE MINES, INC.

Office: Talache. **Officers:** A. H. Burroughs, Jr., Pres.-Mgr.; B. K. Burroughs, Sec., both of Quartzburg. **Inc.:** Apr. 21, 1917, as Armstead Mines, Inc.; name changed June 8, 1922. **Capital:** 1,000,000 shares common, 600,000 shares preferred; par value $1; 983,000 shares common, 579,233 shares preferred issued. **Property:** Armstead mine; 18 patented, 44 unpatented claims, Pend d'Oreille dist.; Talache. **Development:** Approximately 34,591 ft. of underground workings, the principal of which are a main haulage tunnel, 3900 ft. long, the main inclined raise 916 ft. long and an inclined shaft 200 ft. long. **Plant:** MINE: 9x10 Hendre-Bolthoff electrically-driven geared hoist; 1574 cu. ft., 2 stage I-R type Pre-2 compressor, electrically driven; haulage, G. E. 4-ton storage battery locomotive; buildings, 44 room hotel, 24 residences, compressor house, blacksmith shop, warehouse, cook house, store, dry room and office. MILL: 150-ton flotation, 2 stage crushing to ½ in. fine grinding to 80 mesh, electrically driven. **Ore:** Silver. **Remarks:** Operations were suspended in October, 1926. In March, 1927, the famous Gold Hill & Iowa mine at Quartzburg, Boise County, was acquired and operations were transferred to that mine.



WHITEDELF MINING & DEVELOPMENT CO. MILL

WHITEDELF MINING & DEVELOPMENT CO.

Officers: John P. Delaney, Pres., 50 Broad St., New York; Compton I. White, Mgr., Clark Fork. **Inc.:** March 17, 1926. **Capital:** 100,000 shares, par value $1; 65,000 shares issued. Company reported 1000 shares; par value $100; all shares issued. Change not filed in Idaho. **Property:** 160 acres of patented land, Pend d'Oreille dist.; Clark Fork. **Development:** Principally by 3 tunnels, with a total of over 2500 feet, and an inclined shaft 300 ft. long. **Plant:** MINE: Electrically driven compressor; complete mining equipment. MILL: 75-ton flotation concentrator. **Ore:** Lead-silver. **Men employed:** Average, 23. **Remarks:** In addition to the work performed by the company, part of the mine was under operation by lessees. A large tonnage of high-grade lead-silver crude ore and concentrate was produced and marketed. The development work consisted principally of sinking the shaft to the 400-ft. level and a large amount of lateral work on that level. The new ore encountered greatly added to the known resources of the mine. The success with which this enterprise is meeting has been instrumental in attracting a large amount of attention to the Clark Fork district.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Aberdeen et al.	Pend d'Oreille	King Solomon Mines Co.	Sandpoint
Alamo Gr.	Pend d'Oreille	Sam Owen	Hope
Alpine	Priest Lake	E. W. Butts et al.	Priest River
American Eagle	Clark Fork	Edward Hanson et al.	Clark Fork
American Legion et al.	Priest Lake	Chas. Hagenson	Sandpoint
Anna et al.	Priest Lake	A. W. Eynon	Priest River
Antlers et al.	Pend d'Oreille	T. W. Whalen Est.	Juliaetta
Apex Lode Gr.	Lakeview	E. D. Faust	Lakeview
Badger et al.	Priest Lake	Clyde Smith	Priest River
Bank Roll	Priest Lake	J. A. Adam	Sandpoint
Basaltic et al.	Priest Lake	N. Y. Mt. Chief Cons. M. Co.	Priest River
Bellvill et al.	Lakeview	Chas Wiberg	Lakeview
Bernice et al.	Lakeview	Fount Perry Jr.	Lakeview
Big Four et al.	Priest Lake	Stewart Coolin et al.	Coolin
Big View et al.	Priest Lake	Leo Gwinn	Priest River
BiMetallic et al.	Pend d'Oreille	Marie E. Root	Hope
Black Angel et al.	Priest Lake	James Elsasser et al.	Elmira
Black Bear et al.	Priest Lake	H. B. Gumaer et al.	Priest River
Black Hornet et al.	Lakeview	John & Louis Weissenberger	Hope
Black Jack et al.	Priest Lake	John Elsasser et al	Sandpoint
Black Prince et al.	Priest Lake	Joseph Saccomanno	Priest River
Black Slate et al.	Pend d'Oreille	E. B. Clark	Clark Fork
Blanket Ledge Gr.	Lakeview	O. L. McNall	Lakeview
Blowout et al.	Priest Lake	John Hamberg	Priest River
Bluebird	Lakeview	Walter Street	Lakeview
Bluebird Gr.	Pend d'Oreille	Ernest E. Ward	Sagle
B & M et al.	Priest Lake	J. E. Peterkin et al.	Newport, Wash.
Bob Cat	Priest Lake	Katherine L. Brown	Priest River
Boulder et al	Priest Lake	J. W. and C. Butts	Priest River
Buck Horn et al.	Pend d'Oreille	Arthur E. Smith	Talache
Cabinet	Priest Lake	G. A. Naccarato et al.	Priest River
Catherine	Pend d'Oreille	Helmer Foss et al.	Sandpoint
Clagg	Pend d'Oreille	J. Reed & E. Clagg	Clark Fork
Copper Butte	Priest Lake	I. Daugherty	Priest River
Copper Coin	Pend d'Oreille	Dyrskog Bros.	Midas
Copper King	Pend d'Oreille	John Larson	Hope
Cuban et al.	Priest Lake	Cuban Mt. Mng. Co.	Priest River
Dad's Dream	Pend d'Oreille	E. E. Ralph	Clark Fork
Deer Park et al.	Pend d'Oreille	G. M. Walker et al.	Sandpoint
Deer Track	Priest Lake	O. E. Burquist	Sandpoint
Dirty Deuce	Priest Lake	Wm. Moscript et al.	Priest River
Easter Sunday	Lakeview	Frank Drummond	Lakeview
E & C Gr.	Pend d'Oreille	J. R. Coleman et al.	Sagle
Ella et al.	Lakeview	John W. Sheer	Lakeview
Felice et al.	Pend d'Oreille	C. I. White	Clark Fork
Frances B	Clark Fork	J. O. Peterson et al.	Clark Fork
Garfield Gr.	Pend d'Oreille	Gotlib Baker	Ponderay
General Pershing et al.	Pend d'Oreille	H. F. Rau et al.	R. 3, Tacoma, Wash.
Glasgow	Lakeview	R. C. Henry	Lakeview
Gray Goose	Priest Lake	C. W. Beardmore	Priest River
Hog Eye et al.	Lakeview	W. F. Sharai	Lakeview
Honest John et al.	Lakeview	J. Flewelling et al.	Sandpoint
Horseshoe	Priest Lake	S. S. Beldon et al.	Priest River
Imogene et al.	Lakeview	Wm. Shannon	Lakeview
Joker et al.	Priest Lake	W. B. Quinn	Molson, Wash.
Jumbo Gr.	Pend d'Oreille	E. H. Becker	Clark Fork

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Keno et al.	Lakeview	Dr. H. C. Meyers	Lakeview
Last Chance	Priest Lake	Bert Fry et al.	Priest River
Lincoln	Pend d'Oreille	Harry Churchill et al.	Spokane, Wash.
Little Bench	Pend d'Oreille	C. A. Johnson	Clark Fork
Little Geraldine Fr.	Priest Lake	Alex Judge	Box 1734, Spokane, Wash.
Little Three	Priest Lake	L. G. Brown et al.	Priest River
Lookout	Pend d'Oreille	W. W. Derr et al.	Clark Fork
Lucky Strike et al.	Priest Lake	F. C. Fredericks et al.	Spangle, Wash.
Morning Star	Pend d'Oreille	F. S. Hayes	Hope
Nest Egg	Pend d'Oreille	J. O. Derr	Clark Fork
North Star Pl.	Lakeview	S. R. Catlow	Clark Fork
Ontario et al.	Lakeview	Robt. Rennie	Lakeview
Rainbow et al.	Pend d'Oreille	Goat Mt. Mng. Co.	Clark Fork
Ready Cash	Lakeview	Bruyere & Hanchett	Bayview
Red Horse	Pend d'Oreille	Ed Hammon	Sandpoint
Scotchman	Pend d'Oreille	Dr. C. P. Stackhouse	Sandpoint
Silver Fox Gr.	Priest Lake	J. A. Adams	Sandpoint
Silver Star	Pend d'Oreille	C. O. Olsen	Sandpoint
Snowbird	Pend d'Oreille	Walter Blossom	Lindelle Bldg., Spokane, Wash.
Snow Slide	Pend d'Oreille	Foster & Bixel	Clark Fork
T. Bone	Lakeview	Frank Brown	Lakeview
Tiger	Priest Lake	Alex Judge	Spokane
Triangle	Lakeview	Ralph Henrichs et al.	Hope
True Fisher	Pend d'Oreille	Fred Vogel	Clark Fork
Twilight et al.	Pend d'Oreille	C. B. Stuart	Sandpoint
View Point	Pend d'Oreille	Ernest Becker	Clark Fork
West Point	Pend d'Oreille	Henry F. Phillips	Clark Fork

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

Survey of the boundary line between Idaho and Montana from the international boundary to the crest of the Bitterroot Mountains, by R. U. Goode: U. S. Geol. Survey Bull. 170, **1900.***

Geology of the region adjoining the western part of the international boundary, by R. A. Daly: Canada Geol. Survey Ann. Rept., vol. 14, pp. 39-51a, **1901.**§

Economic features of northern Idaho and northwestern Montana, by D. F. MacDonald: U. S. Geol. Survey Bull. 285, pp. 41-52, **1905.***

Priest Lake mining district, Idaho, by W. M. Curtis: Eng. and Min. Jour., vol. 82, p. 866, Nov. 10, **1906.**§

A geological reconnaissance in northern Idaho and northwestern Montana, by F. C. Calkins, with notes on the economic geology, by D. F. MacDonald: U. S. Geol. Survey Bull. 384, **1909.***

Lawrence mine and mill in Kootenai County (Bonner), Idaho, by A. L. Flagg: Min. and Eng. World, vol. 38, p. 340, Feb. 15, **1913.***

Guidebook of the Western United States, by M. R. Campbell, and others: U. S. Geol. Survey Bull. 611, pp. 150-156, 160, **1915.**‡

The mining districts of northern Idaho, by E. K. Soper: Min. and Sci. Press, vol. 116, pp. 125-126, **1918.***

Silver mining and milling at Talache, Idaho, by F. E. Wormser: Eng. and Min. Jour.-Press, vol. 114, pp. 581-585, Sept. 30, **1922.**§

Some Miocene and Pleistocene drainage changes in northern Idaho, by A. L. Anderson: Idaho Bureau of Mines and Geology Pamphlet 18, **1927.***

Granodiorites in the Pend d'Oreille district of northern Idaho, by J. L. Gillson: Jour. Geol., vol. 35, pp. 1-33, **1927.**§

Geology and silver ore deposits of the Pend d'Oreille district, Idaho, by Edward Sampson: Idaho Bureau of Mines and Geology Pamphlet 31, **1928.****
Contact metamorphism of the rocks in the Pend d'Oreille district, northern Idaho, by J. L. Gillson: U. S. Geol. Survey Prof. Paper 158-F, **1929.****
Sequence of ore deposition in north Idaho, by A. L. Anderson: Econ. Geology, vol. 25, pp. 160-175, March-April, **1930.****
Geology and ore deposits of the Clark Fork district, by A. L. Anderson: Idaho Bureau of Mines and Geology Bull. 12, **1930.****

BONNEVILLE COUNTY

Bonneville County is bounded on the south by Caribou and Bingham counties, on the west by Bingham County, on the north by Jefferson, Madison and Teton counties, and on the east by the State of Wyoming. It is one of the principal, as well as one of the largest, southeastern counties; and has an area of 1,904 square miles, and population of 19,664 at the time of the 1930 census. The larger part of the population is in the Snake River valley, which occupies all of the western part of the county. The southeastern part, which is occupied by the Caribou Range of the Snake River Mountains, is drained by the South Fork of the Snake River and its tributaries. It is primarily an agricultural county and is noted for its potato and sugar-beet industries, particularly potatoes, as it is one of the largest potato shipping points in the United States. Idaho Falls, the largest town, and civic center of the Upper Snake River valley, is the county seat.

Although recognized only as an agricultural community, this county was once the scene of many active mining operations. This was during the gold rush in the Mt. Pisgah, or Caribou, district at the time placer gold was discovered on McCoy and Gray's creeks. These placers produced a creditable amount of gold, and subsequently a few lode deposits were discovered and exploited. In late years a small dredge was constructed, but this and the deep mines are now idle and the only gold produced is from a few small placer operations.

The principal mineral resources of Bonneville County are gold, phosphate rock, copper, silver, and coal. Many structures favorable to the accumulation of petroleum in commercial quantity are found throughout the southern and eastern parts of the county.

The extensive phosphate beds of southeastern Idaho are exposed over a large area. These, and possibly petroleum, will eventually add to the county's prosperity and put it into the list of important mining counties.

1931 Activities

Except a small amount of placer mining in the Caribou district, no mining operations were conducted during the year.

BONNEVILLE MINING CO., INC.

Office: Rexburg. **Officers:** Francis J. Kiely, Sr., Pres., Palisade, N. J.; Leo Van Volkenburgh, Sec., Jersey City, N. J.; Arthur Lee, Mgr., Idaho Falls. **Inc.:** July 9, 1929. **Capital:** 250,000 shares; par value $1; 140,300 shares issued. **Property:** 4 unpatented claims, Mt. Pisgah dist.; Gray. **Ore:** Gold. **Remarks:** Annual labor only.

THE CALIFORNIA CO.

Office: 225 Bush St., San Francisco, Calif. **Officers:** K. R. Kingsbury, Pres.; J. H. Tuttle, Sec., both of San Francisco; E. G. Lawson, Mgr., Walker Bank Bldg., Salt Lake City, Utah. **Inc.:** Filed in Idaho: Mar. 19, 1928. **Capital:** 5,000 shares; par value $100; 1,000 shares issued. **Property:** 920 acres held under oil and gas lease. **Development:** 14 to 10-in. well, 3780 ft. deep. **Plant:** 90-ft. steel derrick; complete drilling equipment, gas-driven; complete and modern camp. **Mineral sought:** Oil and gas. **Men employed:** One watchman. **Remarks:** This company is a subsidiary of the Standard Oil Co. of California. The rig was installed in May, 1928, and active well-drilling operations were commenced on June 10, 1928, and continued without interruption throughout 1929. Operations were suspended in January, 1930.

IDAHO GOLD MINING CO.

Office: 319 Dooly Block, Salt Lake City, Utah. **Officers:** Chas. C. Dey, Pres.; W. A. Wilson, Sec.-Mgr., both of Salt Lake City, Utah. **Inc.:** April 19, 1917. **Capital:** 150,000 shares; par value 10c; 130,026 shares issued. **Property:** Robinson group; 2 patented claims, Mt. Pisgah dist.; Gray. **Ore:** Gold. **Remarks:** Idle for many years.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
American Placer	Mt. Pisgah	W. H. Stocks	Gray
Anderson Bar et al.	Mt. Pisgah	Helmer Ronback, Agt.	Gray
Barnes Gr.	Mt. Pisgah	W. K. Lynch, Agt.	Gray
Idaho Gr.	Mt. Pisgah	W. K. Lynch, Agt.	Gray
Oneida Gr.	Mt. Pisgah	Fred Brenzinger, Agt.	Gray
Oneida South	Mt. Pisgah	Miles Schneider, Agt.	Gray
Pisgah Gr.	Mt. Pisgah	Fred Brenzinger, Agt.	Gray
Silver Bell Gr.	Mt. Pisgah	Fred Brenzinger, Agt.	Gray
Timber Line	Mt. Pisgah	Leroy Layland	Gray
Toway	Mt. Pisgah	J. C. Beatty	Soda Springs
Wolfe Bar	Mt. Pisgah	Amos S. Clark	Unknown

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

Fifth, Sixth and Eleventh Ann. Repts., U. S. Geol. and Geog. Survey of the Territories, by F. V. Hayden, **1871, 1873** and **1879.***

The gold ore deposits of Mount Caribou, Idaho, by E. B. Kirby: Colorado Sci. Soc. Proc., vol. 5, pp. 72-75, **1898.***

Mount Caribou gold deposits, by Arthur Lakes: Mines and Minerals, vol. 19, pp. 55-56, September, **1898.***

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

A geological reconnaissance in southeastern Idaho, by A. R. Schultz and R. W. Richards: U. S. Geol. Survey Bull. 530, pp. 267-284, **1911.***

Guidebook of the western United States, by W. T. Lee and others: U. S. Geol. Survey Bull. 612, pp. 114-147, **1915.**‡

A geologic reconnaissance for phosphate and coal in southeastern Idaho and western Wyoming, by A. R. Schultz: U. S. Geol. Survey Bull. 680, **1918.**‡

Coal in eastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 716, pp. 123-153, **1920.***

Oil shale in western Montana, southeastern Idaho, and adjacent parts of Wyoming and Utah, by D. D. Condit: U. S. Geol. Survey Bull. 711, pp. 15-40, **1920.***

The Wasatch and Salt Lake formations of southeastern Idaho, by G. R. Mansfield: Am. Jour. Sci., vol. 49, pp. 399-406, June, **1920.**§

Triassic and Jurassic formations in southeastern Idaho and neighboring regions, by G. R. Mansfield: Am. Jour. Sci., vol. 50, pp. 53-64, July, **1920.**§

Types of Rocky Mountain structure in southeastern Idaho, by G. R. Mansfield: Jour. Geology, vol. 29, No. 5, pp. 444-468, July-August, **1921.**§

Geology and oil possibilities of Bingham, Bonneville, and Caribou counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Bull. 8, **1924.****

Oil possibilities of southeastern Idaho, by V. R. D. Kirkham: Mining and Metallurgy, vol. 6, No. 218, Feb., **1925.**§

Ground water for municipal supply at Idaho Falls, Idaho, by A. M. Piper and V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 16, **1926.****

Geography, geology, and mineral resources of part of southeastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Prof. Paper 152, **1927.**‡

BOUNDARY COUNTY

Boundary County is bounded on the north by the Dominion of Canada, on the east by the State of Montana, on the west by the State of Washington, and on the south by Bonner County. Its principal area comprises the drainage basins of the Moyie River, which flows in a southerly direction, and the Kootenai River, which flows northerly from Bonners Ferry, the county seat and principal town. It has a total area of 1,276 square miles, and was accredited with a population of 4,555 in the 1930 census. The principal industries are lumbering, farming, and mining.

The county is served by two transcontinental railroads, the Great Northern, with its branch line from Bonners Ferry to Porthill, on the Canadian border, and the Spokane International; by the North and South Highway, with an easterly outlet from Bonners Ferry; and by a system of county roads which extend into the different sections along the main stream valleys.

The principal mineral resources are lead, silver, gold, copper, zinc, tungsten, and molybdenum. These metals are widely distributed, and a few of the deposits have been partially developed. Heavy overburden, dense overgrowth, and limited accessibility have retarded prospecting, discovery, and development. The many favorable areas and wide diversity of mineralization make this county an exceptionally favorable field for the prospector and the small development company.

1931 Activities

The year 1931 witnessed but little new activity and but a small improvement in development work by the old companies. The Silver Spoon Mining Co., Inc., and the Moyie Gold Copper Mining & Milling Co., Ltd., both maintained active development work throughout the year. Idamont Lead-Zinc Mines Co., Clancy Mining Co., Lucky Abe Mining Co., and Metals Mining Co. were active only a sufficient length of time to constitute annual labor. The International Molybdenum Co., in the Porthill district, was active during the summer months. Newspaper reports were to the effect that a discovery of placer gold was made near Naples, and that a new organization was being planned to acquire some of the properties in the Katka district.

CLANCY MINING CO.

Office: Bonners Ferry. **Officers:** Abe Stimmony, Pres.; H. M. MacNamara, Sec.; James Clancy, Mgr., all of Bonners Ferry. **Inc.:** July 29, 1929. **Capital:** 500,000 shares; par value $1; 272,500 shares issued. **Property:** 7 unpatented claims, Moyie Yaak dist., Boulder Creek; Bonners Ferry. **Development:** By 1 tunnel 425 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

COPPER FALLS MINING CO.

Office: Eastport. **Officers:** Spencer Lewis, Sec., Eastport. **Inc.:** March 30, 1911. **Capital:** 1,000,000 shares; par value $1; 669,772 shares issued. **Property:** Copper Falls group; 5 unpatented claims, Moyie Yaak dist.; Addie. **Development:** 2 tunnels: No. 1, 240 ft. long; No. 2, 600 ft. long; 1 vertical shaft, 45 ft. deep. Total development, approximately 1185 ft. **Ore:** Lead-silver. **Remarks:** Annual labor.

GOLDEN SCEPTRE MINING CO.

Office: N. 3321 Nevada St., Spokane, Wash. **Officers:** E. H. Johnson, Pres.; C. F. Halverson, Sec.-Mgr., both of Spokane, Wash. **Inc.:** Aug. 30, 1909. **Capital:** 1,500,000 shares; par value 50c; 632,913 shares issued. **Property:** 8 unpatented claims, Port Hill dist.; Port Hill. **Development:** 4 tunnels: No. 1, 1800 ft. long. **Plant:** Gas-driven C-P compressor; complete mining equipment and mine camp. **Ore:** Copper-gold-silver. **Remarks:** Annual labor only, the funds for which were derived from stock assessments.

IDAMONT LEAD-ZINC MINES CO.

Office: Leonia. **Officers:** J. S. Hutchinson, Pres., Portland, Ore; M. E. Carson, Sec., Leonia. **Inc.:** Sept. 10, 1928. **Capital:** 1,000,000 shares; par value $1; 505,000 shares issued. **Property:** 68 placer and lode claims, approximately 2400 acres, Moyie Yaak dist.; Leonia. **Develop-**

ment: 5-mile, 200 sec.-ft. capacity canal, giving a working head of approximately 430 ft.; in 2 sections, upper 3 miles long, lower 2 miles, with a difference in elevation of 210 ft. Water conducted from upper to lower through two 22-inch steel pipes; about 20 miles of road, 5 of which were very heavy construction. Lode claims developed by numerous cuts and tunnels. **Plant:** Approximately 3000 ft. steel pipe, one 8-inch giant, operating under a 430-ft. head and two 5-inch giants, operating under 130-ft. head; bed rock flume and spillway 300 ft. long on a grade of 10 inches in 12 ft.; in 3 sections, spillway 12 ft. wide by 8 ft. deep; one flume 6 ft. wide and one 12 ft wide, both 8 ft. deep. Concentrates from flume discharge into cement lined tank of approximately 15,000-ton capacity from which they are elevated into cleaning plant on top of flume. Cleaning plant consists of Ogden tables, classifiers and specially designed riffles. Complete machine shop, sawmill, planing mill, overhead cable system operated by steam; tractor haulage; complete company buildings and 35 individual homes for the men. **Ore:** Principally placer gold. **Men employed:** Average, 6. **Remarks:** A reorganization of the Leonia Gold Mining Co., in order that the stock might be made assessable. Annual labor only, the funds for which were derived from stock assessments.

INTERNATIONAL MOLYBDENUM CO.

Office: Porthill. **Officers:** H. A. French, Pres.; P. W. Stas, Sec., both of Porthill. **Inc.:** Feb. 3, 1926. **Capital:** 25,000 shares; par value $1; 13,378 shares issued. **Property:** Hottentot group; 4 unpatented claims, Porthill dist.; Porthill. **Development:** 3 tunnels with a total length of 230 ft., and a number of open cuts. **Ore:** Molybdenum. **Men employed:** Average, 3. **Remarks:** Principal work during the year consisted of building a 12-mile road to connect the property with the road at the Continental mine. A stock assessment of 10c was levied on April 7, 1931.

LEAD CONSOLIDATED MINING CO.

Officers: H. I. Monks, Bonners Ferry. **Inc.:** April 11, 1929. **Capital:** 3,000,000 shares; par value $1. **Remarks:** This company has never filed the reports required by law.

LUCKY ABE MINING CO.

Office: Priest River. **Officers:** T. F. Nelson, Sec., Priest River. **Inc.:** March 1, 1916. **Capital:** 1,000,000 shares; par value 10c; 480,000 shares issued. **Property:** 6 unpatented claims, Priest Lake dist.; Priest River. **Development:** 3 short tunnels. **Ore:** Gold, silver, lead, and copper. **Remarks:** Annual labor only.

METALS MINING CO.

Office: Bonners Ferry. **Officers:** A. Strom, Pres.; Carl J. Walden, Sec., both of Bonners Ferry. **Inc.:** June 24, 1920. **Capital:** 1,000,000 shares; par value 1c; 319,421 shares issued. **Property:** 9 unpatented claims, Katka dist.; Leonia. **Ore:** Silver-lead. **Men employed:** Average, 2. **Remarks:** Annual labor only.

MOYIE GOLD COPPER MINING & MILLING CO., LTD.

Office: Bonners Ferry. **Officers:** J. W. Reid, Pres.; W. B. Scott, Sec.; Sven A. Anderson, Mgr., all of Bonners Ferry. **Inc.:** Sept. 16, 1911. **Capital:** 1,250,000 shares; par value $1; 1,145,500 shares issued. **Property:** Queen and Damon groups; 6 unpatented claims, Moyie Yaak dist.; Bonners Ferry. **Development:** 5 tunnels and 2 shafts, approximately 700 ft. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** Principal tunnel extended 400 ft. during the year.

NORTH IDAHO DEVELOPMENT CO.

Officers: Eric Larson, Bonners Ferry. **Inc.:** Feb. 20, 1929. **Capital:** 500 shares; par value $10. **Remarks:** Failed to file the reports required by law.

SILVER SPOON MINING CO., INC.

Office: Bonners Ferry. **Officers:** R. L. Hoisington, Pres.; Emma Hoisington, Sec., both of Bonners Ferry. **Inc.:** Sept. 6, 1930. **Capital:** 1,000,000 shares; par value 5c; 160,000 shares issued. **Property:** Silver Spoon group; 7 unpatented claims, Moyie Yaak dist.; Meadow Creek. **Plant:** Gas-driven C-P compressor; complete mining equipment. **Ore:** Lead-silver, zinc. **Men employed:** Average, 4. **Remarks:** Active throughout a large part of the year.

BIBLIOGRAPHY

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Survey of the boundary line between Idaho and Montana from the international boundary to the crest of the Bitterroot Mountains, by R. U. Goode: U. S. Geol. Survey Bull. 170, **1900.***

Geology of the region adjoining the western part of the international boundary, by R. A. Daly: Canada Geol. Survey Ann. Rept., vol. 14, pp. 39-51a, **1901.§**

A geological reconnaissance in northern Idaho and northwestern Montana, by F. C. Calkins, with notes on the economic geology, by D. F. MacDonald: U. S. Geol. Survey Bull. 384, **1909.***

The mining districts of northern Idaho, by E. K. Soper: Min. and Sci. Press, vol. 116, pp. 126-127, **1918.***

Tungsten, cinnabar, manganese, molybdenum and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****

Geology and ore deposits of Boundary County, Idaho, by V. R. D. Kirkham and E. W. Ellis: Idaho Bureau of Mines and Geology Bull. 10, **1926.****

BUTTE COUNTY

Butte is one of the south-central counties, being bounded by Lemhi, Custer, Blaine, Bingham, Jefferson, and Clark counties. The Big and Little Lost rivers flow in a southerly direction across the county, and the lower valleys of these rivers constitute the larger part of its area of 2,048 square miles. Arco, situated near the lower end of Big Lost River valley, is the largest town and the county seat. It is primarily an agricultural and stock-raising community, although its mining industry is gaining recognition and importance. The publicity given and the travel attracted to the new national monument, the Craters of the Moon, which is located in this county, have widely advertised the resources and scenic attractions of the State.

Two State highways have been designated and completely constructed, the Lost River Highway, which extends from Blackfoot to Challis and passes through Arco and Big Lost River valley, and the Idaho Central Highway from Hailey to Dubois, which serves the Craters of the Moon. The county is served by the Blackfoot-Mackay branch of the O. S. L. Railroad.

The principal mineral resources are lead, silver, zinc, gold, tungsten, manganese, limestone, and marble, the high-grade lead-silver ores being the most important, as they are found in all the mining districts of the county. The other metals occur in sufficient extent to be of commercial importance. Butte is one of the principal lead-silver producing counties in southern Idaho.

1931 Activities

The Wilbert Mining Co., Ltd., whose property is located in the Dome district near Howe, maintained production during January and active work for the following three months, after which the low price of metals caused a suspension of all operations. The Dahle Bros., at the Horn Silver mine, in the Lava Creek district, maintained active development work throughout the year, and reports were to the effect that this work encountered a good showing of new ore. The other companies performed only the necessary annual labor, although the work done at the property of the Metta Mining Co., Ltd., whose property is in the Hamilton district, exceeded the requirement.

BADGER MINES CO.

Office: Rexburg. **Officers:** S. H. Abbott, Pres.-Mgr.; Fay Abbott, Sec., both of Rexburg. **Inc.:** June 8, 1925. **Capital:** 1,000,000 shares; par value 3c; 959,400 shares issued. **Property:** Badger group; 8 unpatented claims, Dome dist.; Howe; held under lease and option. **Development:** Principally by 1 tunnel, 2355 ft. in length. **Plant:** MINE: Gas-driven compressor and complete mining equipment. MILL: 25-ton concentrator, driven by gas engine. **Ore:** Lead-silver. **Remarks:** Annual labor only.

BUTTE ANTELOPE MINING CO.

Office: Moore. **Officers:** H. E. Lisonbee, Sec., Moore. **Inc.:** Sept. 8, 1927. **Capital:** 1,000,000 shares; par value 5c. **Remarks:** Since 1928 this company has failed to file the reports required by law.

HORN SILVER CONSOLIDATED MINES CO.

Office: Arco. **Officers:** Edward Dahle, Pres.-Mgr.; M. M. Dahle, Sec., both of Arco. **Inc.:** Dec. 21, 1925. **Capital:** 100,000 shares; par value $1; all shares issued. **Property:** Horn Silver group; 6 unpatented claims, one of which is held under lease and option; Lava Creek dist.; Martin. **Development:** By 3 tunnels: No. 1, 630 ft.; No. 2, 530 ft.; No. 3, 1500 ft. **Plant:** Gas-driven compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 7. **Remarks:** Active development work throughout the year, which consisted principally of drifting on the vein in No. 3 tunnel. This work opened a substantial showing of ore. All the men employed are interested in the mine and work without wages. The Dahle brothers are to be complimented for hard work, intelligent manner of developing the property and economy of operation.

MAUDE ELLEN OIL CO.

Office: P. O. Box 239, Pocatello. **Officers:** A. E. Fridenstine, Pres.; R. A. Carson, Sec.-Mgr., both of Pocatello. **Inc.:** Oct. 26, 1925. **Capital:** 15,000,000 shares; no par; 9,022,955 shares issued. **Property:** 1 unpatented claim, Lava Creek dist.; Arco. **Development:** 1 short tunnel. **Remarks:** Idle.

METTA MINING CO., LTD.

Office: Blackfoot. **Officers:** W. R. Jones, Pres., Blackfoot; E. M. Christensen, Sec., Idaho Falls. **Inc.:** Oct. 20, 1906. **Capital:** 1,000,000 shares; par value $1; 386,500 shares issued. **Property:** Metta group; 9 unpatented claims, Hamilton dist.; Howe. R. R. Dubois, 47 miles. **Development:** 3 short tunnels and 3 short vertical shafts; total development work approximately 1000 ft. **Ore:** Lead-silver. **Remarks:** The property is leased to the Richmond Developing Co.

RICHMOND DEVELOPING CO.

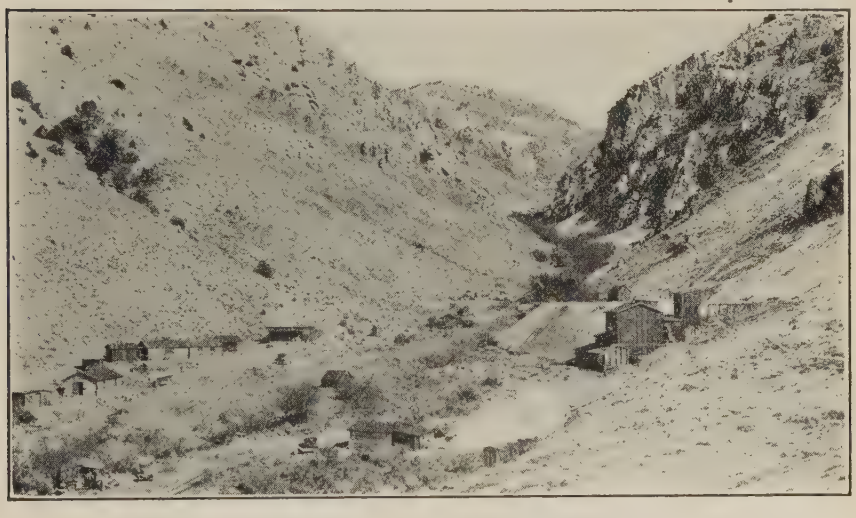
Officers: Roy De Kay, Pres.; James Young, Sec.; W. R. Jones, Mgr., all of Blackfoot. **Inc.:** Not incorporated. **Property:** Metta group; 9 unpatented claims, held under lease and option, Hamilton dist.; Howe. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Active during the summer.

ST. LOUIS MINING CO.

Office: 876 First Ave., Salt Lake City, Utah. **Officers:** Earl Wright, Pres.; Mrs. Jessie B. Russell, Sec., both of Salt Lake City. **Inc.:** Filed in Idaho, July 3, 1929; charter forfeited Dec. 1, 1930. **Capital:** 750,000 shares; par value 1c; 397,899 shares issued. **Property:** St. Louis group; 5 unpatented claims, Lava Creek dist.; Arco. **Development:** By 4 tunnels: No. 1, 300 ft. long; No. 2, 500 ft. long; No. 3, 425 ft. long; No. 4, 800 ft. long; and an inclined shaft 400 ft. long. **Plant:** Gas-driven Gardner compressor; small air-driven hoist; complete mining equipment. **Ore:** Silver. **Remarks:** Annual labor only.

WILBERT MINING CO., LTD.

Office: 221 Kearns Bldg., Salt Lake City, Utah. **Officers:** J. A. Foley, Pres.-Mgr.; T. L. Mitchell, Sec., both of Salt Lake City, Utah. **Inc.:** Apr. 10, 1907. **Capital:** 2,000,000 shares; par value 50c; 1,566,128 shares issued. **Property:** Daisy Black group; 7 patented, 32 unpatented claims, Dome dist.; Howe. R. R. Arco, 42 miles. **Development:** Approximately 18,000 ft. of underground workings, the principal of which is No. 4 tunnel, in which there is an inclined shaft 550 ft. long with 4 intermediate levels. When this tunnel was completed to 2800 ft. in length, a raise was put through at its end and connection made with the old workings. **Plant:** MINE:



MINE CAMP AND MILL: WILBERT MINING CO., LTD.

Hoist and 2 compressors, one electrically driven, one oil-driven; complete mining equipment and camp. MILL: 75-ton concentrator, electrically driven. **Ore:** Lead-silver. **Men employed:** Average, 10. **Remarks:** Maintained production during January and active work for the following three months, after which the low price of metals caused a suspension of all operations. This property is one of the largest lead-producing mines of southern Idaho.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Apex, Apex 3	Lava Creek	Edward Dahle	Martin
Badger 1, 2, 3, 4	Hamilton	William Deusner	Howe
Badger Creek	Hamilton	Frank Peete	Clyde
Betty Lou	Lava Creek	C. V. Genoway	Boise
Big Butte	Hamilton	B. A. Smith	Arco
Black Hawk	Hamilton	Chas. W. Johnson	Howe
Bluebird et al.	Hamilton	Roy Hawley	Howe
Bonanza Gr.	Dome	W. W. Brown	Arco
Bozette Gr.	Lava Creek	J. W. Gamett	Moore
Comstock	Lava Creek	Mrs. E. H. Brim	Martin
Copper King Gr.	Lava Creek	B. A. Smith	Arco
Crater View Gr.	Lava Creek	J. Y. Greene et al.	Arco
Crown Point	Lava Creek	P. J. McQuaid	Arco
Cut Wall	Hamilton	W. A. Beakley	Blackfoot
Denver Gr.	Lava Creek	Leonard Dresser	Emmett
Divide et al.	Lava Creek	Mary V. Stone	Martin
Edmonville	Badger Creek	Louis Edmon	Howe

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Ella	Lava Creek	B. F. Morrison	Martin
Flora	Hamilton	G. W. Hooper et al	Howe
Foot Wall	Lava Creek	Ardell Gamett	Moore
Garage	Lava Creek	C. J. Samuels	Arco
Gold Belt Gr.	Lava Creek	J. M. Walker	Blackfoot
Granite Mountain	Lava Creek	E. H. Hammond	Arco
Gray Wolfe et al.	Hamilton	S. H. Abbott	Howe
Great Western	Lava Creek	Daniel Romney	Arco
Happy Hooligan	Lava Creek	Ardell Gamett	Moore
Hidden Treasure	Lava Creek	Mattie D. Martin	Martin
Homestake	Lava Creek	J. F. Houf	Arco
Hub Gr.	Lava Creek	S. O. Nelson	Boise
Humdinger	Lava Creek	Ole Anderson	Martin
Iron Dyke et al.	Lava Creek	V. R. Markel	Martin
Ironsides	Lava Creek	A. Brim	Martin
Ironsides	Lava Creek	Gordon Lee	Boise
Johnson Gr.	Dome	Lew Johnson	Howe
Josephine et al.	Hamilton	W. C. Hammond	Martin
Joyce	Lava Creek	M. Shaughnessy	Arco
Lead Belt	Lava Creek	H. W. Weiler Est.	Mackay
Lindy No. 1	Dome	Geo. H. Shail	Rexburg
Little Jim	Lava Creek	John T. Welch	Arco
Lone Pine	Badger Creek	George Hooper	Howe
Lost Gold et al.	Lava Creek	Mattie D. Martin	Martin
Matilda	Lava Creek	M. Weeks	Arco
Neppar et al.	Hamilton	John Linder	Howe
Nester	Lava Creek	Thos. D. Kilion	Arco
O My	Unorganized	H. L. Race	Arco
Oxide Lode	Lava Creek	Ole Anderson	Arco
Pacific et al.	Lava Creek	M. L. Shanafelt	Hailey
Pandora	Lava Creek	Mattie D. Martin	Martin
Pioneer	Lava Creek	Ardell Gamett	Moore
Policy	Lava Creek	Hugo Vogelsang	Arco
Rabbits Foot	Lava Creek	H. C. Schwamb	Hailey
Reliance	Lava Creek	T. C. Woodbridge	Arco
Rosetta	Lava Creek	Rose Shaughnessy	Arco
St. Louis et al.	Lava Creek	T. H. Philipson	Arco
Sam & Tom	Lava Creek	Ira Petty	Howe
Second Chance	Lava Creek	Riley Kent	Arco
Senator Gooding	Lava Creek	D. W. Nichols	Martin
Shail & Comstock	Dome	Shail & Comstock	Rexburg
Silent Friend	Dome	J. D. Powell	Howe
Silver Bell	Lava Creek	Ardell Gamett	Moore
Silver Bell	Lava Creek	P. J. McGuinness	Martin
Silver Horn et al.	Lava Creek	E. B. Jones	Martin
Sooge Gr. et al.	Hamilton	Louis Edmonds	Howe
Sunbeam	Dome	Isidore Fallert	Howe
West Idaho et al.	Lava Creek	W. H. Miller et al.	Arco

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Notes on geology of southwestern Idaho and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Bull. 217, pp. 36-47, 59, **1903.***

The lead-silver deposits of the Dome district, Idaho, by J. B. Umpleby: U. S. Geol. Survey Bull. 540, pp. 212-222, **1912.***

Geology and ore deposits of the Mackay region, Idaho, by J. B. Umpleby: U. S. Geol. Survey Prof. Paper 97, **1917.**‡

Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****

A geologic reconnaissance of Clark and Jefferson, and parts of Butte, Custer, Fremont, Lemhi and Madison counties, Idaho, by V. R. D. Kirkham; Idaho Bureau of Mines and Geology Pamphlet 19, **1927.***

Craters of the Moon National Monument, Idaho, by H. T. Stearns: Idaho Bureau of Mines and Geology Bull. 13, **1928.***

Lava Creek vents, Butte County, Idaho, by A. L. Anderson, Northwest Science, vol. 3, pp. 13-18; also issued privately; December, **1928.**§

The "Craters of the Moon" in Idaho, by H. T. Stearns: Ann. Rept. Smithsonian Institution, pp. 307-313, **1928.**§

Geology and ore deposits of the Lava Creek district, Idaho, by A. L. Anderson: Idaho Bureau of Mines and Geology Pamphlet 32, **1929.****

CAMAS COUNTY

Camas County is one of the south-central counties, being bounded on the north and east by Blaine, on the south by Lincoln and Gooding, and on the west by Elmore County. It has an area of 1,070 square miles, and was accredited with a population of 1,411 in the 1930 census, or 1.3 persons to the square mile. The population is engaged in stockraising and dry farming, which pursuits are confined to the 300,000 fertile acres of the Camas Prairie.

The county is served by locally maintained roads, two Forest Service highways, and the Shoshone-Hill City branch of the O. S. L. Railroad. Fairfield is the largest town and county seat.

The principal mining districts are the Rosetta, Little Smoky, and Skeleton. The Skeleton district includes the drainage area forming the headwaters of the South Fork of the Boise River, and Little Smoky district comprises the drainage area of Little Smoky and Carrie Leonard Creeks. The ores found in the latter are those of lead-silver and zinc, and the mines in the former are principally gold, both placer and lode. In addition to the foregoing, the other mineral resources are copper, tungsten, and diatomaceous earth.

The mines in the Carrietown section of the Little Smoky district have a good production record to their credit, and their latent possibilities still offer excellent opportunities for profitable mines, either through the apparent possibility in some mines for finding the ore beyond the faults which caused a suspension of operations in the early nineties, or, in other mines, of adapting modern flotation methods to the large bodies of proven low-grade ore.

1931 Activities

During 1931 the gold resources of this county, both placer and lode, in the Skeleton Creek district, on the South Fork of the Boise River, and in the Big Smoky section, received more attention than during the previous year. Much prospecting and development work were done by the old companies and by three new organizations, the principal one of which was the El Oro Mining Co., at the El Oro mine, where a small tonnage of ore was mined and milled, and work was started on a new crosscut, which is projected to open the vein at a greater depth. The Gold Mountain Mines Co. reported the installation of a 5-ton Gibson mill.

The Idaho Placer Mines Co. and the Glacier Gold Placer Mining Co., both placer operations, were active during the summer in constructing new ditches and in trenching. The Consolidated Mines Syndicate, which is developing a prospect in the Willow Creek section, employed a few men during the early part of the year, after which all operations were suspended.

No new work was started in the Little Smoky district, and, other than the necessary expenditures for annual labor, all the properties were idle.

CARRIE LEONARD MINING CO.

Office: 319 Dooly Blk., Salt Lake City, Utah. **Officers:** Boyd T. Park, Pres.; W. A. Wilson, Sec.-Mgr., both of Salt Lake City. **Inc.:** Filed in Idaho, July 21, 1926. **Capital:** 200,000 shares; par value 10c; 188,142 shares issued. **Property:** Carrie Leonard group; 8 patented claims, Little Smoky dist.; Fairfield. **Ore:** Lead-silver. **Remarks:** Idle.

CLIPPER GOLD MINING & MILLING CO.

Office: Box 61, Fairfield. **Officers:** Chas. J. Sherry, Sr., Pres.-Mgr., Fairfield; C. J. Sherry, Jr., Sec., Long Beach, Calif. **Inc.:** Apr. 3, 1907. **Capital:** 500,000 shares; par value $1; 425,000 shares issued. **Property:** Clipper group; 3 unpatented claims, Rosetta dist.; Fairfield. **Development:** By 3 short tunnels. **Remarks:** Annual labor only.

CONSOLIDATED MINES SYNDICATE

Office: 623 First Nat'l Bank Bldg., Boise. **Officers:** Frank E. Johnesse, Pres.-Mgr.; Paul L. Oakes, Sec., both of Boise. **Inc.:** May 6, 1924. **Capital:** 10,000 shares; no par value. On August 15, 1924, the capitalization was changed to 10,000,000 shares, $2.50 par value; and on May 2, 1925, the capitalization was decreased to 10,000,000 shares; par value $1; 2,810,865 shares issued. **Property:** Princess-Blue Ribbon groups; 7 unpatented claims, unorganized dist.; Beaver Creek; Fairfield. **Development:** By 4 tunnels: No. 1, 170 ft.; No. 2, 415 ft.; No. 3, 350 ft.; No. 6, 575 ft. **Plant:** Gas-driven compressor; air-driven hoist; complete mining equipment and camp. **Ore:** Gold-silver-lead-zinc. **Men employed:** Average, 1. **Remarks:** Four men were employed during the first part of the year, after which all operations were suspended.

EL ORO MINING CO.

Office: Fairfield. **Officers:** C. Wesley Smith, Pres.-Mgr., 60 State St., Boston, Mass.; E. Hadley, Sec., Tremont Bldg., Boston, Mass. **Inc.:** March 11, 1925. **Capital:** 300,000 shares; no par value; no shares issued. **Property:** El Oro group; 5 unpatented claims, Skeleton Creek dist.; Fairfield. **Development:** 3 tunnels: No. 1, 100 ft. long; No. 2, 200 ft. long; No. 3, 150 ft. long; approximate total development, 2000 ft. **Plant:** MINE: Steam-driven compressor. MILL: Steam-driven 5-stamp mill. **Ore:** Gold. **Men employed:** Average, 15. **Remarks:** Property is being operated by I. E. Haight, who holds it under lease and option. A small tonnage of ore was milled and work started on a crosscut, which is projected to open the vein at a greater depth.

GLACIER GOLD PLACER MINING CO.

Office: Mountain Home. **Officers:** J. R. Prentice, Pres., Mountain Home. **Inc.:** April 4, 1930. **Capital:** 100,000 shares; par value $1; 25,000 shares issued. **Property:** 5 unpatented placer claims, Skeleton Creek dist.; Fairfield. **Remarks:** 6500 ft. of ditch was completed and 1200 ft. of flume and 750 ft. of 6 by 8 in. pipe with nozzle installed.

GOLD BLOSSOM MINING & DEVELOPMENT CO., INC.

Office: Burley. **Officers:** E. B. Reasoner, Pres.; C. M. Oberholtzer, Sec.; T. M. Fairchild, Mgr., all of Burley. **Inc.:** Dec. 23, 1931. **Capital:** 1,000,000 shares; par value 10c; 602,000 shares issued. **Property:** Gold Blossom group; 5 unpatented claims, unorganized dist., Beaver Creek; Fairfield. **Development:** By 3 tunnels: No. 1, 125 ft. long; No. 2, 40 ft. long; No. 3, 35 ft. long. **Ore:** Gold.

GOLD MOUNTAIN MINES CO.

Officers: T. S. Platt, Pres.; A. G. Karlsson, Sec., both of Coffee Creek, Mont. **Inc.:** June 6, 1931. **Capital:** 150,000 shares; par value $1; no shares issued. **Property:** One-half interest in 4 unpatented claims, held under lease and option, Skeleton Creek dist.; Fairfield. **Development:** By 1 tunnel 155 ft. long. **Ore:** Gold. **Men employed:** Average, 2. **Remarks:** Company reported the installation of a 5-ton Gibson mill.

HIDDEN TREASURE MINE & MILLING CO.

Office: Fairfield. **Officers:** Chas. J. Sherry, Sr., Pres.-Mgr.; Fairfield. **Inc.:** July 10, 1916. **Capital:** 500,000 shares; par value 10c; 400,000 shares issued. **Property:** Hidden Treasure group; 4 unpatented claims, Little Smoky dist.; Fairfield. **Development:** By 3 tunnels; total development, approximately 3000 ft. **Plant:** Partly dismantled 50-ton concentrator. **Ore:** Lead-silver. **Remarks:** Annual labor only.

IDAHO PLACER MINES CO.

Office: Fairfield. **Officers:** E. E. Brandt, Pres.; Erle Whipkey, Sec., both of Gooding. **Inc.:** Aug. 30, 1930. **Capital:** 150,000 shares; par value $1; 66,396 shares issued. **Property:** 9 unpatented claims, Rosetta dist.; Fairfield. **Ore:** Placer gold. **Men employed:** Average, 5. **Remarks:** A few short prospecting shafts were sunk during the year.

MALAHAT MINING CO.

Office: 1301 N. 22d St., Boise. **Officers:** Robert Leaper, Pres.-Mgr., Fairfield; William MacLeod, Sec., Boise. **Inc.:** Aug. 19, 1930. **Capital:** 100,000 shares; par value $1; 51,000 shares issued. **Property:** Stormy-Galore group; 3 unpatented claims, held under lease and option, Little Smoky dist.; Fairfield. **Development:** Principally by 1 tunnel 600 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

PERSEVERANCE MINES CO., INC.

Office: Fairfield. **Officers:** Oscar E. Anderson, Pres.-Mgr., Fairfield; Isobel Wood, Sec., 632 Fairmont Hotel Bldg., Spokane, Wash. **Inc.:** May 28, 1927. **Capital:** 4,000,000 shares; par value 25c; shares issued, unknown. **Property:** Five Point group; 12 unpatented claims, Little Smoky dist.; Fairfield. **Development:** 4 short tunnels. **Ore:** Lead-silver-gold. **Men employed:** Average, 3. **Remarks:** A small amount of work during the early part of the year, part of the funds for which were derived from stock assessments. Newspaper reports were to the effect that the company encountered legal difficulties.

RICHARD ALLEN MINES CO.

Office: Fairfield. **Officers:** F. D. Wagner, Pres., Picabo; Mrs. Kate Finch, Sec., Fairfield. **Inc.:** May 23, 1927. **Capital:** 600,000 shares; par value 5c; 98,000 shares issued. **Property:** 3 unpatented claims, unorganized dist., Soldier Mountain; Fairfield. **Development:** By 7 tunnels; total development, approximately 1750 ft. **Ore:** Gold. **Remarks:** Annual labor only.

SILVER STAR-QUEENS MINES, INC.

Office: Wallace. **Officers:** L. K. Stratton, Pres., Spokane, Wash.; Wm. J. Stratton, Sec., Wallace. **Inc.:** Nov. 22, 1929. **Capital:** 10,000,000 shares; par value 10c; shares issued, 4,949,919. **Property:** Silver Star group, 11 patented claims, Little Smoky dist.; Fairfield. **Development:** By 3 tunnels: No. 1, 700 ft. long; No. 2, 900 ft. long; No. 3, 1100 ft. long; and an inclined shaft 200 ft. long. Total development over 6000 ft., which opens the vein to a depth of 500 ft. **Ore:** Lead-zinc-silver. **Remarks:** Idle.

TAFT MINE

Office: Hailey. **Owner:** Homer D. Jones, Hailey. **Property:** Taft group; 4 unpatented claims, Little Smoky dist.; Fairfield. **Development:** By 2 tunnels: No. 1, 165 ft. long; No. 2, 200 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Axalorr	Skeleton Creek	R. M. Angel	Fairfield
Bear Creek	Skeleton Creek	R. S. Mockett	Lincoln, Neb.
Blue Bird	Little Smoky	Robt. Leaper	Fairfield
Carrie Leonard	Little Smoky	Jas. Gilson, Agt.	Hailey
Climax	Little Smoky	Jas. Williams	Fairfield
Dollarhide	Little Smoky	R. D. Leach	Pocatello
Five Points	Little Smoky	Wm. Finney	Soldier
Fourth of July	Little Smoky	H. D. Jones	Hailey
Golden Star	Little Smoky	Chris Christofsen	Fairfield
Hercules	Big Smoky	W. W. Counterman	209 So. 3d St., Boise
Horn Silver	Little Smoky	P. E. Fletcher	Fairfield
Idaho Chief	Little Smoky	Philip B. Becker	Fairfield
Isabella	Little Smoky	Edw. Somers Est.	Hailey
Gold Bar Placer	Skeleton Creek	Chris L. Giskey	Fairfield
King of the West	Little Smoky	Maylan C. Fox	P. O. Box 774, Salt Lake City, U.
Little Bob	Little Smoky	M. Ryan	Fairfield
Lucky Strike	Little Smoky	Joe Vogner	Fairfield
Manchuria Placer	Rosetta	H. D. Jones	Hailey
Ohio Placer	Little Smoky	Geo. E. Ball	Bridgeport, Conn.
Princess	Willow Creek	Roy Jones	Fairfield
Silver King	Little Smoky	H. D. Jones, Agt.	Hailey
Smoky Bullion	Little Smoky	Ernest Worswick Est.	Reno, Nev.
Square Deal	Little Smoky	Robert Leaper	Fairfield
.....	Little Smoky	Wm. Lewis	Fairfield

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

A geological reconnaissance across Idaho, by G. H. Eldridge: U. S. Geol. Survey Sixteenth Ann. Rept., pt. 2, pp. 217-276, **1895.***

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey Twentieth Ann. Rept., pt. 3, pp. 75-256, **1900.***

Nitrate deposits in southern Idaho, and eastern Oregon, by G. R. Mansfield: U. S. Geol. Survey Bull. 620, pp. 19-44, **1915.***

Ore deposits in the Sawtooth quadrangle, Blaine and Custer counties, Idaho, by J. B. Umpleby; U. S. Geol. Survey Bull. 580, pp. 221-249, **1915.***

Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****

Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 60, art. 3, pp. 1-33, **1921.**‡

Ground water for irrigation on Camas Prairie, Camas and Elmore counties, Idaho, by A. M. Piper: Idaho Bureau of Mines and Geology Pamphlet 15, **1926.****

Geology and ore deposits of the Seafoam, Alder Creek, Little Smoky and Willow Creek districts, Custer and Camas counties, by C. P. Ross: Idaho Bureau of Mines and Geology Pamphlet 33, **1930.***

CANYON COUNTY

The only known mineral resources of this county are diatomaceous earth, various clays of excellent quality, and a few gold placer deposits along the Snake River. During 1930, three companies, based on the development of oil and gas in this county, were incorporated, and five such additional companies were incorporated during 1931. Some of these companies obtained a large acreage under lease, but none of them commenced drilling.

IDAHO NATURAL GAS CO.

Office: Caldwell. **Officers:** Geo. Thorson, Pres.-Mgr., Caldwell; T. A. Reisinger, Sec., Minneapolis, Minn. **Inc.:** Jan. 24, 1931. **Capital:** 750,000 shares; par value $1; 61,850 shares issued. **Property:** Approximately 23,000 acres in Canyon County, Idaho, and Malheur County, Oregon, held under oil and gas leases. **Mineral sought:** Oil and gas. **Remarks:** Company reported that the property was being developed by United Utilities Corporation. Press reports were to the effect that all this company's operations were being conducted in Oregon.

IDAHO STATE OIL & GAS CO.

Office: Caldwell. **Officers:** Howard C. Brewster, Pres.; Arthur W. Furber, Sec., both of 1616 Franklin St., Boise. **Inc.:** Feb. 26, 1931. **Capital:** 250,000 shares; par value $1; 30,053 shares issued. **Property:** 1280 acres of oil and gas leases. **Mineral sought:** Oil and gas.

INTERMOUNTAIN COOPERATIVE GAS & OIL CO.

Office: Caldwell. **Officers:** F. Lee Johnson, Pres., Boise; W. F. Homan, Sec., Weiser. **Inc.:** Feb. 5, 1930. **Capital:** 25,000 shares; par value $1; 8015 shares issued. **Property:** Approximately 28,000 acres of oil and gas leases in Canyon County, Idaho, and Malheur County, Oregon, subleased to United Utilities Corporation for development. **Mineral sought:** Gas and oil.

OIL OMEDIA OIL & GAS CO., INC., OF IDAHO

Office: 114½ 12th Ave., Nampa. **Officers:** Dr. C. V. Belknap, Pres.; C. L. Tylee, Sec.-Mgr., both of Nampa. **Inc.:** Oct. 29, 1931. **Capital:** 500,000 shares; par value $1; 200,000 shares issued. **Remarks:** This company reported, "Oil Omedia Oil & Gas Co., Inc., of Idaho is the holding company of the Oretana Oil & Gas Co. of Oregon." An active stock-selling campaign was maintained throughout the latter part of the year.

PARMA DEVELOPMENT CO.
Officers: F. Lee Johnson, Pres., Boise; R. H. Young, Sec., Parma. **Inc.:** July 24, 1928. **Capital:** 10,000 shares; par value $1; 5 shares issued. **Property:** Approximately 2,000 acres of oil and gas leases in Canyon County subleased to Intermountain Cooperative Gas & Oil Co. **Mineral sought:** Oil and gas.

UNITED DEVELOPMENT CORPORATION
Office: Caldwell. **Officers:** F. A. Jeter, Pres.; George Buhn, Sec., both of Boise. **Inc.:** July 17, 1931. **Capital:** 1,000,000 shares; no par value; 7 shares issued. **Property:** Approximately 23,000 acres of oil and gas leases in Canyon County, Idaho, and Malheur County, Oregon. **Mineral sought:** Oil and gas. **Remarks:** The officers state that this corporation has taken over all the rights and property of the United Utilities Corporation.

UNITED UTILITIES CORPORATION
Office: Caldwell. **Officers:** Geo. Thorson, Pres.-Mgr., Caldwell; G. W. Bauch, Sec., Minneapolis, Minn. **Inc.:** July 15, 1930. **Capital:** 2500 shares; par value $100; all shares issued. **Remarks:** Property formerly held by this company has been transferred to United Development Corporation according to report of the latter.

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***
Notes on geology of southwestern Idaho and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Bull. 217, **1903.***
Description of the Nampa quadrangle, by Waldemar Lindgren and N. F. Drake: U. S. Geol. Survey Geol. Atlas, Folio No. 103, **1904.***
Gas and oil prospects near Vale, Oregon, and Payette, Idaho, by C. W. Washburne: U. S. Geol. Survey Bull. 431, pp. 26-55, **1909.***
Oil and gas possibilities of eastern Oregon, by J. P. Buwalda: Oregon Bureau of Mines and Geology, vol. 3, No. 2, **1921.***
A preliminary reconnaissance of the gas and oil possibilities of southwestern and south-central Idaho, by J. P. Buwalda: Idaho Bureau of Mines and Geology Pamphlet 5, **1923.***

CARIBOU COUNTY

Caribou is one of the large southeastern counties of the State, being bounded on the east by the State of Wyoming, on the south by Bear Lake, on the east by Bannock, and on the north by Bingham and Bonneville counties. It has an area of 1,263 square miles, and was accredited with a population of 2,121, or 1.7 persons to the square mile, in the 1930 census. Soda Springs, the county seat and the only settlement of importance, is situated in the southeastern corner. The county is principally a sheep raising and agricultural community, and Soda Springs is one of the largest sheep shipping points in the United States.

The southeastern corner of the county is served by the main line of the O. S. L. Railroad, with an 8-mile branch road to Conda, the scene of the Anaconda Copper Mining Co.'s operation, and by the main east and west State highway, the Old Oregon Trail.

The principal mineral resources are phosphate rock, salt, sulphur, and mineral springs, and there are excellent possibilities for the discovery of petroleum. These resources are different from those of most counties, and when properly exploited will be a material factor in the prosperity of the county and State.

A large part of the five billion tons of minable phosphate rock, estimated by geologists of the U. S. Geological Survey, is in this county. These deposits are practically untouched, and constitute one of the greatest poten-

tial mineral resources of the State. They are fully described, including analyses and tonnage estimates, in the numerous publications referred to in the bibliography. The Anaconda Copper Mining Co. is pioneering in the development of the rock phosphate industry and has expended over $2,000,000 in its mine, mine plant, mill, railroad, power lines, and townsite.

One of the most outstanding publications issued by the U. S. Geological Survey in recent years is Professional Paper 152, by G. R. Mansfield: "Geography, Geology, and Mineral Resources of Part of Southeastern Idaho". This appeared during 1927; it is profusely illustrated with pictures, maps, and diagrams, and describes in detail the subjects mentioned in its title, dealing especially with the immense areas of phosphate rock found in this county.

The only salt found in the State is in Caribou County. Geologists of the U. S. Geological Survey conservatively estimate five million tons in one deposit, with the possibility of a large tonnage in adjacent areas. The deposits are located on Stump and Tygee creeks, near the State line.

The mineral springs, which are located at Soda Springs, constitute an important resource which is lying dormant. The waters from these springs have exceptional medicinal qualities, are excellent for table use, and offer a great possibility if properly developed and exploited.

A number of structures favorable to the accumulation of petroleum are found in the eastern part of the county. The location and geology of these areas are fully described in the publications issued by the Idaho Bureau of Mines and Geology.

1931 Activities

The Anaconda Copper Mining Co., which is operating one of the largest phosphate mines in the United States, increased its mining equipment, constructed additional homes for its employees, installed a new domestic water system, and completed the extension of its principal tunnel to a total distance of 8,000 feet, at which point a large station was cut and lined with reinforced concrete, and work was started on driving a 1,000-foot vertical operating raise. Production was also maintained throughout the greater part of the year, at a rate of approximately 200 tons a day. The rock was shipped to Anaconda, Montana, where it is manufactured into high-grade fertilizer and sold under the trade name of "Anaconda Triple Superphosphate."

ANACONDA COPPER MINING CO.

Office: Anaconda, Mont. **Officers:** C. F. Kelley, Pres.; A. H. Melin, Sec., both of 25 Broadway, New York City; E. M. Norris, Local Mgr., Conda, Idaho. **Inc.:** Filed in Idaho: Apr. 10, 1916. **Capital:** 12,000,000 shares; par value $50; 8,866,380 shares issued. **Property:** 23 patented claims; 3403 acres, unorganized dist.; Conda. **Development:** 3 adits, 45 ft. above railroad-track level, 9x9 ft. inside of timbers: No. 1, 6050 ft. long; No. 2, 2660 ft. long; No. 3, 8200 ft. long. The main operating tunnels are equipped with 25-lb. rail, 36-in. gauge track, two 20-ton storage-battery locomotives capable of hauling a 100-ton net load at a speed of 4 to 7 miles per hour, 10-ton side dump ore cars, power loading machines operated by compressed air and No. 4 sirocco fan. **Plant:** MINE: 1000 cu. ft. compressor; drill sharpeners; machine, blacksmith and carpenter shops with latest type power-driven equipment; switch boards and motor generator charging set; laboratory; electric substation, sawmill, and preservative plant for treating mine timbers all housed in fireproof gunited and steel buildings. MILL: Crushing and drying plant. The mill feed and storage bins are connected with the main tunnels by large trestles. The storage bins, with a capacity of over 4000 tons, and houses over them are protected with several inches of gunite. The main storage bin is equipped with an Ottumwa boxcar loader and modern railroad scales. The rock drawn from the mill feed bin, which has a capacity of 450 tons, passes over shaking grizzlies, the oversize going to a 12-inch Traylor gyratory crusher, which reduces it to about 2½ inches. The product from the crusher and the undersize is elevated and passed over a Mitchell vibrating screen. The rock passing through this screen goes to the dryer feed bin, and the

oversize to 22x54-inch Anaconda rolls that reduce it to three-fourths of an inch. The product from the rolls is elevated and again passes over the Mitchell vibrating screen. The crushed rock drawn from the dryer feed bins is conveyed into class A-12 Ruggles-Coles dryers by apron feeders. After leaving the dryer the rock goes over a shaking feeder to a chain bucket elevator. This elevator carries it to the top of the mill where it passes through a Vezin sampler, and it is then conveyed to the storage bins. The present capacity of the mill is 400 tons in 24 hours. This output can be increased to 1000 tons in the same time by adding another



CONDA, IDAHO

dryer. **Railroad:** 8-mile branch from Soda Springs to mine, with storage tracks that will accommodate 100 fifty-ton railroad cars, spurs to mill and coal bins, and wyes at each end of the yards. The gradient of the storage tracks is such that the cars are operated by gravity to and from the storage bins. **Town:** The company has erected a model mine town consisting of modern homes, which are rented to the employees at a nominal figure. Company offices, bunk and boarding houses, superintendent's home, recreation hall and a number of small homes have been erected. A fully equipped store is maintained by the company, a post-office has been established, and a modern school erected and maintained. A complete water system for the town and plant has been installed; the water is piped a distance of 2 miles to a 100,000-gallon storage tank from which it is distributed. **Ore:** Phosphate rock. **Men employed:** Average, 73. **Remarks:** During the greater part of the year active production was maintained at the rate of approximately 200 tons per day. Note pages 26 to 31 of Twenty-fifth Annual Report for complete description of this operation, and pages 28 and 29 of Thirty-first Annual Report for stoping methods used. No. 3 tunnel was extended without interruption. This tunnel encountered such heavy ground that it was necessary to support it for a length of 200 ft. with steel sets and reinforced concrete. It was completed to a distance of 8200 ft. and work started in cutting and lining a large station with reinforced concrete, preparatory to driving a 1,000-ft. vertical operating raise. Additional electric power equipment, soil-testing laboratory, and a new domestic water system were installed during the year.

GEBO CONSOLIDATED OIL CO.

Office: 616 Walker Bank Bldg., Salt Lake City, Utah. **Officers:** Wm. R. Calvert, Pres., San Antonio, Texas; Orman W. Ewing, Mgr., Salt Lake City. **Inc.:** Filed in Idaho, Dec. 16, 1930. **Capital:** 2,000,000 shares; no par value; shares issued, unknown. **Property:** 600 acres patented land on Crow Creek, held under oil and gas lease. **Remarks:** A stock assessment of 5c was levied on May 28, 1931.

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

Phosphate deposits in western United States, by F. B. Weeks and W. F. Ferrier: U. S. Geol. Survey Bull. 315, pp. 449-462, **1907.***

The salt resources of the Idaho-Wyoming border, with notes on the geology, by C. L. Breger: U. S. Geol. Survey Bull. 430, pp. 555-569, **1910.***

Preliminary report on a portion of the Idaho phosphate reserve, by R. W. Richards and G. R. Mansfield: U. S. Geol. Survey Bull. 470, pp. 371-439, **1910.***

Sulphur deposits near Soda Springs, Idaho, by R. W. Richards and J. H. Bridges: U. S. Geol. Survey Bull. 470, pp. 499-503, 1910; Eng. and Min. World, vol. 36, p. 12, Jan. 6, **1910.***

A geological reconnaissance in southeastern Idaho, by A. R. Schultz and R. W. Richards: U. S. Geol. Survey Bull. 530, pp. 267-284, **1911.***

Geology of the phosphate deposits northeast of Georgetown, Idaho, by R. W. Richards and G. R. Mansfield: U. S. Geol. Survey Bull. 577, **1914.***

Revision of the Beckwith and Bear River formations of southeastern Idaho, by G. R. Mansfield and P. V. Roundy: U. S. Geol. Survey Prof. Paper 98, pp. 75-84, **1916.***

Salt resources of the United States, by W. C. Phalen: U. S. Geol. Survey Bull. 669, pp. 131-137, **1919.***

Oil shale in western Montana, southeastern Idaho, and adjacent parts of Wyoming and Utah, by D. D. Condit: U. S. Geol. Survey Bull. 711, pp. 15-40, **1920.***

Petroleum possibilities of certain anticlines in southeastern Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Bull. 4, **1922.***

The Wasatch and Salt Lake formations of southeastern Idaho, by G. R. Mansfield: Am. Jour. Sci., vol. 49, pp. 390-406, June, **1920.**§

Triassic and Jurassic formations in southeastern Idaho and neighboring regions, by G. R. Mansfield: Am. Jour. Sci., vol. 50, pp. 53-64, July, **1920.**§

Types of Rocky Mountain structure in southeastern Idaho, by G. R. Mansfield: Jour. Geology, vol. 29, No. 5, pp. 444-468, July-August, **1921.**§

Phosphate mine of Anaconda Copper Company, by C. E. Nighman: Idaho Twenty-fifth Ann. Rept. Min. Industry, **1923.***

Geology and oil possibilities of Bingham, Bonneville, and Caribou counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Bull. 8, **1924.****

Geography, geology, and mineral resources of part of southeastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Prof. Paper 152, **1927.**‡

The Idaho phosphate field, by G. R. Mansfield: Mining and Metallurgy, vol. 9, pp. 19-20, January, **1928.**§

Geography, geology, and mineral resources of the Portneuf quadrangle, Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 803, **1929.**‡

CASSIA COUNTY

Cassia is one of the principal southern counties, being bounded on the south by the States of Nevada and Utah, on the west by Twin Falls, and on the east by Oneida and Power counties. Snake River forms its northern boundary, which is also a part of the southern boundary of Jerome, Minidoka, Blaine, and Power counties. It has an area of 2,595 square miles, and was accredited with a population of 13,116 in the 1930 census. The principal industries are stockraising and farming. Burley, which is on the Snake River, near the center of the Minidoka project of the U. S. Reclamation Service, is the largest town and county seat.

The northern part of the county is served by the Old Oregon Trail State Highway; the other parts by a well-maintained system of county roads. Its railroad is the Minidoka-Buhl branch of the O. S. L. Railroad, from which there are branch lines extending from Burley to Idahome, and from Burley to Oakley.

The minerals found in this county are silver, lead, copper, gold, limestone, building stone, marble, cinnabar, and lignite. In the past, a little drilling has been done for petroleum, but all the companies have been practically idle for the past four years. These varied mineral resources, particularly the high grade lead-silver and silver-copper ores of the Stokes and Dolomite districts, offer excellent opportunities and possibilities for prospectors and development companies.

1931 Activities

The Silver Hills Mining Co., the only active company in this county during the year, continued work without interruption in driving a 1,700-foot crosscut.

One of the principal geological publications issued during the year was Alfred L. Anderson's "Geology and Mineral Resources of Eastern Cassia County, Idaho," which was published as Bulletin 14 of the Idaho Bureau of Mines and Geology. This bulletin completely describes the geology and mineral resources of the county, and is of great value in displaying the possibilities of the county, particularly the scenic beauties of Cassia's "City of Rocks," which is mentioned as being of sufficient importance to be designated a national monument. The bulletin is profusely illustrated.

BIG BERTHA MINING CO.

Officers: T. E. Walton, P. O. Box 354, Shoshone. **Inc.:** Sept. 30, 1924. **Capital:** 25,000 shares; par value $1. **Remarks:** Failed to file the reports required by law.

GOOSE CREEK OIL & DEVELOPING CO.

Office: Penn Ave. & 18th St., Pittsburgh, Pa. **Officers:** W. M. Gill, Pres.; P. Haberman, Sec.; D. P. Carpenter, Mgr., all of Pittsburgh, Pa. **Inc.:** Oct. 28, 1920. **Capital:** 1,000,000 shares; par value 50c; 333,200 shares issued. **Property:** Government prospecting permit on 8000 acres on Coal and Goose creeks; Oakley. **Development:** 1800-ft. well. **Mineral sought:** Oil and gas. **Remarks:** Idle.

MELCHER MINING & MILLING CO.

Office: 503 McIntyre Bldg., Salt Lake City, Utah. **Officers:** Samuel McIntyre, Jr., Vice Pres., Salt Lake City, Utah. **Inc.:** May 2, 1899. **Capital:** 500,000 shares; par value 10c; 402,923 shares issued. **Property:** 30 patented, 10 unpatented claims, Stokes dist.; Elba. **Development:** By 2 tunnels: No. 1, 3300 ft. long; No. 2, 1600 ft. long.

SILVER HILLS MINING CO.

Office: 1258 Crandall Ave., Salt Lake City, Utah. **Officers:** W. J. Burridge, Pres.-Mgr.; L. M. Francis, Sec., both of Salt Lake City, Utah. **Inc.:** Mar. 31, 1920. **Capital:** 800,000 shares; par value 10c; Aug. 7, 1930, increased to 1,000,000; 508,630 shares issued. **Property:** Busy Bee and Joven groups; 39 unpatented mining claims, Black Pine dist.; Black Pine. **Development:** 5 tunnels, 1 shaft; approximately 3300 ft. total development. **Plant:** Gas-driven compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Work continued throughout the year in driving a projected 1700-ft. crosscut.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Alice	Stokes	W. E. Langford	229 W. 2d St. N., Salt Lake City
Albion Gr.	Stokes	J. E. Comerford	Rupert
Bimetallic	Stokes	F. E. Trayme	Albion
Giant	Stokes	Samuel McIntyre	Salt Lake City
Golden Eagle	Stokes	O. H. Melcher	Albion
Hazel Pine	Black Pine	F. B. Platt	265 E. Broadway, Salt Lake City
Ken-Sko	Dolomite	Robt. B. Kenner	Salt Lake City
Last Chance	Unorganized	Charles Ransom	Burley
Last Chance Gr.	Grape Creek	J. W. Durfee	Malta
Sample Placer	Snake River	Thomas C. Elgin	Neeley
Walton No. 2	Stokes	T. C. Walton	Burley

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Lignite in the Goose Creek district, Cassia County, Idaho, by C. F. Bowen: U. S. Geol. Survey Bull. 531, pp. 252-262, **1913.***

Portland cement materials and industry in the United States, by E. C. Eckel, with contributions by E. F. Burchard and others: U. S. Geol. Survey Bull. 522, p. 135, **1913.***

Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****

Preliminary report on the clays of Idaho, by F. H. Skeels: Idaho Bureau of Mines and Geology Bull. 2, **1920.***

Geology and water resources of the Goose Creek Basin, Cassia County, Idaho, by A. M. Piper: Idaho Bureau of Mines and Geology Bull. 6, **1923.***

Geology and mineral resources of eastern Cassia County, Idaho, by A. L. Anderson: Idaho Bureau of Mines and Geology Bull. 14, **1931.****

CLARK COUNTY

Clark is one of the southeastern counties, adjoining and lying east of Lemhi and Butte counties, and bounded on the north by the State of Montana, on the east by Fremont County, and on the south by Jefferson County. It contains an area of 1,778 square miles and was accredited with a population of 1,122 in the 1930 census. Dubois is the principal town and county seat.

The Pocatello-Butte division of the O. S. L. Railroad, and the Idaho-Montana State highway traverse the county north and south, thus giving it good transportation facilities.

The Lemhi Mountains, which extend into the northwest corner of the county, constitute the principal mining district. This district is named from Birch Creek, which flows in a southern direction and which divides the district. The western part is an extension of the Dome, or Hamilton, district of Butte County, and the eastern part is an extension of the Nicholia district of Lemhi County. The ores found throughout this area are lead-silver, copper-silver, and zinc. The deposits have been partially developed and a small tonnage has been marketed.

Deposits of coal and bentonite of sufficient extent to be of commercial importance and structures favorable to the accumulation of oil and gas in commercial quantities occur in the Beaverhead Mountains, the summit of which is the state line between Idaho and Montana.

The geography, geology, and ore deposits of the Birch Creek district are fully described, together with maps and illustrations, in a publication issued during 1928 by the Idaho Bureau of Mines and Geology as Pamphlet No. 27: "Geology and Ore Deposits of the Birch Creek District, Idaho," by P. J. Shenon.

1931 Activities

No new enterprises were started in the Birch Creek district, and only a small amount of development work was done.

BIRCH CREEK MINING CO., LTD.

Office: Idaho Falls. **Officers:** George Brunt, Pres.; A. T. Shane, Sec., both of Idaho Falls. **Inc.:** June 21, 1907. **Capital:** 1,000,000 shares; par value 10c; 500,000 shares issued. **Property:** Scott group; 9 unpatented claims, Birch Creek dist.; Winsper, R. R. Dubois, 35 miles. **Ore:** Lead.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Aviator et al.	Birch Creek	R. A. Connell and J. O'Brien	Reno
Big Dyke	Birch Creek	John Peterson	Winsper
Elephant	Birch Creek	David Bloom et al.	Idaho Falls
Lead Basin	Birch Creek	Frank Worthing	Reno
Lucky Strike No. 1	Unorganized	E. M. Kaufman	Dubois
Lucky Strike No. 2	Unorganized	C. H. Manhart	Dubois
Snow Flake Pl.	Birch Creek	John Peterson	Winsper
Sunset	Birch Creek	Ray Best et al.	Dubois
Sun Shine	Heart Mountain	Geo. A. Briggs et al.	Winsper
Tip Top	Birch Creek	Wm. Garretson et al.	Dubois

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

Geology and ore deposits of the Mackay region, Idaho, by J. B. Umpleby: U. S. Geol. Survey Prof. Paper 97, **1917.**‡

Geology and water resources of the Mud Lake basin, Idaho, by H. T. Stearns and L. L. Bryan: U. S. Geol. Survey Water-Supply Paper 560, pp. 85-134, **1925.**‡

A geologic reconnaissance of Clark and Jefferson, and parts of Butte, Custer, Fremont, Lemhi and Madison counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 19, **1927.***

Geology and ore deposits of the Birch Creek district, Idaho, by P. J. Shenon: Idaho Bureau of Mines and Geology Pamphlet 27, **1928.****

CLEARWATER COUNTY

Clearwater is one of the large northern counties, being bounded on the north by Shoshone County, on the east by the State of Montana, on the south by Idaho County, and on the west by Lewis, Nez Perce, and Latah counties. It has an area of 2,508 square miles and was accredited with a population of 6,599 in the 1930 census. Orofino, which is on the Clearwater River, near the western border, is the largest town and county seat. Except a small area adjacent to Orofino, which is devoted to agriculture, the entire county is mountainous and heavily timbered. The largest body of virgin white pine timber in the United States is located in this county.

It is served by three State highways which are partly constructed, by good county-maintained roads, and by the Lewiston-Stites branch of the Northern Pacific Railroad, which follows the Clearwater River.

Pierce City, which is the principal mining district in the county, was the scene of the first gold discovery in Idaho. This discovery was made in 1860, and the ensuing stampede soon crowded the district and the overflow spread into other sections. The stampede and resulting overflow formed the nucleus of the State, and shortly thereafter the Territory of Idaho was formed. Practically all the placer gold that could be recovered by hand methods or hydraulicking was exhausted years ago, and all recent operations have been devoted to dredging and lode mining.

Gold—placer and lode—silver, monazite, and copper are the principal minerals found in the Pierce City district. Lead, zinc, and silver occur in the Neva Hill section, and placer gold is still found in some of the isolated sections.

1931 Activities

The principal mining activities in this county during the year were those of the Ruby Creek Mining Co. and the Goldendale Mining Co., both near Elk River. The former, which commenced building a small mill in 1929, constructed two ore bins, three additional houses, installed a water system and a small Diesel engine, and did a small amount of mine development work. The Goldendale Mining Co., which is operating the property of the Neva Copper Co., installed a gas-driven hoist, commenced sinking a shaft, and did a large amount of surface prospecting. The Sewell Lime Co., near Orofino, constructed a railway siding and placed its quarry in condition for production.

The gold resources, both placer and lode, in the Pierce City district, received considerable attention from people seeking new opportunities for gold mining, and at the close of the year arrangements were being completed to commence a large placer mining enterprise. The American Exploration Co., trustee for the Pierce City Gold Project, completed driving its crosscut in the early part of the year. Press reports were to the effect that the Washington Golden Eagle Mining Co., Inc., was active throughout the entire year. The Independence Placer Mining Co., Ltd., in the Moose Creek district, performed a small amount of construction work during the spring.

ALDER CREEK MINING CO.

Office: 404 Court House, Duluth, Minn. **Officers:** Thos. Owens, **Pres.**, Two Harbors, Minn.; Chas. G. Murray, Sec., Duluth, Minn. **Inc.:** Apr. 4, 1902. **Capital:** 200,000 shares; par value $1; 185,050 shares issued. **Property:** 800 acres patented land, Pierce City dist.; Orofino. **Ore:** Placer gold. **Remarks:** Idle.

AMERICAN EXPLORATION CO.

Office: 120 Wall St., Spokane, Wash. **Officers:** R. H. Pfeffer, Pres.; A. Walker, Sec., both of Spokane, Wash. **Inc.:** Apr. 21, 1931. **Capital:** Unknown. **Property:** Bond group; 2 unpatented claims, held under lease and option, Pierce City dist.; Pierce. **Development:** By 2 short tunnels: No. 1, 600 ft.; No. 2, 60 ft.; approximate total development, 2800 ft. **Plant:** Steam-driven F-M compressor. **Ore:** Gold. **Men employed:** Average, 6. **Remarks:** This company reported that it was "trustees" for the Pierce Gold Project, the finances of which were raised by the sale of $10 option certificates. The principal crosscut was extended a short distance during the early part of the year.

AMERICAN PLACER MINING CO., LTD.

Office: W. 211 Cleveland Ave., Spokane, Wash. **Officers:** D. W. Porter, Sec., Spokane. **Inc.:** Nov. 18, 1893. **Capital:** 500,000 shares; par value $1; all shares issued. **Property:** 3 patented, 1 unpatented claim; Pierce. **Ore:** Placer gold. **Remarks:** Annual labor only on the unpatented claim.

COBRA MINING & MILLING CO.

Officers: W. C. Kirby, Sec., 1516 Eighth Ave., Lewiston. **Inc.:** May 7, 1925. **Capital:** 5,000,000 shares; par value 1c. **Remarks:** Failed to file the reports required by law.

GOLDENDALE MINING CO.

Office: Bovill. **Officers:** G. A. Jacroux, Pres.; Spencer Owen, Sec., both of Bovill. **Inc.:** May 14, 1931. **Capital:** 1,000,000 shares; par value 10c; 510,000 shares issued. **Property:** 4 unpatented claims, held under lease and option from Neva Copper Co., and 160 acres of deeded land, Ruby Creek dist.; Bovill. **Development:** By 3 short tunnels, several crosscuts, and a vertical shaft 75 ft. deep. **Plant:** MINE: A small gas-driven hoist. **Ore:** Lead-zinc-copper-gold-silver. **Remarks:** Hoist installed and work started on sinking a new shaft.

INDEPENDENCE PLACER MINING CO., LTD.

Office: Wallace. **Officers:** Wm. Fahle, Pres.-Mgr.; Hugh Toole, Sec., both of Wallace. **Inc.:** Oct. 25, 1906. **Capital:** 1,000,000 shares; par value $1; 596,536 shares issued. **Property:** 20 unpatented claims, Moose City dist.; Rivulet, Mont. **Men employed:** Average, 3. **Ore:** Placer gold. **Remarks:** A small amount of ditch construction and bed rock flume, the funds for which were derived from stock assessments.

NEVA COPPER CO.

Office: Bovill. **Officers:** George Brady, Pres.-Mgr., Bovill; Vera Harris, Sec., Spokane, Wash. **Inc.:** Feb. 29, 1924. Charter forfeited Nov. 30, 1929. **Capital:** 1,000,000 shares; par value 25c; 515,000 shares issued. **Property:** 2 unpatented claims, Ruby Creek dist.; Bovill. **Ore:** Copper-silver. **Remarks:** Failed to file the reports required by law. Goldendale Mining Co. reported that it holds this company's property under lease and option.

OXFORD COPPER MINING CO., LTD.

Office: Orofino. **Officers:** Samson Snyder, Pres.; P. W. Bastine, Sec., both of Orofino. **Inc.:** Apr. 10, 1907. **Capital:** 1,000,000 shares; par value $1; 427,878 shares issued. **Property:** 7 unpatented claims, Pierce City dist.; Pierce. **Development:** Approximately 500 ft. of underground workings. **Plant:** Steam-driven hoist. **Ore:** Copper. **Remarks:** Annual labor only.

PIERCE ENTERPRISE CONSOLIDATED MINING CO., INC.

Office: Orofino. **Officers:** Theo. Fohl, Pres.; W. F. Robertson, Sec., both of Orofino. **Inc.:** May 5, 1930. **Capital:** 500,000 shares; par value $1; 265,015 shares issued. **Property:** Silver Creek group; 4 unpatented claims, Pierce City dist.; Pierce. **Development:** Numerous old tunnels, cross cuts and open cuts. **Ore:** Gold. **Remarks:** Annual labor only.

RUBY CREEK MINING CO.

Office: Bovill, Idaho. **Officers:** P. A. Hughes, Pres., Bovill; T. W. Nevitt, Sec.-Mgr., Clarkston, Wash. **Inc.:** Sept. 14, 1925. **Capital:** 1,500,000 shares; par value 10c; 859,590 shares issued. **Property:** Ruby Creek group; 22 unpatented claims, Ruby Creek dist.; Bovill. **Development:** By 1 tunnel 665 ft. long, and a vertical shaft 170 ft. deep. **Plant:** Steam-driven compressor; complete mining equipment, and camp. **Ore:** Lead-zinc-silver. **Men employed:** Average, 8. **Remarks:** Two mill ore bins and three additional camp buildings were erected, a water system and a small Diesel engine were installed, and a small amount of mine development work was done during the year.

SEWELL LIME CO.

Office: Orofino. **Officers:** Herbert D. Britan, Pres.; Joseph M. Molloy, Sec.-Mgr., both of Orofino. **Inc.:** Jan. 21, 1930. **Capital:** 500,000 shares; par value $1; 292,300 shares issued. **Property:** Lime Mountain; 240 acres held under mineral lease from the State. **Mineral sought:** Limestone. **Men employed:** Average, 6. **Remarks:** Railroad siding constructed and quarry placed in condition for operations.

WASHINGTON GOLDEN EAGLE MINING CO.

Office: Yakima, Wash. **Officers:** Ed. F. Flanagan, Pres., Wapato, Wash.; P. J. Lieuven, Sec., Yakima, Wash. **Inc.:** July 3, 1930. **Capital:** 2,500,000 shares; par value 15c; 774,575 shares issued. **Property:** 5 patented, 2 unpatented claims, held under lease and option, Pierce dist.; Pierce. **Development:** 1 short tunnel. **Ore:** Gold. **Remarks:** Failed to file the reports required by law, although twice notified to do so. Press reports were to the effect that a small amount of work was done during the summer.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Aurora et al.	Pierce City	Franz Magnus	Orofino
Chloe	Pierce City	A. B. Rhude	Pierce
Collins	Pierce City	J. E. Collins	Pierce
Cow Creek	Pierce City	Jas. Crawford	Grangemont
Deep Placer	Moose Creek	E. J. Hughes	Pierce
Dream, The	Pierce City	Fred Forsman	Pierce
Elsie Lucky et al.	Moose Creek	Hans Ehret	----------
Gold Dust Gr.	Pierce City	Chas. Rogers	Pierce
Gold Island	Pierce City	Lewis Pratt	Pierce
Granite et al.	Ruby Creek	P. A. Hughes	Bovill
Jericho	Burnt Creek	F. A. Losekamp	Elk River
K. H. C. et al.	Ruby Creek	K. Barker	Elk River
Little Joe	Pierce City	Joseph Frank	Orofino
Little Mascot	Pierce City	Earl McHenry	Orofino
Lone Pine et al.	Pierce City	J. R. Crawford	Orofino
Ozark	Pierce City	Chas. Meyers	Greer
Oyama et al.	Pierce City	Agnes M. Kelly	Spokane
Rummel et al.	Pierce City	James Clark	Pierce
Russell Gr.	Pierce City	J. E. Rudersdorf	Pierce
Silver Creek Pl.	Pierce City	Gus Anderson	Pierce
Snake Creek Pl.	Pierce City	G. V. Friedman	Pierce
Trapper et al.	Pierce City	R. E. Willoughby	Pierce
Venus Placer	Burnt Creek	John Pearson	Dent
Victoria et al.	Ruby Creek	Geo. Brady	Bovill
Victory Loan	Pierce City	H. J. Steffey	Pierce
Vida Pl. et al.	Pierce City	J. H. Wells et al.	Pierce
Wendell Placer	Burnt Creek	Walter Wendell	Dent
Wild Rose	Pierce City	John Gaffney	Pierce
Wonder	Pierce City	P. H. Sayles	Lapwai
Yukon et al.	Burnt Creek	Peter Skjarve	Deary

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

Bitterroot Forest Reserve (Idaho-Montana), by R. U. Goode: Nat. Geog. Mag., vol. 9, pp. 387-400, **1898.**§

Geology and water resources of Nez Perce County, Idaho, by I. C. Russell: U. S. Geol. Survey Water-Supply Papers 53 and 54, **1901.**‡*

Mineral deposits of the Bitterroot Range and Clearwater Mountains, by Waldemar Lindgren: U. S. Geol. Survey Bull. 213, pp. 66-70, **1903.***

A geological reconnaissance across the Bitterroot Range and Clearwater Mountains in Montana and Idaho, by Waldemar Lindgren: U. S. Geol. Survey Prof. Paper 27, **1904.***

Central Idaho gold districts, by S. P. Jellum: Northwest Min. News, vol. 3, pp. 83-91, 107-114, 134-139, **1908**; vol. 4, pp. 2-6, 31-37, 66-73, **1909.***

An occurrence of monazite in northern Idaho, by F. C. Schrader: U. S. Geol. Survey Bull. 430, pp. 184-191, **1909.***

Portland cement materials and industry in the United States, by E. C. Eckel, with contributions by E. F. Burchard and others: U. S. Geol. Survey Bull. 522, pp. 135-140, **1913.***

The Orofino coal field, Clearwater, Lewis, and Idaho counties, Idaho, by C. T. Lupton: U. S. Geol. Survey Bull. 621, pp. 99-108, **1915.***

Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 60, art. 3, pp. 1-33, **1921.**‡

Geology and gold resources of north central Idaho, by F. A. Thomson and S. M. Ballard: Idaho Bureau of Mines and Geology Bull. 7, **1924.****

Geology and mineral resources of the region about Orofino, Idaho, by A. L. Anderson: Idaho Bureau of Mines and Geology Pamphlet 34, **1930.****

CUSTER COUNTY

Custer County is bounded on the north by Lemhi County, on the east by Butte, on the south by Blaine, and on the west by Boise and Valley counties. Its principal area comprises the drainage basins of the headwaters of the Salmon River, Big Lost River, and Little Lost River. It has an area of 4921 square miles, and was accredited with a population of 3,162 in the 1930 census, or 0.6 persons to the square mile. A comparison of the area and density of population with the State of Connecticut, which contains 4845 square miles and a population of 286.4 persons to the square mile, conveys a good idea of the size of Custer County and its lack of population. It is one of the south-central counties, and the area within its borders comprises the greater part of the region known as "Central Idaho's Mineral Empire."

It is principally a mining county and always ranks as one of the principal mineral-producing counties of the State. It is also noted for its agricultural and stockraising industries, particularly sheep, as it is one of the largest sheep raising sections in the State.

The county is served by the Blackfoot-Mackay branch of the O. S. L. Railroad, by the Sawtooth Park and the Lost River State highways and by well-maintained county and Forest Service roads, which extend into all the various mining districts. The roads are kept in good repair and are open to travel during the larger part of the year. Mackay, the terminus of the railroad, is the largest town and the supply point for most of the mines. Challis, which is 60 miles northwest of Mackay, is the county seat and oldest settlement.

The principal mineral resources are lead, silver, copper, gold—placer and lode, zinc, antimony, molybdenum, tungsten, graphite, bentonite, and garnet. The deposits are widely distributed throughout the county, and many of them offer exceptionally favorable opportunities to prospectors and development companies. Excepting the flat land and river bottoms, which are suitable to dredging and which fully justify investigation, practically all the placer mines are exhausted. The diversity of mineralization and the favorable geological conditions are attracting some of the largest organizations in the United States to this county, and many resulting new discoveries fully prove the possibilities that are in store for those who possess a little courage.

1931 Activities

Although none of the mining companies conducted mining operations at the large mines in this county, numerous lessees were active. Those at the Empire Copper mine, of the Mackay Metals, performed a large amount of development work and produced and stored a substantial tonnage of high-grade crude ore. Lessees at the Ramshorn produced and marketed a small tonnage of ore.

The property of Mackay Metals was sold to the county for taxes. At the close of the year, however, arrangements had been completed for its purchase from the county and its refinancing as soon as conditions warrant. The Livingston Mines Corporation was idle and remained in receivership throughout the year, and the property of the Ford Motor Co. was idle.

The lead mines, in the Clayton section, received considerable attention from people seeking lead-silver deposits, and R. W. Johnson, at the Mule Shoe group, was active throughout the greater part of the year in extending a crosscut.

The gold resources, particularly placer, along the Salmon River, in the Yankee Fork district, received some attention, and a few small pumping plants were installed in an attempt to hydraulic bench ground.

The Aztec Mining & Milling Co., in the Stanley district, did a small amount of work during the summer.

The entire surface plant of the Lost Packer mine, in the Loon Creek district, and the old town of Casto were destroyed by a forest fire, which visited this district in August.

AETNA MINING & INVESTMENT CO., LTD.

Office: 321 Felt Bldg., Salt Lake City, Utah. **Officers:** O. J. Salisbury, Pres., Salt Lake City, Utah. **Inc.:** Feb. 6, 1900. **Capital:** 10,000 shares; par value $5; all shares issued. **Remarks:** Idle.

AZTEC MINING & MILLING CO.

Office: 839 W. Lander St., Pocatello. **Officers:** D. C. Ray, Pres.; Ben F. Anderson, Sec., both of Pocatello; T. W. Galigher, Mgr., Boise. **Inc.:** May 26, 1917. Capital stock increased Feb. 2, 1925. **Capital:** 50,000 shares; par value $1; 38,779 shares issued. **Property:** Kingfisher group; 3 unpatented claims, Stanley dist.; Stanley. **Development:** Inclined shaft 650 ft. long. Total development, approximately 1750 ft. **Plant:** MINE: 25-h. p. steam-driven hoist. MILL: Gibson mill and amalgamation plates. **Ore:** Gold. **Men employed:** Average, 2. **Remarks:** A small amount of work during the summer, the funds for which were derived from a stock assessment.

BURNS MINING & MILLING CO.

Office: Meridian. **Officers:** Jack Evans, Sec., R. D. 2, Meridian; Harry Tolleth, Mgr., Boise. **Inc.:** May 3, 1911. **Capital:** 500,000 shares; par value $1; 332,819 shares issued. **Property:** Burns group; 7 unpatented claims, Seafoam dist.; Stanley. **Development:** Approximately 750 ft. of workings. **Ore:** Lead-silver, gold. **Remarks:** Annual labor only.

CRATER MINES, INC.

Office: Rigby. **Officers:** Harry S. Thayer, Pres.-Mgr., New York City; Geo. E. Hill, Sec., Rigby. **Inc.:** Aug. 30, 1927. **Capital:** 300 shares, no par value; increased Nov. 23, 1927, to 1,000,000 shares, par value $1; increased May 31, 1928, to 2,500,000 shares, par value $1; 875,000 shares issued. **Property:** Crater group; 39 unpatented claims at the head of Slate Creek, Boulder dist.; Mackay; held under lease and option. **Development:** Principaly by 1 tunnel 700 ft. long, and an inclined shaft 150 ft. long. **Plant:** Small gas-driven compressor; complete mining equipment and camp. **Ore:** Lead-antimony-silver. **Remarks:** Annual labor only.

EAST STAR MINING CO.

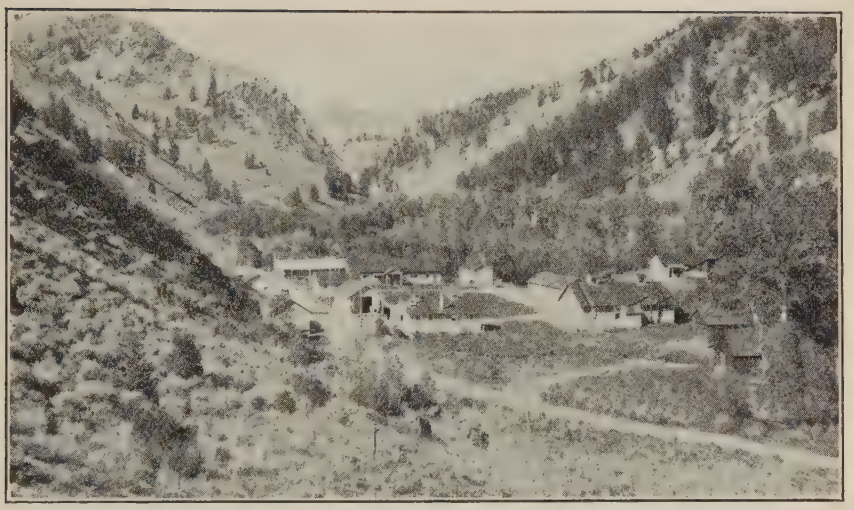
Office: Downey. **Officers:** Albert Christsen, Pres.; Geo. T. Hyde, Sec., both of Downey; Lars W. Johnson, Mgr., Driggs. **Inc.:** April 16, 1924. **Capital:** 1,000,000 shares; par value 25c; 800,000 shares issued. **Property:** 4 unpatented claims; Alder Creek dist.; Mackay. **Development:** 1 short tunnel and a vertical shaft. **Ore:** Copper. **Remarks:** Idle.

FORD MOTOR CO.

Office: Highland Park, Mich. **Officers:** Edsel B. Ford, Pres.; B. J. Craig, Sec., both of Highland Park, Mich. **Inc.:** Filed in Idaho, Jan. 6, 1925. **Capital:** 1,000,000 shares; par value $100. **Property:** Red Bird and Silver Rule groups: 44 patented claims and 6 millsites, Bay Horse dist.; Clayton; R. R. Mackay, 70 miles. **Development:** Principal development on Red Bird group consists of 4 tunnels: No. 1, 500 ft. long; No. 2, 1300 ft. long; No. 4, 510 ft. long; No. 9, 2127 ft. long, giving a total depth of 900 ft. on the vein; total development approximately 23,000 ft. **Plant:** 2 I-R semi-Diesel engines, type POC-2, direct connected to compressors; complete mining equipment including 2 diamond drills; shops and mining camp consisting of 11 buildings. **Ore:** Lead-silver. **Men employed:** 1 watchman. **Remarks:** Idle.

GEM STATE MINING CO.

Office: 511 Bannock St., Boise. **Officers:** F. M. Brown, Pres.; M. C. Brown, Sec., both of 1406 Everett St., Caldwell; E. C. Querry, Mgr., Boise. **Inc.:** Not incorporated. **Capital:** 10,000 shares; par value $10; 5000 shares issued. **Property:** 2 unpatented claims, Stanley dist.; Stanley. **Development:** By 2 tunnels: No. 1, 75 ft. long; No. 2, 75 ft. long. **Ore:** Gold.



MINE CAMP: FORD MOTOR CO.

GREYHOUND MINING & MILLING CO., LTD.

Office: Gem Bldg., Boise. **Officers:** Edward Smith, Sec., Boise. **Inc.:** Sept. 2, 1902. **Capital:** 1,500,000 shares; par value $1; 1,483,299 shares issued. **Property:** Greyhound group; 7 patented claims, Seafoam dist.; Stanley. **Plant:** Stamp mill, 10 1050-lb. stamps; crusher; 2 Dorr classifiers; 4 vanners and a small circular blast furnace. **Remarks:** Idle.

HORSE SHOE COPPER CO., LTD.

Office: Mackay. **Officers:** L. A. Hansen, Pres.; Geo. L. Morgan, Sec., both of Mackay. **Inc.:** Dec. 10, 1903. **Capital:** 1,000,000 shares; par value $1; 916,150 shares issued. **Property:** Horse Shoe group; 17 unpatented claims, Alder Creek dist.; Mackay. **Development:** This mine is developed principally by 3 tunnels and 1 vertical shaft, 350 feet deep, and a large amount of crosscuts, drifts and raises, totalling over 2000 ft. **Plant:** MINE: Electrically-driven 2-drill compressor and hoist. Complete mine camp. **Ore:** Lead-zinc-silver, copper-silver. **Remarks:** Failed to file the reports required by law. Charter forfeited Dec. 1, 1930.

IDAHO HERMIT MINES, INC.

Office: 826 First Nat. Soo Bldg., Minneapolis, Minn. **Officers:** John P. Snyder, Pres.; Fred W. Putnam, Sec., both of Minneapolis, Minn. **Inc.:** May 16, 1927; charter forfeited Dec. 1, 1930. **Capital:** 3,000,000 shares; par value $1; 850,000 shares issued. **Property:** Hermit group; 19 unpatented claims, Boulder dist.; Mackay, 65 miles. **Development:** By 2 tunnels: No. 1, 600 ft. long; No. 2, 200 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

IDAHO POWER & MINES CO.

Officers: J. D. Fisher, Sec., 1724 N. Tejon St., Colorado Springs, Colo. **Inc.:** Filed in Idaho: July 13, 1931. **Capital:** 1000 shares; no par value; shares issued, unknown. **Remarks:** Failed to file the reports required by law.

IDAHO SILVER & LEAD MINES, INC.

Office: 188 W. Randolph St., Chicago, Ill. **Officers:** James R. Howe, Pres.; R. H. Van Meter, Sec., both of Chicago; Antonio Carprilli, Mgr., Obsidian. **Inc.:** May 10, 1928. **Capital:** 2,000,000 shares; par value $1; no shares issued. **Property:** Vulture group; 13 unpatented claims, Stanley dist.; Obsidian. **Development:** By 2 tunnels: No. 1, 250 ft. long; No. 2, 100 ft. long. **Ore:** Lead-silver. **Remarks:** Idle.

IVANHOE MINING CO.

Office: 485 California St., San Francisco, Cal. **Officers:** Harry L. Tevis, Pres.; William Letson, Sec., Both of San Francisco, Cal. **Inc.:** Filed in Idaho, July 28, 1909. **Capital:** 2500 shares; par value $1; all shares issued. **Property:** Badger group; 6 patented claims, Yankee Fork dist.; Clayton. **Remarks:** Idle for many years.

LIVINGSTON MINES CORPORATION

Office: 67 Wall St., New York. **Officers:** A. W. Walker, Pres.-Mgr., Mackay; L. M. Turner, Sec., New York. **Inc.:** July 23, 1923. **Capital:** 2,000,000 shares; par value $1. Capitalization increased on Sept. 21, 1926, to 3,000,000 shares; par value $1; 2,922,012 shares issued. **Property:** Livingston group; 7 patented, 16 unpatented claims, Boulder dist.; Mackay, 62 miles. **Development:** Principally by 7 tunnels, averaging from 200 to 2400 ft. in length; No. 2, or Livingston, tunnel is 2000 ft. long, in which are 3000 ft. of crosscuts and drifts. Total development on Livingston lode, approximately 24,000 ft. **Plant:** MINE: 3 electrically-driven compressors, a 12x14 Sullivan, a 10x10 I-R, and a 12x16 I-R; storage-battery locomotive haulage; complete mining equipment and mine camp; 3-mile aerial tramway connecting Livingston No. 2 tunnel with the mill. MILL: 300-ton concentrator, including flotation, Blake crusher, Symonds disc-crusher, Davis rolls, 2 6-ft. Hardinge ball mills, 6 Wilfley tables, Callow flotation, complete mill camp. POWER PLANT: 380-h. p. hydroelectric power plant, supplemented with a 250-h. p. I-R vertical Diesel engine; 8-mile electric transmission and telephone lines connecting power plant, mill and mine. **Ore:** Lead-silver. **Remarks:** Company in receivership; Frank H. Oster, Receiver, Mackay, Idaho.

LOON CREEK HYDRAULIC PLACER MINING CO., LTD.

Office: 1388 Federal Way, Salt Lake City, Utah. **Officers:** J. Frank Judge, Pres.; John J. Harvey, Sec., both of Salt Lake City. **Inc.:** May 17, 1905. **Capital:** 300,000 shares; par value $1; all shares issued. **Property:** 4 unpatented placer claims, Loon Creek dist.; Stanley. **Plant:** 4000 ft. timber flume, 5 ft. wide and 3 ft. high; two-thirds of a mile of ditch; sawmill, and complete mine camp. **Remarks:** This company owns a large tract of placer ground suitable for hydraulic mining. Annual labor only.

MACKAY METALS

Office: Mackay. **Officers:** A. J. Anderson, Pres., Vancouver, B. C.; F. A. Stacey, Sec.; J. Ray Weber, Mgr., both of Mackay. **Inc.:** June 4, 1928. **Capital:** 1,500,000 shares, par value $1; increased April 13, 1929, to 2,000,000 shares, par value $1; 1,200,000 shares issued. **Property:** Empire Copper group; 19 patented, 20 unpatented claims, Alder Creek dist.; Mackay. **Development:** Over 21 miles of underground workings, the principal entries being the Cossack and Alberta tunnels; the Cossack is 1000 ft. below the Alberta tunnel; the principal shaft, which is in the Alberta tunnel, extends 350 ft. vertically to the 1000-ft. level. **Plant:** MINE: Air-driven hoist; 1500-cu.-ft. Laidlaw-Dunn-Gordon and 1200-cu.-ft. Nordberg compressor, both steam-driven; and an aerial tramway 16,300 ft. long connecting mine with railroad. MILL: 250-ton concentrator, consisting of fine grinding and flotation. **Ore:** Copper-silver-gold. **Remarks:** Five lessees were active throughout the year and produced a substantial tonnage of high-grade crude ore, which was stored. The property was sold to the county for taxes. At the close of the year, however, arrangements had been completed for its purchase from the county and its refinancing as soon as conditions warrant.

MONTE CRISTO GOLD MINES CO.

Office: Pocatello. **Officers:** C. A. Garrett, Pres.-Mgr.; E. W. Larsen, Sec., both of Pocatello. **Inc.:** March 19, 1917. **Capital:** 1,000,000 shares; par value $1; 723,289 shares issued. **Property:** Monte Cristo group; 8 unpatented claims, Loon Creek dist.; Clayton. **Development:** By 2 tunnels: No. 1, 340 ft. long; No. 2, 780 ft. long. **Ore:** Gold. **Remarks:** Annual labor only.

MULE SHOE MINING CO.
Office: Chilly. **Officers:** R. W. Johnson, Pres., Chilly; R. L. Johnson, Sec., Salt Lake City. **Inc.:** June 6, 1927. **Capital:** 1,000,000 shares; par value 10c; 200,000 shares issued. **Property:** Mule Shoe group; 7 unpatented claims, Bayhorse dist.; Clayton. **Development:** 3 short tunnels. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Active throughout the greater part of the year in extending its principal crosscut.

PHEMSPACE MINES CO.
Officers: P. A. Wagner, Sec., Rochelle, Ill. **Inc.:** Jan. 3, 1906. **Capital:** 1,000,000 shares; par value $1. **Remarks:** Failed to file the reports required by law.

PIG TAIL PLACER, INC.
Office: Twin Falls. **Officers:** Geo. R. Easley, Pres.-Mgr., Battle Mountain, Nevada; E. M. Sweeley, Sec., Twin Falls. **Inc.:** Mar. 30, 1928. **Capital:** 25 shares; no par value; 23 shares issued. **Property:** Pig Tail Placer group; 7 unpatented claims, Stanley dist.; Obsidian. **Ore:** Placer gold. **Remarks:** Failed to file the reports required by law.

RAMSHORN MINES CO.
Office: 321 Felt Bldg., Salt Lake City, Utah. **Officers:** O. J. Salisbury, Pres.-Mgr., Salt Lake City, Utah. **Inc.:** July 14, 1919. **Capital:** 150,000 shares; par value $10; all shares issued. **Property:** Ramshorn and Beardsley groups; 14 patented, Bay Horse dist.; Bay Horse. **Development:** Approximately 6½ miles of underground workings with 10 intermediate levels. **Plant:** MINE: Laidlaw-Dunn-Gordon duplex 13x8x10 compressor, electrically driven; complete mine equipment and camp. MILL: 60-ton fine grinding flotation, gyratory crusher; primary and secondary rolls; ball mill; Dorr classifier; Fagergren and Janney flotation cells; American vacuum filter; dryer. Entire mill electrically driven. **Ore:** Silver-copper, lead. **Remarks:** Property operated throughout the year by lessees, who produced and marketed a small tonnage of ore.

SALMON RIVER MINING CO.
Office: c|o Terre Haute Nat'l Bank & Trust Co., Terre Haute, Ind. **Officers:** John T. Beasley, Pres.; William K. Hamilton, Sec., both of Terre Haute, Ind. **Inc.:** July 6, 1910. **Capital:** 500,000 shares; par value $1; 400,000 shares issued. **Property:** Pacific group; 12 patented claims, Bay Horse dist.; Bay Horse. **Remarks:** Idle for 19 years.

SEAFOAM MINES CORPORATION
Office: 265 Fortieth St., Pittsburgh, Pa. **Officers:** J. C. Hungerman, Pres.; George L. Lafbury, Sec., both of Pittsburgh, Pa. **Inc.:** Oct. 17, 1923. **Capital:** 500,000 shares; no par value; 350,000 shares issued. **Property:** 16 patented, 1 unpatented claim, Seafoam dist.; Stanley. R. R. Ketchum, 104 miles. **Development:** Total development approximately 2300 ft., the principal part of which is confined to the Silver King claim, where it opens the vein 200 ft. in depth. **Plant:** MINE: Electrically-driven 8x10 I-R compressor; steel sharpener; complete mining equipment; steam-driven saw-mill; mine camp consisting of a large boarding house, 2 two-story bunkhouses, and 10 residences. MILL: 50-ton amalgamation, including fine grinding and table concentration. POWER PLANT: 230-h. p. hydroelectric power plant, operating under a 270-ft. head through a 3400-ft. flume; 4-mile transmission line. **Ore:** Gold-silver-lead. **Men employed:** 1 watchman. **Remarks:** Failed to file the reports required by law.

STANLEY-FIVE BARS MINING CO.
Office: P. O. Box 1368, Boise. **Officers:** O. O. Haga, Pres.; H. M. Jeffrey, Sec., both of Boise. **Inc.:** Sept. 8, 1925. **Capital:** 25,000 shares; par value $1; 20,000 shares issued. **Property:** Gold Dust group; 6 unpatented placer claims; Stanley. **Ore:** Gold. **Remarks:** Annual labor only.

TWIN APEX MINES CO.

Office: 423 Ness Bldg., Salt Lake City. **Officers:** G. F. McGonagle, Pres.; C. J. Ullrich, Sec.; A. G. Gutheil, Mgr., all of Salt Lake City. **Inc.:** Sept. 19, 1925. **Capital:** 1,000,000 shares; par value 5c; 631,525 shares issued. **Property:** Twin Apex group; 4 patented, 11 unpatented claims, on Squaw Creek, Bay Horse dist.; Clayton. **Development:** Principally by 2 tunnels; No. 2, 550 ft. long; No. 3, or crosscut, 2000 ft. long. **Plant:** Gas-driven 8x9 Sullivan compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of 1¼ mills was levied on Nov. 20, 1931.

WHITE KNOB MINING CO.

Office: Newhouse Bldg., Salt Lake City, Utah. **Officers:** D. D. Muir, Jr., Pres.; W. W. Rager, Sec., both of Salt Lake City, Utah. **Inc.:** Aug. 23, 1919. **Capital:** 500,000 shares; par value $1; 127,510 shares issued. **Property:** White Knob group; 3 unpatented claims, Alder Creek dist.; Mackay. **Development:** Principally by 2 tunnels and 1 vertical shaft 250 feet deep. **Plant:** 40-h. p. gas-driven hoist. **Ore:** Lead-silver. **Remarks:** Idle.

YANKEE FORK PLACER CO., LTD.

Office: 605 Eastman Bldg., Boise. **Officers:** James H. Hawley, Jr., Mgr., Boise. **Inc.:** Apr. 7, 1906. **Capital:** 400,000 shares; par value $1; all shares issued. **Property:** Bonanza group; 5 patented placer claims, 320 acres on Yankee Fork Creek, Yankee Fork dist.; Clayton. **Remarks:** Idle.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
American et al.	Bay Horse	Ivie Bros.	Mackay
Alto Coppers	Alto	Hannah Donahue	Mackay
Andromeda et al.	Alder Creek	J. S. Taylor	Mackay
Annex et al.	Boulder	A. W. Walker	Mackay
Antler et al.	East Fork	Geo. Z. Blackmon	Clayton
Apex No. 2	Alto	N. B. Bauguess	Mackay
Arcade et al.	Yankee Fork	A. J. Franklin et al.	Stanley
Badger	Stanley	Henry Duffy	Stanley
Baldwin Placer	Yankee Fork	W. P. Fowler	Hailey
Barney Google et al.	Stanley	J. D. Smith	Twin Falls
Basin Creek Placer	Stanley Basin	W. K. Lynch	Stanley
Bellevue	Bay Horse	A. D. Sargent	Challis
Big Ben et al.	Alder Creek	John Bradshaw	Mackay
Big Chief	Alto	J. C. Martin	Mackay
Big Liz	Alder Creek	John Turner	Mackay
Birdie Girl	Seafoam	P. H. Rasche	Stanley
Bisbee et al.	Alder Creek	L. B. Laird	Mackay
Black Daisy	Alder Creek	Geo. R. Morgan	Mackay
Blossom Placer	Yankee Fork	Peter Burch	Bonanza
Blue Bird	Bay Horse	J. D. Sullivan	Clayton
Blue Bird	Alder Creek	W. Darlington, Agt.	Mackay
Blue Jay	Alder Creek	K. E. Barton	Mackay
Bob Cat	Bay Horse	Ralph Gianoli	Clayton
Boise et al.	Bay Horse	J. W. Calvin	Challis
Bristle et al.	Seafoam	E. M. Sweeley	Twin Falls
Broadway Gr.	Boulder	Ed. Hinze	Challis
B. R. S.	Seafoam	F. P. Richards	Mackay
Buckhorn et al.	East Fork	John R. Creist	Clayton
Buckskin	Alder Creek	H. P. Hunter	Mackay
Camp Bird et al.	Bay Horse	Jean E. Clark	Mackay
Camp Bird et al.	Alder Creek	Clyde Fishel et al.	Mackay
Carbonate	Alder Creek	Wm. Stevenson Est.	Mackay
Cash Box	Loon Creek	Geo. Bowden	Bonanza
Cave	Bay Horse	Chris Peterson	Bay Horse
Centennial et al.	Bay Horse	N. J. Churchill	Mackay
Chas. Dickens	Yankee Fork	Chase Clark	Mackay
Clemenson et al.	Alder Creek	H. B. Curtis	Mackay
Cold Spgs. et al.	Stanley	T. R. Green	Stanley
Columbia Standard	Alder Creek	George Manwaring	Salt Lake City, Utah

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Consolidated	Alto	Hannah Donahue	Mackay
Copper Basin	Alder Creek	F. A. Stacy	Mackay
Copper Cut	Alto	E. W. Hovey	Mackay
Copper King et al.	Alder Creek	M. B. Jensen	Mackay
Copperopolis	Alder Creek	H. P. Hunter	Mackay
Corn Gressor	Copper Basin	S. W. Anderson	Mackay
Corral et al.	Alder Creek	S. W. Anderson	Mackay
Crescent et al.	Alder Creek	Brown & Nolan	Mackay
Crown Point	Boulder	Antonio Yacomello	Clayton
Daisy et al.	Stanley	John R. Love	Stanley
Deer Trail	East Fork	Geo. Blackman	Clayton
Democrat et al.	Bay Horse	Mrs. Lee Watson	Challis
Dewey	East Fork	Andrew Nielson	Obsidian
Dixie Louise et al.	Alder Creek	E. C. Sims	Mackay
Dougherty	Bay Horse	E. A. Dougherty	Challis
Douglas et al.	East Fork	Evelyn R. Clark	Challis
Dryden	Bay Horse	E. D. Williams	Challis
Dry Hollow	Bay Horse	W. B. Swigert	Challis
East Boulder	Boulder	Ed Hinze et al.	Challis
East Butte	Bay Horse	Moses Le Fever	Clayton
East Star et al.	Alder Creek	Lars W. Johnson	Seafoam
Ella B. Gr.	Seafoam	A. R. Smith	Stanley
Enterprise	Yankee Fork	I. U. Hager	Mackay
Eureka	Bay Horse	A. M. Wilson	Challis
Flag Staff	Alder Creek	H. E. Gilbert	Mackay
Florence	Stanley	Henry Lund et al.	Stanley
Forest Bell	Yankee Fork	Chase A. Clark	Clayton
Forest Rose	Bay Horse	Pietro Pedrini	Challis
Golden Glow	Stanley	J. E. Smith	Stanley
Gold King	Alder Creek	Ed. Maelzer	Mackay
Gold Star et al.	Yankee Fork	B. W. Clark	Idaho Falls
Golden Gate	Yankee Fork	A. E. Eddy	Salt Lake, Utah
Good Enough	Bay Horse	Campbell & Strom	Clayton
Good Friend et al.	Bay Horse	John Ernst	Clayton
Greenhorn et al.	Seafoam	Chas. H. Smith	Stanley
Grey Copper	Bay Horse	John McConnell	Clayton
Grey Eagle	Yankee Fork	C. L. Kirtley	Challis
Head Light et al.	Bay Horse	Bob Campbell	Clayton
Hidden Treasure	Yankee Fork	J. A. Franklin, Agt.	Custer
Hillside	Bay Horse	Roy Huffman	Challis
Hohmann Placer	Stanley Basin	Walter K. Lynch	Stanley
Home Stake et al.	Bay Horse	Robt. E. Muir	N. Hollywood, Cal.
Horse Shoe	Alder Creek	Chas. Nolan, Adm.	Mackay
Howardy et al.	Boulder	Hitchcock & Bohlin	Clayton
Hummer	Yankee Fork	Chase A. Clark	Clayton
H-Y-U et al.	Alto	F. D. Sherry et al.	Mackay
Idaho Girl	Stanley	Robt. McAllister	Stanley
Idaho Gr.	Seafoam	Wm. Chevier	Stanley
Ideal et al.	Bay Horse	Clyde A. Torrey	Clayton
Independence et al.	Alder Creek	J. R. Kearns et al.	Mackay
International	Alder Creek	Hannah Donahue	Mackay
Iron Bog et al.	Alder Creek	C. H. Atha	Mackay
Joe Gulch	Yankee Fork	F. Georgetta	Clayton
Joe's Gulch Placer	Stanley Basin	W. W. Smith	Stanley
Joker et al.	Alder Creek	Eli & Dan Jonesch	Boise
Josephus Lake	Seafoam	E. H. Hasbrouck	Boise
Josie et al.	Bay Horse	Jack Ferguson	Challis
Katherine	Bay Horse	C. A. Torrey	Clayton
Kelly Gulch Placer	Stanley Basin	Henry Sturkey	Stanley
Keystone	Bay Horse	Wilson & Fox	Challis
Kingfisher et al.	Yankee Fork	Frank G. Fisher	Obsidian

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Lake View et al.	Alder Creek	W. H. Warren	Mackay
Last Chance et al.	Bay Horse	L. A. Verbeck	Rupert
Last Resort	East Fork	Rosa V. Carman	Clayton
Left Wing	Bay Horse	E. J. Michael, Agt.	Challis
Little Johnny	Alder Creek	F. A. Stacy	Mackay
Lodge Pole	Alder Creek	J. L. Bell	Mackay
Lone Cabin et al.	Alder Creek	John Pritchett	Mackay
Long Chance	Alder Creek	A. W. Jacobson	Mackay
Lookout	Bay Horse	W. E. Sullivan	Clayton
Lost Eagle	Loon Creek	Carl Malm	Challis
Lost Packer	Loon Creek	Henry Welsh	724 E. 2d St., Salt Lake City
Lucky Boy	Yankee Fork	W. S. McCornick	Salt Lake City, U.
Lucky Strike	Stanley	Henry Jones	Stanley
May Flower	East Fork	D. B. Fisher	Clayton
Monte Carlo	Yankee Fork	Ed Soloman	Challis
Morning Star	Alder Creek	Andrew Park	Mackay
Mountain Girl	Stanley Basin	J. H. Thompson	Stanley
Mt. Sullivan No. 1	Alder Creek	G. W. Stewart	Mackay
Nameless	Bay Horse	J. W. David	Livingston
Niagara	Seafoam	F. P. Richards	Mackay
Only One	Bay Horse	J. H. Baxter	Mackay
Orelena	Loon Creek	Juanitta Eddy	Salt Lake City, U.
Outlaw et al.	Boulder	R. M. Black	Clayton
Pandora et al.	Alder Creek	D. H. Horton	Mackay
Peerless	Alder Creek	J. E. Campbell	Mackay
Pinion Gr.	Sheep Mountain	J. A. May	Boise
Pilot House	Alder Creek	M. S. Vaught	Mackay
Port Arthur	Bay Horse	Fidele Giampedraglia	Clayton
River Queen	Bay Horse	Phillip Gossi	Clayton
Rob Roy	Bay Horse	Caesar Maraffio	Clayton
Rosemont	Stanley	Henry Lund	Stanley
Rough Creek	Yankee Fork	G. W. Friend	Clayton
Ruby Silver et al.	Bay Horse	Moses Le Fever	Clayton
Rusty Saw et al.	Stanley	P. H. Rasche	Stanley
Sheep Mountain	Seafoam	C. M. Rankin	Salt Lake, Utah
Silver	Yankee Fork	A. J. Franklin	Stanley
Silver Bell	Alder Creek	Johnson & Haney	Mackay
Silver Bell	Bay Horse	Jas. H. Marker	Challis
Singer Gr.	Sheep Mountain	W. H. Brose	Boise
Snowdrift	Yankee Fork	Frank Casto	Challis
Snow Storm et al.	.....	Homer Granger	Centerville
Solon Jr.	Alto	Martin & Clark	Mackay
South Butte	Bay Horse	William McClure	Mackay
Speculator	Alder Creek	H. P. Hunter	Mackay
Square Deal	Bay Horse	M. E. Crawford	Clayton
Sun Rise	Alder Creek	F. A. Stacy	Mackay
Sunrise et al.	Loon Creek	J. T. Metcalf	Clayton
Syrup Can et al.	Alder Creek	S. W. Anderson	Mackay
Taylor Gr.	Alder Creek	Taylor & Munson	Mackay
Tip Top	Alder Creek	Gus Munson	Mackay
Tracy et al.	Seafoam	A. R. Smith	Challis
Turtle	Bay Horse	N. S. Churchill	Mackay
Uncle Ben et al.	East Fork	C. S. Ellis	Challis
Vulture et al.	East Fork	R. H. Van Meter	Challis
Waxahachia	Alder Creek	S. W. Anderson	Mackay
Wedge Fr.	Boulder	A. W. Walker	Mackay
White Elephant	Alder Creek	Daniel Clark	Mackay
Whynot	Yankee Fork	Amos Franklin	Clayton
Woodstick	Bay Horse	Geo. E. Keyser	Challis
Yellow Jacket	Stanley	Ed. Martin	Stanley
Zodiac	Bay Horse	A. D. Sargent	Challis

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

The volcanic tuffs of Challis, Idaho, by A. A. Julian: New York Acad. Sci. Trans., vol. 1, pp. 49-53, **1882.**§

A geological reconnaissance across Idaho, by G. H. Eldridge: U. S. Geol. Survey Sixteenth Ann. Rept., pt. 2, pp. 217-276, **1895.***

Central Idaho gold field, by Don Maguire: Mines and Minerals, vol. 19, pp. 289-291, February, **1899.***

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey Twentieth Ann. Rept., pt. 3, pp. 75-256, **1900.***

The deepest mine in Idaho, the Ramshorn at Bay Horse, by R. N. Bell: Mines and Minerals, vol. 21, pp. 174-176, November, **1900.***

An outline of Idaho geology and of the principal ore deposits of Lemhi and Custer counties, by R. N. Bell: Proc. Int. Min. Cong. 4th sess., pp. 64-80, **1901.**§

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Thunder Mountain and Mackay, Idaho, by R. N. Bell: Min. and Sci. Press, vol. 84, p. 62, Feb. 1, **1902.***

An extinct glacier of the Salmon River Range, by G. H. Stone: Am. Geology, vol. 11, pp. 406-409, **1903.***

The Lost Packer copper-gold lode, by E. P. Jennings: Canadian Min. Inst. Jour., vol. 9, pp. 54-57, **1906**; Min. and Sci. Press, vol. 92, pp. 435-436, June 30, **1906**; Salt Lake Min. Review, Mar. 30, **1906.***

The White Knob copper deposits, Mackay, Idaho, by J. F. Kemp and G. G. Gunther: Am. Inst. Min. Eng. Trans., vol. 38, pp. 269-296, **1907.**§

Resources of Custer and Lemhi counties, Idaho: Salt Lake Min. Review, vol. 12, pp. 17-19, Mar. 15, **1911.**§

A preliminary account of the ore deposits of the Loon Creek district, Idaho, by J. B. Umpleby: U. S. Geol. Survey Bull. 530, pp. 66-74, **1911.***

Some ore deposits in northwestern Custer County, Idaho, by J. B. Umpleby: U. S. Geol. Survey Bull. 539, **1913.**‡

The genesis of the Mackay copper deposits, by J. B. Umpleby: Econ. Geology, vol. 9, pp. 307-358, June, **1914.**§

Ore deposits in the Sawtooth quadrangle, Blaine and Custer counties, Idaho, by J. B. Umpleby: U. S. Geol. Survey Bull. 580, pp. 221-249, **1915.***

The occurrence of ore on the limestone side of garnet zones, by J. B. Umpleby: University of California publications, Bull. Dept. of Geology, vol. 10, No. 3, pp. 25-37, Oct. 14, **1916.****

Geology and ore deposits of the Mackay region, Idaho, by J. B. Umpleby: U. S. Geol. Survey Prof. Paper 97, **1917.**‡

A reconnaissance of south central Idaho, embracing Thunder Mountain, Big Creek, Stanley Basin, Sheep Mountain, and Seafoam districts, by J. B. Umpleby and D. C. Livingston: Idaho Bureau of Mines and Geology Bull. 3, pp. 13-22, **1920.****

Brannerite, a new uranium mineral (Stanley Basin, central Idaho), by F. L. Hess: Franklin Inst. Jour., vol. 189, No. 2, pp. 225-237, February, **1920**; No. 6, pp. 779-780, June, **1920.***

Ground water in Pahsimeroi Valley, Idaho, by O. E. Meinzer: Idaho Bureau of Mines and Geology Pamphlet 9, **1924.****

The Livingston mine, Custer County, Idaho, by J. B. Stewart: Mining and Metallurgy, vol. 7, No. 233, pp. 223-224, May, **1926.**§

A geologic reconnaissance of Clark and Jefferson, and parts of Butte, Custer, Fremont, Lemhi and Madison counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 19, **1927.***

Ore deposits in Tertiary lava in the Salmon River Mountains, Idaho, by C. P. Ross: Idaho Bureau of Mines and Geology Pamphlet 25, **1927.***

Early Pleistocene glaciation in Idaho, by C. P. Ross: U. S. Geol. Survey Prof. Paper 158, pp. 123-128, **1929.****

Tertiary volcanic tuffs and sandstones used as building stones in the upper Salmon River valley, Idaho, by C. H. Behre, Jr.: U. S. Geol. Survey Bull. 811, pp. 237-252, **1929.**‡

Geology and ore deposits of the Wood River region, Idaho, by J. B. Umpleby, L. G. Westgate, C. P. Ross, and D. F. Hewett: U. S. Geol. Survey Bull. 814, **1930.**‡

Geology and ore deposits of the Seafoam, Alder Creek, Little Smoky and Willow Creek districts, Custer and Camas counties, Idaho, by C. P. Ross: Idaho Bureau of Mines and Geology Pamphlet 33, **1930.***

ELMORE COUNTY

Elmore is one of the southwestern counties, being bounded on the south by Owyhee, on the west by Ada, on the north by Boise, and on the east by Blaine, Camas, and Gooding counties. A large part of the drainage basin of the Boise River is included within its 2,808 square miles, which was accredited with a population of 4,491 in the 1930 census. The chief industries are stockraising—principally sheep—farming, and mining.

The southern part of the county is served by the main line of the O. S. L. Railroad and the principal east-west State highway, the Old Oregon Trail; a well built and maintained system of county roads extends into all the various mining districts and sections. Mountain Home is the largest town and county seat.

The principal mineral resources are gold, silver, copper, lead, zinc, arsenic, molybdenum, diatomaceous earth, and potassium nitrate.

In past years this county was a noted producer of high-grade gold-silver ores and placer gold, particularly when the mines in the Atlanta and Rocky Bar districts were being worked. The placer ground which could be hydraulicked has long been exhausted, and the quartz mines have been dormant for years, having been closed down either through litigation, lack of power, or finances. These districts offer many opportunities to development companies and, since power is within easy reach from Featherville, there appears to be no reason why the mines are not receiving more attention.

1931 Activities

From a "ghost" city of less than a score of people to a thriving community of more than 300, with a picture show, school, and airplane mail service, is the experience of Atlanta in 1931, as a result of the resumption of operations in August by the St. Joseph Lead Co., at its Boise-Rochester mine.

The airplane service, which was started in December, is the first Star Route airplane mail service, to an isolated mining camp, to be established by the United States Post Office Department. It was made possible, in part, by the company constructing and maintaining a landing field at Atlanta. As there is seldom sufficient snow in Boise to permit skii-equipped planes to land, the use of wheels in landing at Atlanta is made possible by keeping the snow firmly packed with a heavy roller.

From September to the close of the year approximately 200 men were employed. The old mill was torn down, and the serviceable lumber and equipment used in the construction of a new mill of 200 tons capacity, which was erected near the portal of the lower or No. 9 tunnel. A 360-horsepower Diesel engine, driving an electric generator, synchronized with an old 125-horsepower hydroelectric plant, was installed for power purposes. All construction work was completed, and the mill was placed in operation the latter part of December. A new 1,000-cubic-foot electrically driven Ingersoll-Rand compressor, a Mancha storage-battery locomotive, and all necessary mining machinery and equipment were installed at No. 9 tunnel. This tunnel and No. 6 tunnel were rehabilitated, and the mine was placed in condition for production, part of this work being the driving of a 340-foot raise to connect these tunnels. The transportation of the machinery, equipment, and 100,000 gallons of fuel, which was handled by nine trucks, operating day and night; the razing of the old



A 50-mile aerial view taken directly over Arrow Rock Dam, showing airplane route between Boise and Atlanta. The highest point in the background is Steel Mountain, elevation 9,752 feet. Atlanta lies 10 miles beyond, at an elevation of 5,384 feet. —Photo by Intermountain Aerial Surveys, Inc.

building; and the construction of the new mill and additional mine buildings represent the second largest expenditure made in the State during the year. The short time required to construct the mill and place the mine in operation established a record which has never been equalled in Idaho and for which much credit is due the manager, Mr. Frank H. Skeels.

The gold resources of the Rocky Bar section received more attention than during the previous year. One placer mining operation was active throughout the year, and two new organizations commenced work on quartz properties. Press reports were to the effect that the Feather River Gold Placer Co., whose property is on Feather River, installed a tractor shovel and hydraulic equipment and commenced mining. The Consolidated Mines Syndicate, at the Revenue group, in the Volcano district, near Hill City, reported that its long crosscut was advanced 165 feet during the year.

The Neal district received a large amount of attention from prospectors; many claims were located; and the construction of a 25-ton mill was commenced by a small organization.

APEX GOLD MINING CO.

Office: Box 165, Nampa. **Officers:** Dr. J. C. Lay, Pres., M. A. Cook, Sec., both of Nampa. **Inc.:** Oct. 15, 1926. **Capital:** 400,000 shares; par value $1; all shares issued. **Property:** West Ophir group; 5 unpatented claims, Bear Creek dist.; Rocky Bar. **Development:** By 5 short tunnels and numerous open cuts. **Ore:** Gold. **Remarks:** Annual labor only.

BLACKSTONE MINING CO., LTD.

Officers: Charles W. Mack, Sec., Boise. **Inc.:** Dec. 26, 1899. **Capital:** 1,000,000 shares; par value 10c; shares issued, unknown. **Property:** 5 patented claims, Blackstone dist.; Hill City.

BLACK WARRIOR MINES, INC.

Office: 6 Delkin Bldg., Las Vegas, Nev. **Officers:** Peter Buol, Pres., Las Vegas, Nev.; W. H. O'Neil, Sec., Los Angeles, Calif. **Inc.:** Filed in Idaho: Jan. 30, 1929. **Capital:** 2,500,000 shares; par value $1; 1,007,588 shares issued. **Property:** Black Warrior group; 12 unpatented claims, held under lease and option; Black Warrior dist.; Atlanta. **Plant:** Sawmill, hydraulicking equipment, and camp. **Ore:** Placer gold. **Remarks:** This company is a reorganization of the La Trinidad Mining Co. Annual labor only.

CONSOLIDATED MINES SYNDICATE

Office: 623 First Nat'l Bank Bldg., Boise. **Officers:** Frank E. Johnesse, Pres.-Mgr.; Paul L. Oakes, Sec., both of Boise. **Inc.:** May 6, 1924. **Capital:** 10,000 shares; no par value. On Aug. 15, 1924, the capitalization was changed to 10,000,000 shares, $2.50 par value; and on May 2, 1925, capitalization was decreased to 10,000,000 shares, par value $1; 2,959,850 shares issued. **Property:** Revenue group; 11 unpatented claims, Volcano dist.; Hill City. **Development:** By 1 tunnel 1400 ft. long. **Plant:** Gas-driven compressor; complete mining equipment and camp. **Ore:** Copper-silver. **Remarks:** Tunnel advanced 165 ft. during the year.

DALEY CONSOLIDATED MINES CO.

Office: 305 Eastman Bldg., Boise. **Officers:** J. G. Doerr, Pres., Boise; Max Wagener, Sec.-Mgr., Bennett. **Inc.:** Nov. 1, 1913. **Capital:** 1,500,000 shares; par value $1; 1,200,000 shares issued. **Property:** Daley group; 50 unpatented claims, Dixie dist.; Bennett. **Ore:** Gold-silver-lead-copper. **Remarks:** Company reports property under lease and option to Ray T. Savage.

FEATHER RIVER GOLD PLACER CO.

Office: Featherville. **Officers:** Rupert Winters, Pres.-Mgr., Featherville. **Inc.:** June 5, 1929. **Capital:** 750,000 shares; par value 20c; shares issued, unknown. **Property:** 7 unpatented placer claims, Bear Creek dist.; Featherville. **Ore:** Placer gold. **Remarks:** Failed to file the reports required by law, although three times notified to do so. Press reports were to the effect that a tractor shovel and hydraulicking equipment were installed and placer mining operations commenced.

FRANKLIN CONSOLIDATED GOLD MINES CO.
Office: Box 1262, Boise. **Officers:** John J. Stanford, Pres., Spokane, Wash.; Fred T. Kelly, Sec.-Mgr., Boise. **Inc.:** Dec. 22, 1925. **Capital:** 1,250,000 shares; par value $1; 634,400 shares issued. **Property:** Franklin; 4 unpatented claims, Pine Grove dist.; Pine. **Development:** 1 tunnel 260 ft. long. **Ore:** Gold. **Remarks:** Annual labor only.

GEORGE F. ROTH CO.
Office: P. O. Box 147, Rochester, N. Y. **Officers:** Walter J. Duffy, Sec., Rochester, N. Y. **Inc.:** June 17, 1909. **Capital:** 2500 shares; par value $100; 2102 shares issued. **Property:** Homestake group; 9 patented, 3 unpatented claims, Neal dist.; c|o Mayfield Stage, Boise. **Ore:** Gold. **Remarks:** Idle.

IDAHO GOLD CHIEF MINING CO.
Office: Mountain Home. **Officers:** Winston Caldwell, Pres., Mountain Home. **Inc.:** Not incorporated. **Capital:** Unknown. **Property:** 6 unpatented claims, Bear Creek dist.; Rocky Bar. **Development:** By 2 tunnels: No. 1, 3300 ft. long; No. 2, 320 ft. long. **Remarks:** A small amount of work during the summer.

IDAHO MINES, INC.
Office: 329 Tacoma Bldg., Tacoma, Wash. **Officers:** J. S. Davies, Pres.; F. W. Lane, Sec., both of Tacoma. **Inc.:** Unknown. **Capital:** 600,000 shares; no par value; 324,867 shares issued. **Property:** Quill Pig group; 4 unpatented claims, Bear Creek dist.; Rocky Bar. **Development:** 3 short tunnels. **Ore:** Gold. **Remarks:** Annual labor only.

IDAHO PACIFIC MINES, INC.
Office: Mountain Home. **Officers:** W. B. Stewart, Pres.-Mgr.; A. F. Anderson, Sec., both of Mountain Home. **Inc.:** May 9, 1931. **Capital:** 5,000,000 shares; par value 10c; 1,750,000 shares issued. **Property:** 3 unpatented placer claims, Middle Boise dist.; Atlanta. **Ore:** Placer gold.

MARSH CREEK MINING CO.
Officers: Roy Y. Bogard, Pres.-Mgr., Burns, Ore.; Curtis F. Pike, Sec., 1317 Idaho St., Boise. **Inc.:** July 9, 1921. **Capital:** 1,000,000 shares; par value $1; 39,985 shares issued. **Property:** 2 unpatented claims on Marsh Creek, Bear Creek dist.; Featherville. **Remarks:** Annual labor only.

NORTHWESTERN DEVELOPMENT CO.
Office: Box 919, Ponca City, Okla. **Officers:** L. W. Prunty, Pres.; R. S. Cartright, Sec., Ponca City, Okla.; E. C. Gladieux, Mgr., Boise. **Inc.:** April 30, 1927. **Capital:** 1,500,000 shares; par value $1; 1,070,183 shares issued. **Property:** 5 groups of unpatented placer claims on Boise River, 1683 acres, unorganized dist.; Boise. **Plant:** Water-driven hydraulicking equipment. **Ore:** Placer gold. **Remarks:** Installation of equipment completed and mine operated for a period of 30 days.

PHELPS BROS. MINING CO.
Office: Pine. **Officers:** Timothy G. Phelps, Pres.; Norris M. Phelps, Sec., both of Pine. **Inc.:** Partnership. **Property:** 4 unpatented claims, Bear Creek dist.; Rocky Bar. **Plant:** Gas-driven winch. **Ore:** Placer gold. **Men employed:** Average, 4. **Remarks:** Winch installed, bed rock flume constructed, and a small amount of ground mined.

ST. JOSEPH LEAD CO.
Office: 250 Park Ave., New York City. **Officers:** Clinton H. Crane, Pres.; H. B. McGown, Sec., both of New York City; Frank H. Skeels, Mgr., Atlanta. **Inc.:** Filed in Idaho: Apr. 3, 1929. **Capital:** 2,000,000 shares; par value $10; increased June 8, 1931, to 2,500,000 shares; 1,950,509 shares issued. **Property:** Boise-Rochester group, 3 patented, 23 unpatented claims, 3 of which are held under lease and option, Middle Boise dist.; Atlanta. **Development:** By 9 tunnels, the principal ones being No. 6 and No. 9, total development more than 8000 ft. in these two tunnels. **Plant:** MINE: 1000 cu. ft. electrically driven I-R compressor; Mancha

storage-battery locomotive; complete mining equipment. MILL: 200-ton amalgamation and flotation. POWER: 150-h. p. hydroelectric plant; 360-h. p. Diesel engine. **Ore:** Gold-silver. **Men employed:** Average, 200. **Remarks:** From September to the close of the year approximately 200 men were employed. The old mill was torn down, and the serviceable lumber and equipment used in the construction of a new mill of 200 tons capacity, which was erected near the portal of the lower or No. 9 tunnel. A 360-horsepower Diesel engine, driving an electric generator, synchronized with an old 125-horsepower hydroelectric plant, was installed for power purposes. All construction work was completed, and the mill was placed in operation the latter part of December. A new 1000-cubic-foot electrically driven Ingersoll-Rand compressor, a Mancha storage-battery locomotive, and all necessary mining machinery and equipment were installed at No. 9 tunnel. This tunnel and No. 6 tunnel were rehabilitated, and the mine was placed in condition for production, part of this work being the driving of a 340-foot raise to connect these tunnels. The transportation of the machinery, equipment, and 100,000 gallons of fuel, which was handled by nine trucks, operating day and night; the razing of the old building; and the construction of the new mill and additional mine buildings represent the second largest expenditure made in the State during the year. The short time required to construct the mill and place the mine in operation established a record which has never been equalled in Idaho and for which much credit is due the manager.



NEW MILL: ST. JOSEPH LEAD CO.

SOUTH PARK DREDGING CO.

Office: 351 California St., San Francisco, Cal. **Officers:** W. P. Hammon, Pres.; A. L. Dahl, Sec., both of San Francisco, Cal. **Inc.:** Sept. 12, 1921. **Capital:** 50,000 shares; no par value; all shares issued. **Property:** 1100 acres of dredging land on Feather River, Featherville dist.; Featherville. **Remarks:** Operations permanently suspended in 1928.

STANLEY-FIVE BARS MINING CO.

Office: P. O. Box 1368, Boise. **Officers:** O. O. Haga, Pres.; H. M. Jeffrey, Sec., both of Boise. **Inc.:** Sept. 8, 1925. **Capital:** 25,000 shares; par value $1; 20,000 shares issued. **Property:** Five Bars group; 4 unpatented placer claims, Middle Boise dist.; Atlanta. **Remarks:** Annual labor only.

WINNER GROUP

Owner: E. F. Money, 937 N. 34th St., Seattle, Wash. **Inc.:** Not incorporated. **Property:** 4 unpatented claims, Middle Boise dist.; Atlanta. **Development:** Principally by 1 tunnel 100 ft. long. **Plant:** 7-ton Ellis mill and amalgamation. **Ore:** Gold. **Remarks:** Small amount of work during the summer months.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Ada Elmore Gr.	Bear Creek	Grant McCargo	Pittsburgh, Pa.
Alice et al.	Bear Creek	R. Y. Bogard	Burns, Ore.
Alma Placer Gr.	Bear Creek	R. A. Peck	Rocky Bar
April Fool	Middle Boise	J. C. Birdwell	Atlanta
Avis et al.	Pine Grove	Ray J. Allison	Pine
Badger No. 1	Neal	Chas. Fell	R. D. 5, Boise
Badger et al.	Neal	John T. Hammack	R. D. 5, Boise
Baltimore et al.	Middle Boise	Robt. B. Browne	Atlanta
Bear Gr. et al.	Bear Creek	F. M. Dodge	Rocky Bar
Ben Hur	Bear Creek	E. W. Lothrop	Mountain Home
Benton Gr.	Middle Boise	G. L. Bixby	Atlanta
Big Five et al.	Bear Creek	Frank Bayhouse	Boise
Big Four et al.	Bear Creek	Rupert Winters	Featherville
Big Lode	Middle Boise	Frank T. Wyman	Boise
Bird Gr.	Pine Grove	Mrs. Alice M. Reecy	Mountain Home
Black Diamond	Bear Creek	Clara R. Brassch	Mountain Home
Black Ribbon	Bear Creek	E. C. Helfrich	Mountain Home
Black Warrior	Bear Creek	C. H. Allison	Beverly Hills, Cal.
Bobolink et al.	Bear Creek	Walter Walsh	Rocky Bar
Boise Bar	Middle Boise	Thomas Walker	Atlanta
Bonanza et al.	Bear Creek	Chas. Wyatt	Rocky Bar
Bonaparte Gr.	Bear Creek	Rupert Winters	Featherville
Bonnie Annie Gr.	Pine Grove	B. F. Skelton	Pine
Bowerman	Volcano	M. R. Wood	606 Marion St., Seattle, Wash.
Brooklyn et al.	Bear Creek	Louise A. S. Allen	Rocky Bar
Cabin Claim	Middle Boise	Chester W. Rose	Glenns Ferry
Capital et al.	Middle Boise	John Bell	Atlanta
Cock Robin et al.	Bear Creek	Walter Walsh	Rocky Bar
Colorado et al.	Bear Creek	Francis M. Nixon	Rocky Bar
Cornucopia et al.	Neal	John Hermo	427 Thatcher St., Boise
Debs Gr.	Bear Creek	J. C. Edwards	Rocky Bar
Doolittle Gr.	Bear Creek	Elmer C. Towne	Rocky Bar
Edna et al.	Bear Creek	E. C. Helfrich	Mountain Home
Eureka	Twin Springs	W. L. West	Twin Springs
Evelyn	Bear Creek	Marion House	Mountain Home
Flagstaff et al.	Bear Creek	Francis M. Nixon	Rocky Bar
Forest King et al.	Bear Creek	Mrs. E. Tregonning	Box 893, Boise
Fourth of July	Middle Boise	Grant Wilson	Atlanta
Gold Bug et al.	Bear Creek	Chas. Wyatt	Rocky Bar
Gold Eagle	Neal	C. C. Anderson	Boise
Gold Gate No. 2	Bear Creek	Irving Brooks	Rocky Bar
Gold Key	Bear Creek	Ah Sing	Rocky Bar
Gold King Gr.	Middle Boise	Harry Teskey	Atlanta
Granby et al.	Middle Boise	G. L. Bixby	Atlanta
Gray Warrior et al.	Middle Boise	P. M. Swan	Atlanta
Greenback	Middle Boise	H. D. Gracey	Atlanta
Gunny Sack Gr.	Middle Boise	John Timmons	Atlanta
Hazel Queen	Middle Boise	L. N. Franke	Atlanta
Humming Bird	Middle Boise	Jas. A. Comer	Atlanta
Jericho Gr.	Middle Boise	Fritz Scholl	Atlanta
Kierman Gr.	Bear Creek	Dan Kirby	Boise
Keystone et al.	Featherville	E. N. Stone	Featherville
Kitty Hicks	Neal	J. F. Wilson	Mayfield

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Last Chance	Pine Grove	Chas. V. Price	Pine
Last Chance	Twin Springs	Cyrus H. Pickens	Twin Springs
Little Joker Pl.	Middle Boise	A. W. Stevens	Boise
Middle Boise et al.	Black Warrior	Max Mayfield	Boise
Middle Boise Lode	Middle Boise	Thomas Walker	Atlanta
Midnight Pl.	Snake River	H. S. Olson	Glenns Ferry
Minerva	Middle Boise	Frank May	Atlanta
Minnehaha Pl.	Bear Creek	Frank Galbraith	Rocky Bar
Monarch	Middle Boise	C. F. Phippen	913 Hays St., Boise
Montezuma Pl.	Middle Boise	Dick Miller	Atlanta
Mountain View	Featherville	E. N. Stone	Featherville
Mountain View	Pine Grove	Fred Skelton	Pine
New Century	Middle Boise	Henry Button	Atlanta
Northwestern	Bear Creek	W. N. Nixon	Rocky Bar
Old Oliver Diggins	Middle Boise	A. S. Longwill	Atlanta
Ontario	Bear Creek	Mary A. Lison	Boise
Ophir	Bear Creek	Elmer C. Towne	Rocky Bar
Overland et al.	Bear Creek	S. Howard	Pine
Owens Gr.	Pine Grove	Thos. Potter	Pine
Piney Gr.	Middle Boise	J. C. Birdwell	Atlanta
Pittsburgh Gr.	Bear Creek	Mrs. Emily Frew	Pittsburgh, Pa.
Queen River Pl.	Middle Boise	Fred Felix	Atlanta
Red Warrior	Bear Creek	Frank Pon	Rocky Bar
Rosetta Gr.	Bear Creek	Barnsdale Corp.	Rocky Bar
Silver Horde	Middle Boise	W. T. Burnett	Atlanta
Silver Star Gr.	Pine Grove	May Larson	Pine
Sunrise	Twin Springs	John Vaughn	Twin Springs
Sunrise Gr.	Bear Creek	Wm. H. Stowell	Spokane, Wash.
Sunshine et al.	Bear Creek	E. C. Helfrich	Mountain Home
Sunny Side	Pine Grove	Monroe E. Shraft	Pine
Tahoma No. 3	Middle Boise	W. P. Richards.	Boise
Tekla et al.	Featherville	Paul V. Lambrix	Featherville
Trinity Gr.	Featherville	M. E. Rineback	Featherville
Tumble Bug	Bear Creek	Walter Walsh	Rocky Bar
Uncle Ben	Bear Creek	B. J. Nordyke	Featherville
Uncle Sam Gr.	Pine Grove	May Larson	Pine
Verdun Gr.	Pine Grove	W. R. Deckard	Pine
Vibrator Gr.	Bear Creek	Elmer C. Towne	Rocky Bar
White Bird et al.	Bear Creek	Otis Howard	Rocky Bar
Wide West	Bear Creek	John J. Allen	109 Montague St., Brooklyn, N. Y.
Wonder	Pine Grove	Lou Roberts	Pine
Yuba Gold Chest	Middle Boise	C. W. Joy	Emmett

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

Atlanta district, by J. E. Clayton: Am. Inst. Min. Eng. Trans., vol. 5, pp. 468-473, February, **1887.**§

A geological reconnaissance across Idaho, by G. H. Eldridge: U. S. Geol. Survey Sixteenth Ann. Rept., pt. 2, pp. 217-276, **1895.***

The Atlanta lode, Idaho, by J. B. Hastings: Eng. and Min. Jour., vol. 59, p. 128, Feb. 9, **1895.**§

Mining districts of the Idaho Basin and the Boise Ridge, Idaho, by Waldemar Lindgren: U. S. Geol. Survey Eighteenth Ann. Rept., pt. 3, pp. 625-736, **1898.***

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey Twentieth Ann. Rept., pt. 3, pp. 75-256, **1900.***

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Geology of southwestern Idaho, and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Bull. 217, **1903.***

Atlanta gold district, by R. N. Bell: Eng. and Min. Jour., vol. 86, pp. 176-177, July 25, **1908.**§

Rich gold ore found in Idaho, by R. N. Bell: Eng. and Min. Jour., vol. 102, pp. 783-785, Oct. 28, **1916.**§

Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 60, art. 3, pp. 1-33, **1921.**‡

A preliminary reconnaissance of the gas and oil possibilities of southwestern and south-central Idaho, by J. P. Buwalda: Idaho Bureau of Mines and Geology Pamphlet 5, **1923.***

Molybdenite in the Rocky Bar district, Idaho, by F. C. Schrader: U. S. Geol. Survey Bull. 750, pp. 87-99, **1924.**‡

Ground water for irrigation on Camas Prairie, Camas and Elmore counties, Idaho, by A. M. Piper: Idaho Bureau of Mines and Geology Pamphlet 15, **1926.****

Geology and ore deposits of the Rocky Bar quadrangle, by S. M. Ballard: Idaho Bureau of Mines and Geology Pamphlet 26, **1928.***

FREMONT COUNTY

Coal, phosphate rock, oil shale, and asbestos occur in different sections of this county. The occurrence of coal in commercial quantities in the northeastern corner of the county has been reported, but these deposits are too far removed from transportation to be available. The other deposits have never been sufficiently developed to prove their extent.

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

Fifth, Sixth and Eleventh Ann. Repts., U. S. Geol. and Geog. Survey of the Territories, by F. V. Hayden, **1871, 1873,** and **1879.***

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Guidebook of the western United States, by W. T. Lee and others: U. S. Geol. Survey Bull. 612, pp. 114-147, **1915.**‡

Coal in eastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 716, pp. 123-153, **1920.***

Oil shale in western Montana, southeastern Idaho and adjacent parts of Wyoming and Utah, by D. D. Condit: U. S. Geol. Survey Bull. 711, pp. 15-40, **1920.***

Geology and water resources of the Mud Lake basin, Idaho, by H. T. Stearns and L. L. Bryan: U. S. Geol. Survey Water-Supply Paper 560, pp. 85-134, **1925.**‡

A geologic reconnaissance of Clark and Jefferson, and parts of Butte, Custer, Fremont, Lemhi and Madison counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 19, **1927.***

GEM COUNTY

Gem is one of the smallest counties in area in the State, but one of the largest in population per square mile. Its area is 567 square miles, and the 1930 census credited it with a population of 7,419 or 13.1 persons per square mile. The chief industries are fruit growing, farming, and livestock. It is particularly noted for its fruit farming, which is confined to the valley of the Payette River, which flows westerly through the southern end of the county.

It is one of the southwestern counties, being bounded by Ada, Canyon, Payette, Washington, Adams, Valley, and Boise counties. The drainage basin of Squaw Creek and twenty-five miles of the Payette River valley make up the larger part of its area. Emmett, the county seat and only settlement of importance, is near the center of the southern part of the county.

The county is served by a good system of locally maintained roads and by the Nampa-McCall and Payette-Emmett branches of the O. S. L. Railroad.

The Pearl district, once a famous gold-producing camp, and a few undeveloped sections where a small amount of prospecting has been done, are the only mineralized areas in the county. The principal minerals occurring in these districts are gold, silver, lead, zinc, copper, and arsenic. Gold predominates, and occurs in a free-milling quartz and combined with the sulphides of lead, zinc, and iron. The deposits containing the complex sulphide ore are of commercial importance and have not been mined, as transportation and the metallurgical methods in use at the time the Pearl district was active prevented profitable operations. The sulphide ores are amenable to modern flotation methods, and, as there is a large tonnage in many of the old mines that are lying dormant, they will again become profitable operations when properly equipped, financed, and managed.

1931 Activities

The only operation during 1931 was that of the American Mines Development Co., at the Old Liberty mine, near Sweet, which was active throughout the year in extending its tunnel.

AMERICAN MINES DEVELOPMENT CO. (See Boise County)
Office: 209 N. 10th St., Boise. **Officers:** B. C. Beetham, Pres., Boise; Vance Naylor, Sec., Hansen. **Inc.:** Mar. 15, 1928. **Capital:** 1,000,000 shares; par value $1; 428,334 shares issued. **Property:** Old Liberty group; 4 patented claims, held under lease and option, Squaw Creek dist.; Sweet. **Development:** By 1 tunnel 1100 ft. long. **Plant:** Gas-driven G-D compressor; complete mining equipment and camp. **Ore:** Copper-silver. **Remarks:** Active throughout the year in extending its tunnel.

COOPERATIVE OIL EXPLORATION FUND
Office: Boise. **Officers:** Paul G. Savic, Trustee, Boise. **Inc.:** Trust agreement. **Property:** Oil and gas leases on approximately 5000 acres of patented land near Letha. **Mineral sought:** Oil and gas. **Remarks:** Idle.

FELIX MINING CO.
Office: Boise. **Officers:** T. J. Jones, Pres.-Mgr., Boise. **Inc.:** July 25, 1917. **Capital:** 500 shares; par value $10; all shares issued. **Property:** Felix group; 5 patented claims, West View dist.; Pearl.

GRANITE STATE CONSOLIDATED MINES CO.
Office: 242 Water St., Augusta, Maine. **Officers:** G. R. Chadbourne, Pres., Augusta, Maine. **Inc.:** June 23, 1914. **Capital:** 3,000,000 shares; par value $1; 2,113,664 shares issued. **Property:** Granite State group; 20 patented, 16 unpatented claims, West View dist.; Pearl. **Development:** Principally by 1 tunnel 2300 ft. long. **Remarks:** Idle.

JOHNSON MINING CO., LTD.
Office: 1220 N. 11th St., Boise. **Officers:** J. C. Johnson, Pres., Boise, **Inc.:** Dec. 27, 1905. **Capital:** 300,000 shares; par value $1; all shares issued. **Property:** 1 patented claim, West View dist.; Pearl.

OLD LIBERTY MINING CO.

Office: Box 1368, Boise. **Officers:** E. Sweet, Pres., Sweet. **Inc.:** Sept. 6, 1911. **Capital:** 250,000 shares common, par value $1; 300 shares preferred, par value $100; all shares issued. **Property:** Old Liberty group; 4 patented claims, Squaw Creek dist.; Sweet. **Remarks:** Property under option to American Mines Development Co.

YELLOW GOLD PLACER CO.

Office: Mountain Home. **Officers:** Ernest Tacha, Pres.; Hetta M. Tacha, Sec.; Edward N. Crawford, Mgr., all of Mountain Home. **Inc.:** May 16, 1927. **Capital:** 500,000 shares; par value $1; 281,000 shares issued. **Property:** Owns 320 acres and lease on 320 acres of farm land, West View dist.; Pearl. **Remarks:** Active stock-selling campaign throughout the year. This enterprise is based on high values in rare metals, the presence of which was determined by assayers whose methods have been questioned by the U. S. Bureau of Mines.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Apache	West View	Jas. H. Hawley	Boise
Black Jack	West Mountain	Edgar McFadden	Nampa
Black Pearl	West View	H. W. Dorman Est.	Meridian
Burton Bell	West View	John Ackley	Boise
Checkmate	West View	E. K. Hayes	Emmett
Dark Horse	West View	Ed. H. Peasley	Boise
Dewey	West View	E. H. Dewey	Nampa
Gem	West View	H. W. Dorman Est.	Meridian
Golden Age	West View	Lot Feltham	Emmett
I X L	West View	H. W. Dorman Est.	Meridian
Kentuck	West View	H. W. Dorman Est.	Meridian
King Gr.	West View	H. J. C. Graveley	Boise
King Tut Gr.	West View	Warren L. Mace	Boise
McCarty	West View	Scott Anderson	Boise
Middleman	West View	J. C. Johnson	Boise
Morning Glory	West View	E. J. Thorpe	Pearl
Oxford	West View	J. C. Dunbar	Pearl
Silver Wreath	West View	Fremont Wood	Boise
Virginia Mines	West View	G. L. Loope	Seattle, Wash.
White Sapphire Gr.	West Mountain	Geo. H. Storm	Van Nuys, Calif.
Wolverine	West View	H. B. Williams	Portland, Ore.

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

Description of the Boise quadrangle, by Waldemar Lindgren: U. S. Geol. Survey Geol. Atlas, Folio No. 45, **1898.***

Mining districts of the Idaho Basin and the Boise Ridge, Idaho, by Waldemar Lindgren: U. S. Geol. Survey Eighteenth Ann. Rept., pt. 3, pp. 625-736, **1898.***

The gold and silver veins of Silver City, De Lamar and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey Twentieth Ann. Rept., pt. 3, pp. 75-256, **1900.***

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Description of the Nampa quadrangle, by Waldemar Lindgren and N. F. Drake: U. S. Geol. Survey Geol. Atlas, Folio No. 103, **1914.***

A preliminary reconnaissance of the gas and oil possibilities of southwestern and south-central Idaho, by J. P. Buwalda: Idaho Bureau of Mines and Geology Pamphlet 5, **1923.***

GOODING COUNTY

Placer gold, which is found in the gravel bars and sand along the Snake River, constitutes the only mineral resource of this county. These deposits are worked in a limited manner, and generally return the operator a fair profit on his labor.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Big Body Placer	Snake River	John Criswell	Clear Lake
Black Butte Placer	Snake River	A. S. Madalena	Clear Lake
Boulder Hill Placer	Snake River	Charles N. Ingersoll	Bliss
Brown Placer	Snake River	C. E. Jenkins	Hagerman
.....Pl.	Snake River	H. C. Bryant	Hagerman
.....Pl.	Snake River	Hand & Seburn	Hagerman
Zeolite Gr.	Unorganized	Geo. H. Chaffin	Gooding

BIBLIOGRAPHY

See Snake River Gold under General Bibliography.

IDAHO COUNTY

This county occupies a vast region about midway between the northern and southern boundaries of the State, extending from Montana, on the east, to Oregon, on the west. It is bounded on the north by Nez Perce, Lewis, and Clearwater counties, on the east by the State of Montana, on the south by Lemhi, Valley, and Adams counties, and on the west by the State of Oregon. It contains 8,539 square miles, or an area which is larger than the combined areas of the States of Rhode Island, Delaware, and Connecticut. The 1930 census accredited it with a population of 10,107, or 1.2 persons to the square mile. The larger part of the population is located on Camas Prairie, a table-land of about 400 square miles. The chief industries are farming, principally wheat, for which Camas Prairie is famous; stockraising, and mining.

The western part of the county is served by the North and South State Highway, which extends from the southern to the northern boundary, and by the Elk City and Lewis & Clark highways, which are partly constructed. Its railroads are the Lewiston-Stites branch of the Northern Pacific Railroad, and the Lewiston-Grangeville branch, which is owned jointly by the Union Pacific and Northern Pacific railroads. Both these railroads serve Camas Prairie, or the northwestern part of the county. Grangeville is the largest town and county seat.

Idaho County is the largest in the State in area, and one of the greatest in diversity of mineral resources and mining opportunities. The principal metals and minerals which occur in sufficient extent to be of commercial importance are gold—placer and lode—silver, copper, lead, zinc, antimony, tungsten, asbestos, molybdenum, talc, and mica.

During the early days of Idaho this county was one of the largest gold-producing districts in the United States, and at the present time it offers more possibilities for profitable gold mining than any other section. Many of the millions produced during those days were won from placer deposits which occur in practically all the 17 mining districts within the county. Excepting the flat land and river bottoms, which are suitable for dredging, and which fully justify investigation, practically all the placer mines are exhausted.

The greatest handicap which the county is compelled to undergo is the lack of transportation, and under present road conditions only the highest grade free-milling ores can be successfully handled. Railroads into the various mining districts are a far removed possibility; however, a good automobile or motor truck road would serve to open many of the districts which are now dormant.

Much of the ore is a free-milling gold, and if not, a high-grade concentrate can be made which will permit a long haul. The latter statement applies particularly to the ores of the Ten Mile, Orogrande, Elk City, Buffalo Hump, and Dixie districts.

1931 Activities

The first quartz veins located in the northern part of Idaho County were those at Elk City, in 1884. Active mining operations were conducted in this district, and in the adjoining districts of Ten Mile, Buffalo Hump, Orogrande, and Dixie, in which gold was subsequently discovered, until about 1909. These operations were based on the mining of the free-milling, oxidized portions of the veins and were continued until the sulphide zone in many of the properties was encountered. As the gold could not be recovered from these ores by the metallurgical methods then in use, the mines ceased to be profitable, particularly because it became necessary to make a concentrate which required shipment to a smelter, and road conditions made the cost of transportation to railhead prohibitive.

The old road leading from Stites to Elk City, a distance of 53 miles, crossed two high divides, with such a great change in climatic conditions that it was never open to wheeled vehicles for more than four months of the year. Starting at Stites with an elevation of 1,200 feet, the road ascended in the first 25 miles to an elevation of 6,500 feet at the top of Mt. Baldy; then descended a distance of 8 miles to 3,800 feet at Newsome; from there it ascended to an elevation of 5,700 feet at the top of Elk Summit, a distance of 9 miles; and then descended 9 miles to an elevation of 3,950 feet at Elk City. Throughout almost the entire distance the road traversed a heavily forested area, and the character of the soil is such that the road was practically a dugway on which the sun seldom shone. Many of the level stretches were through swamps over which corduroys were necessary. The proper maintenance of this road would have been so expensive that the county always refused to expend any appreciable amount on it; hence, nearly all the maintenance provided was that covered by the small sums expended by the Forest Service and the mail contractors. Consequently the road never permitted other than light, slow-moving traffic, a condition which made the cost of transporting mine products and supplies prohibitive and made it impossible to enlist capital for development and operation of the quartz mines, and which resulted in the abandonment of most of them.

In 1923 work was started on a new road following the South Fork of the Clearwater River from Grangeville to Elk City. Construction of this road has progressed intermittently. In October, 1931, the contract for the completion of the last 7 miles to Elk City was let, and work was started. The terms of the contract require that the work shall be completed and the road be opened to travel early in 1932. The first 12 miles of this road, from the top of Clearwater Hill to Castle Creek, is not standard construction, but the roadbed is good, and no grades exceed 5 per cent. However, surveys have been completed for estimating the cost to standardize this distance. From Castle Creek to Elk City the road is a standard 14-foot highway, which is kept in excellent condition by the Forest Service. Following the water grade as it does, the highway is free from snow throughout the greater part, if not the whole, of the year; and heavy hauling is economical and practical.

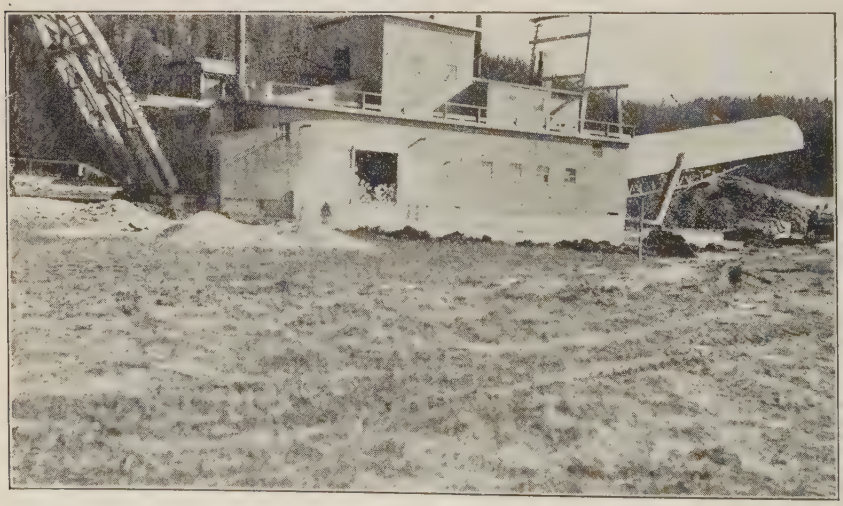
The assurance that the new road would be completed and opened to travel early in 1932 greatly stimulated interest in the Elk City, Dixie, Orogrande, Buffalo Hump, and Ten Mile districts during 1931. This was particularly evident in the Buffalo Hump district, where one of the largest mining organizations in the United States acquired a large number of properties, under lease and option, packed in supplies, and commenced preliminary investigations. Many mining engineers and geologists representing responsible companies visited the other districts during the year, and those representing one large organization made an intensive examination of the Orogrande district.

In the Elk City district the Cal-Idaho Mining Co. was the largest operator. This company acquired the Gold Hill placer. It finished rehabilitation of the 8-mile ditch, installed complete hydraulic equipment, and constructed a new tail race at a lower elevation. The company contemplates a large hy-

draulic placer mining enterprise. The Day Development Co., which acquired the Center Star group in October, 1930, completed the sinking of a 100-foot shaft and conducted active exploratory work until May, when all operations were suspended. Lessees at the property of the French Creek Gold Mining & Milling Co. did a small amount of work during the early part of the year. Later the company cancelled the option and by the close of the year had completed arrangements for refinancing the property.

The Orogrande district witnessed a large amount of new activity. Lessees at the Homestake group of the Homestake Gold Mining Co. conducted a large amount of mine work. According to press reports a large tonnage of gold ore was developed, a contract was let for driving a 2,000-foot lower tunnel, and the contractors, by the close of the year, had installed a gas-driven compressor and complete mining equipment. The Gnome Gold Mining Co., a new organization, which is operating the property of the International Mining Co., under lease and option, constructed new camp buildings and commenced extending the principal tunnel, which is a drift on the vein. The Ohadi Mines Corporation, operating the Deadwood placers, under lease and option, conducted a small amount of work for 30 days, and at the end of the year was making plans for the installation of a power shovel and washing equipment. The property of the Orogrande Gold Mining Co. was placed in receivership, and legal proceedings were completed under which the receiver can sell the property.

The largest expenditure made in this county during the year was that of the Idaho Gold Dredging Co., in the Warren district. This company acquired the Warren Meadows under lease and option, purchased a large steam-driven dredge in Oregon, dismantled it, transported it to Warren by motor truck, reconstructed it, and put it into operation early in September. Press reports were to the effect that the gold recovered by the dredge proved that the ground had a high gold content. The Unity Gold Mines Co. was idle throughout the year. Two sales under attachment proceedings were held against its property.



DREDGE OF IDAHO GOLD DREDGING CO.

The Golden or Ten Mile district was one of the most active sections of this county throughout 1931. F. O. Miiller and son, at the Lone Pine group maintained development work without interruption, operated the mill for a short period, and installed a new 160-cubic-foot gas-driven compressor. This mine was one of the largest gold producers in the county. The development

work greatly increased the known ore resources, and at the close of the year the owners were completing plans for the construction of a new mill. The success with which this enterprise is meeting has greatly stimulated prospecting and promoting; and six companies holding near-by properties did a small amount of work and a large amount of solicitation in the sale of stock. The Buffalo-Idaho Mining Co. and the Central Idaho Gold Mines, Inc. were active throughout the larger part of the year. Each operated its mill for a short period and produced a small amount of bullion. The Moose Creek Placers Co. conducted work on its ditch and flume line and further repaired its hydraulic equipment.



VIEW OF WARREN MEADOWS: PROPERTY OF IDAHO GOLD DREDGING CO.

In the Dixie district, the Central Idaho Mining & Milling Co. was active throughout the year. This company completed the construction of a mill building and the installation of a 25-ton flotation concentrator and a small hydroelectric plant. In addition to building many miles of trail and conducting an active mine development campaign, a small tonnage of high-grade gold-lead concentrate was produced and marketed. Press reports were to the effect that the Mammoth Mining & Development Co., which is operating the property of the Mammoth Mine Corporation, under lease and option, installed a small steam-driven compressor and commenced construction of a small mill. J. R. Painter, whose property is on the Salmon River, south of Dixie, produced a small tonnage of gold ore, which was of such high grade that it warranted transportation by pack train from the mine to Dixie. The placer deposits near the town of Dixie received considerable attention. Press reports were to the effect that a new company had been organized to exploit one of these properties.

The Marshall Lake district was one of the most active sections in the county throughout the year. A substantial production was recorded, a large amount of development work done, and a large number of mine examinations were made. The Golden Anchor Mining Co., at the Holte mine, in which there was one of the most important disclosures made in the State during 1930, conducted development work throughout the larger part of the year. This work further opened the ore bodies and proved them to be of major importance. The Sherman Howe Mining Co. completed construction of additional new camp buildings, enlarged its mine plant and maintained production and development work without interruption until October. This company's production

was one of the largest in the county. The Long Tom Mining Co., at the Cuban and West Goodenough groups was active throughout the year at both groups. The new highway, which the Forest Service is constructing between Burgdorf and this district, was extended an additional 4 miles. This road is of great assistance to the companies now operating and is a great encouragement to the development of the district.

In the Burgdorf district a small amount of work was done by the Davis Mining Co., on Ruby Creek; the Golden Rule placer was operated for 30 days, and late in the year arrangements had been completed to prospect thoroughly a large tract of ground for its placer gold content.

The alleged presence of rare metals and gold in the black graphitic lime shales and "dike" rock in the Salmon River or Simpson district, near Lucile, continued to be used as a lure for the sale of stock. Those promoting these enterprises profess having secret methods by which the rare metals and gold are recovered. No work of any consequence was done by any of these companies.

The Idaho Bureau of Mines and Geology, in cooperation with the United States Geological Survey, commenced work on a new geologic survey of all that part of the county lying north of the Salmon River, including the Buffalo Hump, Dixie, Elk City, Ten Mile, and Orogrande districts. The bureau considers these districts to possess favorable possibilities for the discovery of new gold deposits.

Fourteen new companies were incorporated and acquired gold properties in Idaho County during the year, and 448 new locations were made. This is the largest number of new locations in any one year during the past 30 years.

ABBA CORPORATION

Office: 31 Nassau St., New York City. **Officers:** Henry W. Allen, Pres. Charles H. Suhl, Sec., both of New York City. **Inc.:** Mar. 6, 1926. **Capital:** 50,000 shares; par value $1; 45,750 shares issued. **Property:** 4 patented claims, Warren dist.; Warren. **Ore:** Silver.

ALTA-IDAHO GOLD & COPPER MINING CO.

Officers: M. C. Hetler, Pres., Berwick, Pa.; Mrs. Rachel E. Fine, Sec. Cassadaga, Fla.; Geo. M. Snyder, Mgr., Pardee. **Inc.:** Filed in Idaho June 17, 1903. **Capital:** 700,000 shares common, par value $1; 300,000 shares preferred, par value $1; 600,000 shares common, 241,704 shares preferred issued. **Property:** Empire group; 11 unpatented claims, on South Fork of Clearwater River, Lolo dist.; Pardee. **Development:** Approximately 450 ft. of underground workings, the principal of which is 1 tunnel 250 ft. long. **Ore:** Gold-silver-copper. **Men employed:** 1 watchman. **Remarks:** Annual labor only.

BLACKTAIL MINING CO.

Office: 1517 E. 9th Ave., Spokane, Wash. **Officers:** R. E. Wakeley, Pres. Mgr.; N. L. Wakeley, Sec., both of Spokane. **Inc.:** Dec. 3, 1914. **Capital:** 200,000 shares; par value $1; 121,920 shares issued. **Property:** 10 unpatented claims, Harpster dist.; Harpster. **Development:** By 2 tunnels: No. 1 370 ft. long; No. 2, 70 ft. long. **Ore:** Gold. **Remarks:** Refused to file the reports required by law.

B. R. & R. MINING CO., INC.

Office: Lewiston. **Officers:** Peter Reid, Pres., Empire State Bldg., Spokane, Wash.; R. S. Kalbfleisch, Sec., Lewiston; S. S. Bassett, Mgr., Spokane, Wash. **Inc.:** June 25, 1930. **Capital:** 100,000 shares; par value $1 50,175 shares issued. **Property:** 2 unpatented claims, Simpson dist.; Lucile. **Ore:** Unknown. **Remarks:** This company reports its ore as "principally gold (other valuable metals)." This enterprise is based on the recovery of gold and rare metals by secret and questionable methods. Corporate affairs badly upset through disagreements among the directors.

BUFFALO-IDAHO MINING CO.

Office: 822 Humboldt Parkway, Buffalo, N. Y. **Officers:** A. G. O. Cooke Vice Pres., Buffalo, N. Y.; Ray R. Becker, Sec., Williamsville, N. Y.; Joseph A. Fields, Mgr., Golden. **Inc.:** Nov. 7, 1927. **Capital:** 250,000 shares par value $1; 192,245 shares issued. **Property:** Mackey group; 11 unpat

ented claims, Ten Mile dist.; Golden. **Development:** By 3 tunnels and a 60-ft. vertical shaft. **Plant:** MINE: Small gas-driven compressor; complete mining equipment and camp. MILL: Steam-driven 4-stamp mill. **Ore:** Gold. **Men employed:** Average, 3. **Remarks:** Active throughout the year. The mill was operated for a short period, and a small amount of bullion produced.

CAL-IDAHO MINING CO.

Office: Elk City. **Officers:** Edward H. Cookingham, Pres., Lindsay, Calif.; McClellan G. Jones, Sec., Huntington Beach, Calif.; Thomas Berry, Mgr., Elk City. **Inc.:** Not filed in Idaho. **Capital:** 250,000 shares; par value $1; 193,800 shares issued. **Property:** Gold Hill placer; 7 patented, 9 unpatented claims, held under lease and option, Elk City dist.; Elk City. **Plant:** 8-mile ditch, complete hydraulic equipment, and mine camp. **Ore:** Placer gold. **Men employed:** Average, 9. **Remarks:** Complete hydraulic equipment installed, a new tail race at a lower elevation constructed, and a small amount of hydraulicking was done during the early part of the year.

CENTRAL IDAHO GOLD MINES, INC.

Office: 601 Hutton Bldg., Spokane, Wash. **Officers:** Henry Merritt, Pres., Rosalia, Wash.; Chas. H. Ennis, Sec., Spokane, Wash. **Inc.:** July 20, 1928. **Capital:** 100,000 shares; par value $1; 68,908 shares issued. **Property:** New York and Anaconda groups; 29 unpatented claims held under lease and option, Ten Mile dist.; Golden. **Development:** By 10 tunnels, the principal one of which is 1200 ft. long. **Plant:** Water-driven 10-stamp mill, constructed in 1916; complete hand-mining equipment and camp. **Ore:** Gold. **Men employed:** Average, 2. **Remarks:** Annual labor. The mill was operated for a short period. It was reported late in the year that this company's property was transferred to the New York Consolidated Mines, Inc.

CENTRAL IDAHO MINING & MILLING CO.

Office: 1217 Alaska Bldg., Seattle, Wash. **Officers:** E. B. Ellis, Pres.; S. F. Chadwick, Sec., both of Seattle; J. R. Lee, Mgr., Dixie. **Inc.:** Nov. 12, 1929. **Capital:** 1,000,000 shares; par value $1; 782,217 shares issued. **Property:** War Eagle group; 48 unpatented claims, held under lease and option, Robbins dist.; Dixie. **Development:** By 3 tunnels, the principal one of which is 1200 ft. long. **Plant:** 25-ton flotation concentrator. **Ore:** Gold-silver-lead. **Men employed:** Average, 10. **Remarks:** Construction of the mill completed and a small tonnage of high-grade gold-lead concentrate produced and marketed.

CLEARWATER MINING CO.

Office: 201 N. Naches Ave., Yakima, Wash. **Officers:** L. L. Iles, Pres.; W. T. Carpenter, Sec., both of Yakima, Wash. **Inc.:** Oct. 23, 1929, as Three Star Mines Corporation; name changed Apr. 13, 1931. **Capital:** 3,000,000 shares; par value 1c; 886,457 shares issued. **Property:** 19 unpatented claims, Ten Mile dist.; Golden. **Development:** By 2 short tunnels. **Ore:** Gold. **Remarks:** Annual labor only.

COMMODORE GOLD MINING CO.

Office: Lewiston. **Officers:** Wm. C. McNutt, Pres.-Mgr.; E. H. Springer, Asst. Sec., both of Lewiston. **Inc.:** Mar. 28, 1921. **Capital:** 1,000,000 shares; par value $1; 436,185 shares issued. **Property:** Commodore group; 39 unpatented claims, at junction of Crooked River and South Fork of Clearwater River, some of which are held under lease and option, Orogrande dist.; Elk City. **Development:** By 10 short tunnels, totaling approximately 500 ft. **Ore:** Gold. **Remarks:** Annual labor only.

COMMONWEALTH MINING CO.

Office: 1531 Denver St., Boise. **Officers:** Seth T. Hawkins, Pres.-Mgr.; Jesse J. McQueen, Sec., both of Boise. **Inc.:** Jan. 8, 1931. **Capital:** 250,000 shares; par value $1; 10,459 shares issued. **Property:** 9 unpatented claims, Simpson dist.; Lucile. **Development:** By 1 short tunnel. **Plant:** Gas-driven C-P compressor. **Ore:** Gold-copper-silver-lead. **Men employed:** Average, 4. **Remarks:** A small amount of work during the early part of the year.

CONSOLIDATED MINES SYNDICATE (See Camas County)
Property: Blue Jacket group; 7 patented claims, Crooks Corral dist.; Lucile. **Remarks:** Idle.

COPPER QUEEN MINING CO., INC.
Office: Pardee. **Officers:** Daniel Laverty, Pres.-Mgr., Pardee; F. H. Rehberg, Sec., Kamiah. **Inc.:** Oct. 29, 1929. **Capital:** 1,000,000 shares; par value $1; 36,500 shares issued. **Property:** 9 unpatented claims, Lolo dist.; Pardee. **Development:** 2 short tunnels. **Ore:** Copper, gold and silver. **Men employed:** Average, 2. **Remarks:** Annual labor only.

CROOKS CORRAL MINES, LTD.
Office: Grangeville. **Officers:** Frank McGrane, Pres., Grangeville. **Inc.:** Sept. 13, 1897. **Capital:** 1,000,000 shares; par value $1; 990,000 shares issued. **Property:** 8 patented placer claims, Crooks Corral dist.; Lucile.

DARON MINING & MANUFACTURING CO.
Officers: Geo. M. Servick, Sec., Coeur d'Alene. **Inc.:** Sept. 8, 1931. **Capital:** 25,000 shares; par value $1. **Remarks:** A placer operation near White Bird on the Salmon River. Failed to file the reports required by law.

DAVIS MINING CO.
Office: 320 Railway Exchange Bldg., Seattle, Wash. **Officers:** Geo. Allen, Pres.; C. H. Steffen, Sec., both of Seattle, Wash. **Inc.:** Not filed in Idaho. **Capital:** 100,000 shares; par value 5c; 50,000 shares issued. **Property:** 25 unpatented claims, Burgdorf. **Ore:** Placer gold. **Remarks:** A small amount of prospecting during the summer months.

DAY DEVELOPMENT CO.
Office: Wallace. **Officers:** Harry L. Day, Pres.; W. B. Heitfield, Sec., both of Wallace. **Inc.:** Nov. 27, 1928, as Hercules Exploration Co.; name changed Nov. 25, 1930. **Capital:** 10,000 shares; par value $1,000; 473 shares issued. **Property:** Center Star group, Elk City dist.; Elk City. Held under lease and option. **Plant:** Gas-driven compressor; complete mining equipment and camp. **Ore:** Gold. **Men employed:** Average, 10. **Remarks:** Property acquired in October, 1930, after which 4 miles of trail were constructed, a gas-driven compressor and mining equipment were installed and active work was started in sinking a 150-ft. inclined shaft. The shaft was completed, a small amount of drifting done at the bottom, and all operations were suspended in May and the option relinquished.

DIATOM PRODUCTS CO.
Office: Lewiston. **Officers:** Ben L. Schultz, Lewiston. **Inc.:** May 3, 1930. **Capital:** 50,000 shares; par value $1; all shares issued.

DIXIE PLACER GOLD MINING CO.
Officers: Fred A. Adams, Pres., Spokane. **Remarks:** Name gleaned from the press. Failed to file the reports required by law. Presumably a placer operation in the Dixie district.

DYKE GOLD MINING & MILLING CO.
Office: Elk City. **Officers:** S. A. Wells, Pres.; Mrs. Maud Clancy, Sec., both of Spokane, Wash.; Richard Greckwell, Mgr., Elk City. **Inc.:** June 24, 1929. **Capital:** 2,500,000 shares; par value 10c; 452,800 shares issued. **Property:** 10 unpatented claims, Orogrande dist.; Elk City. **Ore:** Gold. **Remarks:** Annual labor only.

EMPIRE METALS CO.
Office: 174 S. Howard St., Spokane, Wash. **Officers:** Wm. Hogan, Pres.-Mgr.; Robert A. Koontz, Sec., both of Spokane, Wash. **Inc.:** Jan. 20, 1927. **Capital:** 999,000 shares; par value 50c. Increased Mar. 26, 1928, to 5,000,000 shares; par value $1; 3,100,400 shares issued. **Property:** 113 unpatented claims, Elk City and Orogrande dists.; Elk City and Orogrande. **Development:** By a large number of short tunnels and open cuts. **Ore:** Gold. **Remarks:** Annual labor only.

ESPERANZA GOLD DIKES MINING CORPORATION

Office: 738 Morgan Bldg., Portland, Ore. **Officers:** Edward M. Griffith, Pres., Lewiston; C. W. Twining, Sec., Portland, Ore. **Inc.:** Sept. 14, 1925. **Capital:** 1,000,000 shares; par value 25c; all shares issued. **Property:** Champion group; 18 patented claims, Orogrande dist.; Orogrande. **Development:** Approximately 4000 ft. of old workings. **Ore:** Gold. **Remarks:** Idle throughout the year.

FRENCH CREEK GOLD MINING & MILLING CO.

Office: Grangeville. **Officers:** N. B. Pettibone, Pres.; W. L. Lyon, Sec., both of Grangeville. **Inc.:** Mar. 26, 1923; charter forfeited Nov. 30, 1926. **Capital:** 300,000 shares; par value 26c; 104,659 shares issued. **Property:** French Creek group; 1 patented, 5 unpatented claims, Elk City dist.; Elk City. **Development:** By 2 tunnels: No. 1, 575 ft. long; No. 2, 240 ft. long. **Ore:** Gold. **Remarks:** Lessees at this company's property did a small amount of work during the early part of the year. Later, the lease and option was cancelled, and arrangements made for refinancing the property.

GARNER ELECTRIC RANGE CO.

Officers: Oliver W. Garner, Vice Pres., Volk Apts., Tacoma, Wash. **Inc.:** An association. **Capital:** 1,000,000 shares; par value $1; 452,255 shares issued. **Property:** 80 acres patented farm land near Pollock, held under lease and option; Riggins. **Development:** 1 tunnel 100 ft. long. **Mineral sought:** Talc. **Remarks:** Failed to file the reports required by law.

GNOME GOLD MINING CO.

Office: 745 Peyton Bldg., Spokane, Wash. **Officers:** James O'Brien, Pres.; P. J. O'Brien, Sec., both of Spokane, Wash. **Inc.:** Filed in Idaho: Aug. 5, 1931. **Capital:** 3,000,000 shares; par value 5c; 2,000,300 shares issued. **Property:** 2 patented claims, held under lease and option; 2 unpatented claims, Orogrande dist.; Elk City. **Development:** By 2 tunnels: No. 1, 180 ft. long; No. 2, 410 ft. long. **Ore:** Gold. **Men employed:** Average, 4. **Remarks:** Two camp buildings constructed and work started in extending the principal tunnel, which is a drift on the vein.

GOLD BUG MINING CO.

Office: 201 N. Naches Ave., Yakima, Wash. **Officers:** L. L. Iles, Pres.; W. T. Carpenter, Sec., both of Yakima, Wash. **Inc.:** Filed in Idaho: June 3, 1931. **Capital:** 3,000,000 shares; par value 1c; no shares issued. **Property:** 21 unpatented claims, Ten Mile dist.; Golden. **Development:** By 3 tunnels: No. 1, 180 ft.; No. 2, 60 ft.; No. 3, 70 ft. **Ore:** Gold-silver. **Men employed:** Average, 2.

GOLDEN ANCHOR MINING CO.

Office: Burgdorf. **Officers:** J. A. Czizek, Pres.-Mgr.; J. F. Koelsch, Sec., both of Boise. **Inc.:** Apr. 14, 1928. **Capital:** 1,000,000 shares; par value $1; 500,000 shares issued. **Property:** Holte group; 6 patented, 16 unpatented claims, Marshall Lake dist.; Burgdorf. **Development:** Approximately 5000 ft. of underground workings, the principal of which are 3 tunnels: No. 1, 100 ft. long; No. 2, 1800 ft. long; No. 3, 2300 ft. long; 150-ft. inclined shaft in No. 2 tunnel. **Plant:** MINE: Electrically driven compressor, complete mining equipment, sawmill, assay office and complete camp. MILL: 50-ton steam-driven Lane Chilean mill; cyanide plant. POWER: Small hydroelectric power plant; 3-mile transmission line. **Ore:** Gold. **Men employed:** Average, 6. **Remarks:** During the year a 150-ft. raise was driven on the vein to a connection with the shaft in No. 2 tunnel. This raise completed opening the vein between No. 3 and No. 2 tunnels a total distance of 350 ft. In addition to the foregoing 800 ft. of drifting on the vein was done in No. 3 tunnel. This work proved the ore bodies to be of major importance.

GOLDEN MINES, LTD., INC.

Office: Lewiston. **Officers:** J. E. Turner, Pres.; R. Hubbard, Sec.; J. T. Wenstrom, Mgr., all of Lewiston. **Inc.:** Jan. 17, 1930. **Capital:** 250,000 shares; par value $1; 154,000 shares issued. **Property:** 6 unpatented claims, Ten Mile dist.; Golden. **Development:** 6 short tunnels. **Plant:** Gas-driven compressor, complete mining equipment and camp. **Ore:** Gold. **Remarks:** Annual labor only, which consisted principally of road construction.

GOODENOUGH UNITED MINING & MILLING CO., LTD.
Office: Payette. **Officers:** L. I. Purcell, Pres.-Mgr., Payette. **Inc.:** Nov. 1, 1905. **Capital:** 1,000,000 shares, par value 25c; 535,564 shares issued. **Property:** Goodenough group; 10 patented claims, Marshall Lake dist.; Burgdorf. **Remarks:** Idle for many years.

GROUSE CREEK PLACER CO.
Office: 208 Grostein Bldg., Lewiston. **Officers:** Herman L. Wegner, Pres.-Mgr.; E. L. Schnell, Sec., both of Lewiston. **Inc.:** Jan. 29, 1931. **Capital:** 24,000 shares; par value $1; all shares issued. **Property:** 8 unpatented claims, Ten Mile dist.; Grangeville. **Development:** 1500 ft. ditch. **Ore:** Placer gold. **Remarks:** A small amount of prospecting during the summer.

HOMESTAKE GOLD MINING CO.
Office: 345 Peyton Bldg., Spokane, Wash. **Officers:** Markus Lies, Pres., Cottonwood; W. H. Jones, Sec., Spokane, Wash.; A. W. Boyd, Mgr., Elk City. **Inc.:** Filed in Idaho Jan. 7, 1919. **Capital:** 250,000 shares; par value $1; all shares issued. **Property:** American Eagle and Fish Hawk groups; 26 patented, 10 unpatented claims, Elk City dist.; Elk City; Homestake group; Orogrande. **Remarks:** American Eagle, idle. Homestake group operated by lessees throughout the year. According to press reports a large tonnage of ore was developed and a contract let for driving a 2000-ft. crosscut at a lower elevation. These reports were to the effect that the crosscut was driven under contract, that the contractors had installed a gas-driven compressor and complete mining equipment, and that the enterprise had been incorporated as the Penman Mines Corporation.

HOMESTAKE PLACER MINE
Owner: M. Kleiner, Portland, Ore. **Property:** 8 unpatented placer claims, Ten Mile dist.; Golden. **Ore:** Placer gold. **Remarks:** Under lease and option to Russell Webb of Lapwai, who performed a small amount of work during the summer months, consisting principally of installation of hydraulicking equipment.

IDAHO GOLD DREDGING CO.
Office: Warren. **Officers:** E. T. Fisher, Pres.; J. R. Davies, Sec.; A. F. Baumhoff, Mgr., all of Warren. **Inc.:** Filed in Idaho: Aug. 12, 1931. **Capital:** 100 shares; par value $600; 85 shares issued. **Property:** Warren Meadows; 15 patented claims, held under lease and option, Warren dist.; Warren. **Plant:** Steam-driven dredge; 4 cu. ft. buckets, close connected; wood hull. **Ore:** Placer gold. **Men employed:** Average, 15. **Remarks:** This company's expenditure was one of the largest made in the State during the year. The property was acquired, the dredge purchased in Oregon, dismantled, transported to Warren by truck, reconstructed, and put into operation early in September. Press reports were to the effect that the gold recovered by the dredge proved that the ground had a high gold content.

IDAHO GOLDFIELDS, INC.
Office: 533 Exchange Nat. Bank Bldg., Spokane, Wash. **Officers:** E. R. Campion, Pres.; N. L. Wakeley, Sec., both of Spokane, Wash.; W. H. North, Mgr., Seattle, Wash. **Inc.:** May 10, 1930. **Capital:** 5,000,000 shares; par value 10c; 300,000 shares issued. **Property:** 8 unpatented claims, Simpson dist.; Lucile. **Ore:** Gold. **Remarks:** This company reports: This enterprise is based on the recovery of gold which cannot be detected by standard assaying methods.

IDAHO MOTHER LODE GOLD MINES CO.
Office: Lewiston. **Officers:** J. T. Wenstrom, Pres.-Mgr., Lewiston. **Inc.:** Filed in Idaho: July 16, 1931. **Capital:** 2,500,000 shares; no par value; 307,000 shares issued. **Property:** Franklin and Sacramento groups; 1 patented, 36 unpatented claims, Ten Mile dist.; Golden. **Development:** By 5 tunnels: No. 1, 82 ft. long; No. 2, 110 ft. long; No. 3, 512 ft. long; No. 4, 185 ft. long; No. 5, 120 ft. long. **Ore:** Gold.

IDAHO & NEVADA MINING CO.

Office: 1410 Alameda Drive, Portland, Ore. **Officers:** Richard Becker, Pres.; G. A. Johnson, Sec., both of Portland, Ore. **Inc.:** June 9, 1924; charter forfeited Nov. 30, 1929. **Capital:** 5,000,000 shares; par value 5c; 2,308,833 shares issued. **Property:** 8 unpatented claims, Elk City dist.; Elk City. **Development:** 1 short tunnel. **Plant:** MINE: Steam-driven hoist. MILL: 10 stamps, steam-driven. **Ore:** Gold. **Men employed:** Average, 2. **Remarks:** Annual labor only.

JUMBO MINING & MILLING CO., LTD.

Office: Lewiston. **Officers:** J. C. Jansen, Pres.; Mrs. Alice R. Lydon, Asst. Sec., both of Lewiston. **Inc.:** Aug. 13, 1902. **Property:** Jumbo group; 6 patented claims, Robins dist.; Orogrande. **Remarks:** Idle.

LONE PINE GROUP

Owner: F. O. Miiller, 735 Riverview Blvd., Clarkston, Wash.; S. O. Miiller, Supt., Lewiston. **Property:** Lone Pine group; 4 patented, 10 unpatented claims, Ten Mile dist.; Golden. **Development:** By 6 tunnels, totaling over 2100 ft. **Plant:** MINE: 160 cu. ft. G-D gas-driven compressor. MILL: 2-stamp mill, 1250-lb. stamps, water driven, supplemented by 30-h. p. semi-Diesel engine. **Ore:** Gold. **Men employed:** Average, 8. **Remarks:** A substantial tonnage of ore was milled, a new compressor installed, and development work maintained without interruption.

LONG TOM MINING CO.

Office: Weiser. **Officers:** Chas. Black, Pres.-Mgr.; Oscar Grace, Sec., both of Weiser. **Inc.:** Aug. 12, 1930. **Capital:** 500,000 shares; par value $1; 375,000 shares issued. **Property:** Cuban and West Goodenough groups; 6 unpatented claims, held under lease and option, Marshall Lake dist.; Burgdorf. **Development:** Cuban group, principally by a 600-ft. drift; West Goodenough, 330-ft. tunnel. **Ore:** Gold. **Men employed:** Average, 4. **Remarks:** Work under contract on both properties was maintained without interruption.

LUCKY FIVE MINING CO.

Office: P. O. Box 1182, Spokane, Wash. **Officers:** J. F. Hocking, Pres.; C. Clinkenbeard, Sec.-Mgr., both of Spokane. **Inc.:** Never filed in Idaho; form of organization unknown. **Capital:** 1,499,990 shares; par value 10c. **Remarks:** Failed to file the reports required by law.

McKINLEY GOLD MINING CO.

Office: Kellogg. **Officers:** P. P. Weber, Pres.; Geo. D. Lamielle, Sec., both of Kellogg. **Inc.:** Dec. 29, 1899. **Capital:** 1,500,000 shares; par value $1; 859,924 shares issued. **Property:** McKinley group; 4 patented, 4 unpatented claims, Simpson dist.; Lucile. **Development:** 4 tunnels: No. 1, 145 ft. long; No. 2, 1020 ft. long. Total development, approximately 1300 ft. **Ore:** Gold. **Remarks:** Annual labor only on unpatented claims. A stock assessment of 1 mill was levied on Feb. 10, 1931.

MAC B MINING & MILLING CO.

Office: Kooskia. **Officers:** Ole Bush, Pres., Madison, Kan.; W. A. McMurray, Sec., Kooskia. **Inc.:** Not incorporated. **Property:** 9 unpatented claims, Lowell dist.; Kooskia. **Development:** 1 short tunnel. **Ore:** Gold-silver-lead. **Remarks:** Under development throughout the year by the secretary.

MAMMOTH MINE CORPORATION

Office: Lewiston. **Officers:** R. S. Erb, Pres.; R. G. Bailey, Sec., both of Lewiston. **Inc.:** Feb. 25, 1925. **Capital:** 500,000 shares; par value $1; 288,082 shares issued. **Property:** Mammoth group; 6 unpatented claims, Dixie dist.; Dixie. **Development:** By 14 open cuts and 2 short tunnels. **Ore:** Gold. **Remarks:** Property under option to Mammoth Mining & Development Co.

MAMMOTH MINING & DEVELOPMENT CO.

Office: Dixie. **Officers:** Harry L. Nelson, Pres., Seattle, Wash.; G. W. Sommer, Sec., Spokane, Wash.; H. R. Flaiz, Mgr., College Place, Wash. **Inc.:** Apr. 29, 1929. **Capital:** 600,000 shares; par value $1; 518,498 shares issued. **Property:** Lease and option on property of Mammoth Mine Corporation. **Plant:** 170 cu. ft. G-D steam-driven compressor. **Ore:** Gold. **Men employed:** Average, 4. **Remarks:** Active stock-selling campaign. Press reports were to the effect that work was started on installing a "rotary mill."

MONTE CRISTO MINING CO.

Office: Lewiston Bank Bldg., Lewiston. **Officers:** A. P. Hagglund, Vice Pres.; J. T. Wenstrom, Sec., both of Lewiston. **Inc.:** Oct. 22, 1927. **Capital:** 200,000 shares; par value $1. **Property:** Monte Cristo group; 2 unpatented claims, Robbins dist.; Waverly; 1 patented claim, Florence dist. **Remarks:** Failed to file the reports required by law.

MOOSE CREEK PLACERS CO.

Office: Kellogg. **Officers:** George H. Kennett, Pres.; W. W. Papesh, Sec., both of Kellogg; Max R. Crosby, Mgr., Golden. **Inc.:** Nov. 22, 1927. **Capital:** 2,500,000 shares; par value 10c; 1,250,000 shares issued. **Property:** Moose Creek placers; 7 unpatented claims, 405 acres, Newsome dist.; Golden. **Ore:** Placer gold. **Men employed:** Average, 2. **Remarks:** A small amount of construction work during the year.

NEW YORK CONSOLIDATED MINES, INC.

Office: 563 Empire Bldg., Seattle, Wash. **Officers:** H. A. May, Sec., Seattle, Wash. **Inc.:** Oct. 27, 1931. **Capital:** 300,000 shares; par value 50c; 185,800 shares issued. **Remarks:** Supposed to have acquired the property of the Central Idaho Gold Mines, Inc.

NORTH HILL MINING CO.

Office: 223 Hutton Bldg., Spokane. **Officers:** J. M. McLean, Pres.; Ralston McCaig, Sec., both of Spokane. **Inc.:** Apr. 18, 1925. **Capital:** 1,500,000 shares; par value 1c; 861,649 shares issued. **Property:** Summit Flat group; 5 unpatented claims, Orogrande dist.; Orogrande. **Development:** Principally by 1 tunnel, 1150 ft. long. **Plant:** Steam-driven Gardner-Ricks compressor and hoist; camp; complete mining equipment. **Ore:** Gold. **Men employed:** Average, 2. **Remarks:** Annual labor only.

OHADI MINES CORPORATION

Office: 633 Central Bldg., Seattle, Wash. **Officers:** B. W. Dunn, Pres.; A. E. Barry, Sec., both of Seattle, Wash. **Inc.:** Sept. 21, 1931. **Capital:** 10,000 shares; par value $10; all shares issued. **Property:** Deadwood Gulch placer; 5 unpatented placer claims, held under lease and option, Elk City dist.; Elk City. **Ore:** Placer gold. **Remarks:** Small amount of prospecting for a period of 30 days.

OROGRANDE GOLD MINING CO.

Office: 1331 Old Nat'l Bank Bldg., Spokane, Wash. **Officers:** J. N. Pickrell, Pres., Colfax, Wash.; J. E. Pickrell, Sec., Spokane, Wash. **Inc.:** Mar. 14, 1919. **Capital:** 3,500,000 shares; par value $1; 1,805,722 shares issued. **Property:** Orogrande group; 5 patented, 29 unpatented claims, Orogrande dist.; Orogrande. **Development:** Approximately 6000 ft. of underground workings and 4000 ft. of surface cuts on all claims. **Plant:** Stamp mill with partly completed cyanide plant; water-driven. **Ore:** Gold. **Remarks:** Idle. In receivership. Receiver, F. J. Cunningham, Spokane, Wash.

PACIFIC CONSOLIDATED MINES, INC.

Office: 920 Joshua Green Bldg., Seattle, Wash. **Officers:** M. C. Johnson, Pres.; A. H. Anderson, Sec., both of Seattle, Wash. **Inc.:** Not filed in Idaho. **Capital:** 5,000,000 shares; par value 1 mill; 1,500,000 shares issued. **Property:** Bullion group; 7 unpatented claims, Orogrande dist.; Orogrande. **Ore:** Gold-silver.

PENMAN MINES CORPORATION

Office: 705 Yeon Bldg., Portland, Ore. **Officers:** Barry Cerf, Portland, Ore. **Remarks:** Name gleaned from press reports which were to the effect that this company controls the lease and option on the Homestake group of the Homestake Gold Mining Co.

PULLMAN MINING & MILLING CO.
Office: Pullman, Wash. **Officers:** A. C. Baker, Pres.; D. C. Dow, Sec., both of Pullman, Wash. **Inc.:** Dec. 26, 1911. **Capital:** 2,000,000 shares; par value $1. **Remarks:** This company has not filed the reports required by law since 1923. Newspaper reports are to the effect that it is active each year.

RAPID RIVER MINING & MILLING CO., LTD.
Office: Genesee. **Officers:** D. Scharnhorst, Pres.-Mgr.; J. G. Meyer, Sec., both of Genesee. **Inc.:** July 14, 1910. **Capital:** 1,500,000 shares; par value $1; 319,129 shares issued. **Property:** 11 unpatented claims, Rapid River; Pollock. **Development:** By 6 tunnels: No. 1, 600 ft. long; No. 2, 550 ft. long; No. 3, 200 ft. long; No. 4, 60 ft. long; No. 5, 110 ft. long; No. 6, 130 ft. long. **Ore:** Copper-gold-silver. **Remarks:** Annual labor only.

REVENUE MINING & MILLING CO.
Office: 511 Kuhn Blk., Spokane, Wash. **Officers:** J. E. McCormack, Pres.; Walter Guthridge, Sec.-Treas., both of 511 Kuhn Blk., Spokane, Wash. **Inc.:** Apr. 10, 1912. **Capital:** 500,000 shares; par value $1; July 31, 1930, par value decreased to 10c; 393,000 shares issued. **Property:** Revenue group; 8 patented claims, Elk City dist.; Elk City. **Development:** 2 tunnels: No. 1, 700 ft. long; No. 2, 100 ft. long. **Remarks:** Idle.

SALMON RIVER MINERS, INC.
Office: P. O. Box 207, Lewiston. **Officers:** C. C. Byers, Pres.-Mgr.; C. B. Cole, Sec., both of Lewiston. **Inc.:** Mar. 26, 1928. **Capital:** 10,000 shares; par value $1; 6000 shares issued. **Property:** 1 unpatented placer claim, Camp Howard dist.; Whitebird. **Ore:** Placer gold. **Remarks:** Annual labor only.

SALMON RIVER MINING & MILLING CO.
Office: 507 Empire State Bldg., Spokane, Wash. **Officers:** John Wm. Errington, Pres.-Mgr.; R. A. Daniels, Sec., both of Spokane, Wash. **Inc.:** June 8, 1931. **Capital:** 500,000 shares; par value 10c; no shares issued. **Property:** 29 unpatented claims, Simpson dist.; Riggins. **Ore:** Gold. **Remarks:** Newspaper reports quoted one of the directors of this company to the effect that the gold could not be determined by usual methods of assaying, but that it could be recovered by a special electrolysis method. The recovery of gold which cannot be detected by assaying is unknown to mining science, notwithstanding this company's assertions.

SECESH DREDGING SYNDICATE
Office: 311 Hyde Bldg., Spokane, Wash. **Officers:** J. N. Rice, Pres.; S. S. Bassett, Sec., both of Spokane, Wash. **Inc.:** Not filed in Idaho. Common law trust. **Capital:** 1,000 shares; par value $100; no shares issued. **Property:** 22 unpatented claims, Warren dist.; Burgdorf. **Ore:** Placer gold. **Remarks:** Other than an active attempt to sell stock, the activities of this organization are unknown.

SENTINEL MINES CORPORATION
Office: Lewiston. **Officers:** D. E. Steiner, Pres., Golden; J. C. Tyler, Sec., Lewiston. **Inc.:** Mar. 14, 1930. **Capital:** 50,000 shares; par value $1; 30,400 shares issued. **Property:** 5 claims, Ten Mile dist.; Golden. **Development:** Principally by 1 tunnel 800 ft. long. **Ore:** Gold. **Remarks:** Annual labor only.

SHERMAN HOWE MINING CO.
Office: Burgdorf. **Officers:** A. W. Walker, Pres., Burgdorf; J. W. David, Sec.; V. W. Bailey, Mgr., all of Burgdorf. **Inc.:** Mar. 19, 1929. **Capital:** 250,000 shares; par value $1; all shares issued. **Property:** Walker-Wilcox group; 45 unpatented claims, Marshall Lake dist.; Burgdorf. **Development:** Principally by 3 tunnels: No. 1, 850 ft.; No. 2, 2200 ft.; total development approximately 5600 ft. **Plant:** MINE: I-R compressor; complete mining equipment and camp. MILL: 150-ton, fine-grinding amalgamation and flotation. POWER: 250-h. p. Diesel engine, direct connected to electric generator; 3-mile transmission line. **Ore:** Gold. **Men employed:** Average, 90. **Remarks:** This company's property adjoins that of the Golden Anchor Mining Co. and covers the western extension of the Holte

vein system. This was one of the principal new enterprises to start in the State during 1929, and continued without interruption throughout 1930 and until October, 1931. Additional camp buildings were completed, mine plant enlarged, and production and development work maintained. This company's production was one of the largest in the county.

SLATE CREEK GOLD MINING CO.

Office: Whitebird. **Officers:** G. A. Thomson, Pres.; W. W. White, Sec., both of Whitebird. **Inc.:** Sept. 21, 1925. **Capital:** 600,000 shares; par value 50c. **Property:** 480 acres of deeded land, Simpson dist.; Lucile. **Ore:** Gold. **Remarks:** Idle.

SOUTH FORK MINING & MILLING CO.

Officers: C. A. Davis, Parker, Wash. **Inc.:** Oct. 26, 1931. **Capital:** 50,000 shares issued; par value $1; shares issued, unknown. **Remarks:** Failed to file the reports required by law.

SPRING BARR PLACER CO.

Office: Victoria Hotel, Spokane, Wash. **Officers:** N. L. Wakeley, Pres.; Thomas R. L. Harris, Sec., both of Spokane, Wash.; R. E. Wakeley, Mgr., Lucile. **Inc.:** May 14, 1927. **Capital:** 25,000 shares; par value $1; 20,502 shares issued. **Property:** Spring Barr group; 3 unpatented placer claims, Simpson dist.; Lucile. **Ore:** Placer gold. **Remarks:** Annual labor only.

SYLVANITE GOLD-COPPER CO.

Office: 504 Mohawk Bldg., Spokane, Wash. **Officers:** Wesley L. Wakeley, Pres.-Mgr., Lucile; G. E. Lovell, Sec., Spokane, Wash. **Inc.:** Aug. 20, 1919. Charter forfeited Dec. 1, 1930. **Capital:** 100 shares; par value $100; all shares issued. **Property:** Maud Randall group; 5 unpatented claims, 2 of which are held under lease and bond from Joseph Himmelspack of Grangeville; Harpster dist.; Harpster. **Development:** By 2 tunnels: No. 1, 825 ft. long; No. 2, 120 ft. long. **Plant:** Gas-driven Gardner-Ricks 6x6 compressor; complete mining equipment. **Ore:** Copper. **Remarks:** Annual labor only.

TRI-METALLIC MINING CO., LTD.

Office: Pardee, Idaho. **Officers:** Miss Frieda M. Bethmann, Pres.; Miner Bethmann, Mgr., both of Pardee. **Inc.:** Sept. 26, 1917. **Capital:** 250,000 shares; par value $1; 146,866 shares issued. **Property:** Tri Metallic group; 4 unpatented claims, Lolo dist.; Pardee. **Development:** By 3 tunnels: No. 1, 520 ft.; No. 2, 185 ft.; No. 3, 950 ft. **Ore:** Gold-silver-copper. **Remarks:** Annual labor only.

UNA MINE CO.

Office: 223 Hutton Bldg., Spokane, Wash. **Officers:** J. M. McLean, Pres; Ralston McCaig, Sec.-Mgr., both of Spokane. **Inc.:** Feb. 6, 1925. **Capital:** 1,250,000 shares; par value 1c; 886,400 shares issued. **Property:** Una group; 4 unpatented claims, Orogrande dist.; Orogrande. **Development:** By 1 tunnel 1155 ft. long. **Ore:** Gold. **Men employed:** Average, 2. **Remarks:** Annual labor only.

UNITY GOLD MINES CO.

Office: 120 Broadway, New York City. **Officers:** Lorren M. Hart, Pres.; J. B. Neumuller, Sec., both of New York City; Granville T. Eyman, Mgr., Warren. **Inc.:** May 25, 1916. **Capital:** 500,000 shares; par value $5; all shares issued. **Property:** Little Giant and Rescue groups; 10 patented, 14 unpatented claims, Warren dist.; Warren. **Development:** Over 10,000 ft. of underground workings, the principal of which is the Unity or main crosscut tunnel, which is 5400 ft. in length. **Plant:** MINE: Storage-battery locomotive haulage; one 300-cu.-ft. and one 700-cu.-ft. electrically driven compressor; complete mining equipment. MILL: 10-stamp mill, 1000-lb. stamps, simple amalgamation. POWER PLANTS: A 50-h. p. hydroelectric plant on Warren Creek and a 600-h. p. hydroelectric plant on Elk Creek, the latter consisting of 2 units driven by Pelton impulse water wheel operating under a vertical head of 415 ft.; 9½-mile transmission line connecting power plant and mine. **Ore:** Gold. **Remarks:** Idle. Property sold under two attachment proceedings.

YAKIMA-GOLDEN MINING CO.

Office: 320 West Yakima Ave., Yakima, Wash. **Officers:** J. F. Brand, Pres.; W. W. Slorah, Sec., both of Yakima, Wash. **Inc.:** Filed in Idaho: Jan. 7, 1931. **Capital:** 1,000,000 shares; no par value; 603,480 shares issued. **Property:** 22 unpatented claims, Ten Mile dist.; Golden. **Development:** By 2 short tunnels. **Ore:** Gold-silver. **Men employed:** Average, 2.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Ajax No. 2 Gr.	Robbins	H. M. Glidden Est.	Spokane, Wash.
Alberta Gr.	Elk City	Geo. Carter	Jackson, Mich.
Alhambra Gr.	Robbins	Old Nat. Bank	Spokane, Wash.
Alligator Gr.	Robbins	Buffalo Hump L. L. M. Co.	A. B. Chapman, 1309 Summit Av., Seattle, Wash.
American Bar Pl.	Unorganized	Lula M. Unzicker	Cottonwood
American Gr.	Robbins	E. C. Dorris	Yakima, Wash.
Anaconda	Unorganized	J. Himmelspak	Grangeville
Atlas Gr.	Robbins	E. P. Adkison	Lewiston
Baby	Robbins	R. J. McConnell	Grangeville
Baner Gr.	Elk City	Frank Baner	Elk City
Banner Gr.	Florence	Old Nat. Bank	Spokane, Wash.
Bengal	Elk City	Perry Bros.	Elk City
Big Buffalo Gr.	Robbins	Sweeney Inv. Co.	Portland, Ore.
Black Bear	Robbins	H. J. High	Lewiston
Black Diamond Gr.	Dixie	R. Kleesattel	Elk City
Black Pine	Elk City	R. Kleesattel	Elk City
Black Sam Gr.	Newsome	Thos. A. Marlow	Helena, Mont.
Blue Bird Gr.	Harpster	Lydia M. Flynn	Stites
Blue Bird Pl.	Harpster	John P. Kee	Grangeville
Blue Lead Gr. Pl.	Harpster	M. B. Geary Est.	Grangeville
Blue Ribbon	Elk City	J. E. Brown	Elk City
Broadwater Gr.	Robbins	Mrs. M. N. Parker	Grangeville
Brown Gr.	Warren	Frank H. Brown Est.	Warren
Buck Diggins Pl.	Warren	John Becker	Warren
Buffalo Chief	Robbins	Mrs. I. F. DeVinney	2202 Champline St., Wheeling, W. Va.
Bullion Lode	Florence	M. Katherine Cooke	Spokane, Wash.
Buster Gr.	Elk City	F. W. Bradley	San Francisco, Cal.
Capt. Clark Gr.	Robbins	Sylvia Koch	1228 Oak Ave., Evanston, Ill.
Center Star	Elk City	Herman Brown	Elk City
Chicago et al.	Elk City	R. Greckwell	Elk City
China Garden Pl.	Camp Howard	Bertha Chandler	Grangeville
Cleveland Gr.	Elk City	W. W. Brown, Trustee	Grangeville
Clyde Gr.	Robbins	Sweeney Inv. Co.	Portland, Ore.
Colonel Gr.	Robbins	Wilbert H. Parks	Hampton, Iowa
Columbia	Elk City	John Massam	Elk City
Comstock & Dillinger Gr.	Dixie	Cleora H. Minear	Tacoma, Wash.
Concord Gr.	Robbins	Mrs. Carrie M. Stone	75 Federal St., Boston, Mass.
Congress Gr.	Elk City	S. W. Smith	Palo Alto, Cal.
Copper Bell Gr.	Camp Howard	Harry Allen	Merrill, Wis.
Crackerjack Gr.	Robbins	J. H. Howard	Elks Club, Long Beach, Cal.
Crooked Cr. Pl.	Dixie	S. R. Gayton	Philadelphia, Pa.
Crooked River Pl.	Elk City	George Brown	Orogrande
Crystal Lake	Robbins	Arthur D. Jones	Spokane, Wash.
Cuban	Marshall Lake	G. E. Hyatt	Burgdorf
Dandy Pl.	Simpson	E. W. Butcher	Lucile
Deadwood Pl. Gr.	Elk City	Chas. Forman	Los Angeles, Cal.
Denver Gr.	Camp Howard	J. H. Savage	Humboldt, Iowa
Dewey Gr.	Harpster	F. W. Watson	Portland, Ore.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Dice Gr.	Robbins	E. M. Griffith	Lewiston
Eureka	Robbins	Pete Klinkhammer	Orogrande
Evergreen Gr.	Clearwater	Carolyn Wagner	Portland, Ore.
Fall Cr. Pl.	Marshall Lake	H. H. Hackett	Burgdorf
Fourth of July	Dixie	Thomas Pritchard	Dixie
Franklin et al.	Robbins	Mrs. Louise Pelikan	Spokane, Wash.
Franklin Gr.	Ten Mile	A. S. Johnson	Golden
Frisco Gr.	Elk City	E. J. Comley	Elk City
Gilt Edge	Ten Mile	Crosby & Dailey	Golden
Glenn Pl. Gr.	Robbins.	E. P. Adkison	Lewiston
Gold Copper Lode	Elk City	Jas. J. McCarthy	Los Angeles, Cal.
Gold Crown Gr.	Robbins	Chas. Schultz	Orogrande
Gold Dove	Elk City	Pat Brennan	Elk City
Gold Drop	Elk City	Geo. W. Widemeyer	Elk City
Gold Nugget Pl.	Unorganized	A. M. Anderson	Cripple Creek, Colo.
Golden Rule Pl.	Warren	A. L. Freehafer	Payette
Goldsmith Pl.	Unknown	Virgil Remington	Grangeville
Great Western Gr.	Crooks Corral	James McCalla	Lucile
Grubstake	Robbins	Geo. M. Utterback	Seattle, Wash.
Grubstake Pl.	Rapid River	Chas. Howland	Riggins
Haig & Haig	Orogrande	R. McGregor	Elk City
Hawkeye	Warren	J. T. Murphy	Warren
Hercules	Elk City	Alex Hendrie	125 Kent St., Hamilton, Ont
Hobo & Superior Gr.	Clearwater	Mary J. Oliver	Grangeville
Hope Gr.	Elk City	Schuyler Simmons	Elk City
Horseshoe Bend Pl.	Unknown	Mrs. Verna Campbell	Moscow
Iola Gr.	Warren	Sigo Myers	Atlanta, Ga.
Jackson Gr.	Lolo	Othilie C. Jack	Pardee
James Moore	Dixie	James Moore	Dixie
Jumbo Ext.	Robbins	R. J. McConnell	Grangeville
Jupiter Gr.	Marshall Lake	D. D. Standish	Burgdorf
Kansas Gr.	Camp Howard	F. L. Allen	Canfield
Katie B. Pl.	Simpson	Carrie R. Hill	Boise
Key West Gr.	Orogrande	Edw. Hansen Est.	Orogrande
Kimberley & Jewel Gr.	Marshall Lake	D. L. Roy	Burgdorf
Lajulla Pl. et al.	Camp Howard	R. W. Wyatt	Whitebird
Last Chance	Elk City	James P. Larson	Elk City
Laughing Water Gr.	Warren	C. H. Steffen	Council
Laurel Hill	Elk City	Pat Brennan	Elk City
Liberty et al.	Florence	Claude W. Reeder	Florence
Liberty Bell et al.	Robbins	E. M. Griffith	Lewiston
Little Johnnie et al.	Marshall Lake	B. B. Houston	Mesa
Loper	Marshall Lake	George Loper	Burgdorf
Lost Lake	Robbins	R. McGregor	Elk City
Lost Lake Fr.	Robbins	Chas. V. Wadham	Spokane, Wash.
Lucky Ben Gr.	Warren	Jay A. Czizek	Boise
Lucky Strike	Warren	Grindle & Curtis	Warren
Madre d'Oro Gr.	Elk City	S. W. Litchfield	Elk City
Marshall Lake Pl.	Marshall Lake	C. V. McHone	Kooskia
Mascot et al.	Elk City	John Massam	Elk City
Mayflower	Warren	Otis Morris	Warren
Meadow Cr. Pl.	Unknown	Ladd Investment Co.	Portland, Ore.
Mermack	Robbins	W. H. Stowell Est.	Spokane, Wash.
Mikado Gr.	Florence	J. W. Jesse	Dayton, Wash.
Mineral Zone et al.	Elk City	G. L. Baskett Est.	Elk City
Mollie Gibson Gr.	Robbins	Margaret M. Powell	Clarkston, Wash.
Monitor Lode	Dixie	Mrs. Sophia Stantial	Los Angeles, Cal.
Morning Star Gr.	Lolo	Daniel Dougherty	Anaconda, Mont.
Mother Lode	Elk City	Geo. Brown	Orogrande
Mount Marshall Gr.	Marshall Lake	G. A. Green	Grangeville

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
New Jersey	Elk City	Condit Bros.	Elk City
Newsome Cr. Pl.	Newsome	H. S. Roberts	Grangeville
Nugget Pl.	Orogrande	Geo. Brown	Elk City
Occidental Gr.	Orogrande	Frank A. Baner	Elk City
Occidental Gr. Pl.	Clearwater	Mrs. Ida F. De Vinney	Wheeling, W. Va.
Old Kentuck	Marshall Lake	H. H. Hackett	Burgdorf
Olivia Gulch	Dixie	Henry S. Hazlitt	Dixie
Ontario Lode	Dixie	J. B. McDonald	Grangeville
Oregon Gr.	Rapid River	W. J. Moore	Tipton, Iowa
Pacific Gr.	Elk City	Alec. Leggat	Butte, Mont.
Paymaster	Ramey Ridge	Mattie Mahan	Warren
Poorman	Orogrande	J. H. Colgrove	Fresno, Cal.
Quaker Gr.	Robbins	Earl B. Crane	Wenatchee, Wash.
Queen Gr.	Elk City	Grant Litchfield	Elk City
Queen of the West	Florence	Evan Evans	Boise
Rapid Creek	Warren	Frank Mitchell	Warren
Red Deer Pl.	Robbins	J. W. Bringolf	.....
Red Elk Gr. Pl.	Elk City	Geo. Carter	Jackson, Mich.
Red Horse Pl.	Elk City	Schuyler Simmons	Elk City
Red Warrior	Orogrande	Frank Peck	Orogrande
Reservation	Cottonwood Buttes	J. L. Eckert Est.	Cottonwood
Ridley Gr. Pl.	Unknown	Nettie Deasy	Spokane, Wash.
Riverview Gr.	Camp Howard	E. O. Kirkham	Trident, Mont.
Sacramento	Ten Mile	M. H. Williams	Grangeville
St. Louis	Robbins	Mrs. Carrie M. Stone	75 Federal St., Boston, Mass.
Salmon Point Bar Pl.	Rapid River	M. O. Cox	Riggins
San Francisco	Robbins	Felix A. Raney	Modesto, Cal.
Saturday Pl.	Robbins	Wm. Allen	Elk City
Shamrock et al.	Marshall Lake	H. H. Hackett et al.	Burgdorf
Shissler Cr. Pl.	Warren	H. Cook	Warren
Shorty's Bar Pl.	Camp Howard	Hans L. Hagen	Grangeville
Silver King Gr.	Warren	Sigo Myers	Savannah, Ga.
South Fork Gr.	Elk City	Wm. Badler	c/o W. D. Scott, Spokane, Wash.
Squaw Bar Pl.	Simpson	U. S. Nat. Bank	Portland, Ore.
Stanton Eddy & Sherwin Pl.	Unknown	P. E. Sherwin Est.	Grangeville
Subway Gr.	Orogrande	H. W. Harris	Elk City
Surprise Gr.	Dixie	J. R. Painter	Dixie
Tacoma Pl.	Camp Howard	Chas. Lyons	Whitebird
Tennessee	Robbins	Tryphena Taylor	Lewiston
Thomas Malone Pl.	Unorganized	Frank G. Hatke	Kuterville
Three Mile Pl.	Marshall Lake	Jensen Bros.	Burgdorf
Tippie Pl.	Ten Mile	C. H. Whinery	Clarkston, Wash.
Tivola	Elk City	George Braig	Elk City
Trout Gr.	Elk City	Geo. Trout	Elk City
Two B Bar Pl.	Camp Howard	C. C. Byers	Lewiston
Twin Butte et al.	Orogrande	Frank M. Peck	Orogrande
Uncle Sam	Elk City	J. E. Brown	Elk City
Union Gr.	Orogrande	Robert Pulz Est.	Orogrande
Venture Gr.	Robbins	James M. Martin	Orogrande
Winslow	Robbins	Mr. Ed Heightsman	Ontario, Ore.
Wise Boy	Robbins	E. N. Oliver Est.	Grangeville
Wolverine	Elk City	Geo. M. Carter	Jackson, Mich.
Wonder Gr.	Ten Mile	Dr. W. D. Cowan	Grangeville
Yale	Robbins	J. M. Shissler	Grangeville
Yankee Boy	Robbins	D. A. Sasenbery	Grangeville
Yankee Girl	Robbins	P. Klinkhammer	Orogrande

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

A geological reconnaissance across Idaho, by G. H. Eldridge: U. S. Geol. Survey Sixteenth Ann. Rept., pt. 2, pp. 217-276, **1895.***

The Deadwood placer claims, Idaho, by W. H. Hill: Eng. and Min. Jour., vol. 60, pp. 225-226, Sept., **1895.**§

The Little Giant mine, Warren, Idaho, by W. H. Hill: Eng. and Min. Jour., vol. 62, p. 417, **1896.**§

Mining districts of Idaho Basin and the Boise Ridge, Idaho, by Waldemar Lindgren: U. S. Geol. Survey Eighteenth Ann. Rept., pt. 3, pp. 625-716, **1898.***

Central Idaho gold field, by Don Maguire: Mines and Minerals, vol. 19, pp. 289-291, February, **1899.***

The Buffalo Hump mining camp, Idaho, by C. H. Whittle: Eng. and Min. Jour., vol. 68, pp. 215-216, Aug. 19, **1899.**§

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey Twentieth Ann. Rept., pt. 3, pp. 75-256, **1900.***

Buffalo Hump, Idaho, by D. G. Doubleday: Mines and Minerals, vol. 21, pp. 296-298, February, **1901.***

Geology and water resources of Nez Perce County, Idaho, by I. C. Russell: U. S. Geol. Survey Water-Supply Papers 53 and 54, **1901.**‡*

Mineral deposits of the Bitterroot Range and Clearwater Mountains, Montana, by Waldemar Lindgren: U. S. Geol. Survey Bull. 213, pp. 66-70, **1903.***

Thunder Mountain, by W. E. L'Hame: Mines and Minerals, vol. 24, pp. 207-209, December, **1903.***

A geological reconnaissance across the Bitterroot Range and Clearwater Mountains in Montana and Idaho, by Waldemar Lindgren: U. S. Geol. Survey Prof. Paper 27, **1904.***

Central Idaho gold district, by S. P. Jellum: Northwest Min. News, vol. 3, pp. 83-91, 107-114, 134-139, **1908**; vol. 4, pp. 2-6, 31-37, 66-73, **1909.***

Asbestos of Kamiah, Idaho, by J. S. Diller: Asbestos in the United States, U. S. Geol. Survey Bull. 470, pp. 519-520, **1910.***

Development of the Elk City district, Idaho, by B. K. Welch: Min. World, vol. 32, pp. 65-66, Jan. 8, **1910.***

Mining and milling in Elk City district, by B. K. Welch: Min. and Eng. World, vol. 37, pp. 391-392, Aug. 31, **1912.***

Buffalo Hump mining district, by A. L. Flagg: Min. and Eng. World, vol. 38, pp. 813-814, **1913.***

The Elk City mining district, Idaho County, Idaho, by A. L. Flagg: Am. Inst. Min. Eng. Trans., vol. 45, pp. 113-122, **1913.**§

Geology and ore deposits of the Dixie mining district, Idaho, by D. C. Livingston and C. A. Stewart: Univ. of Idaho School of Mines Bull. 2, vol. 9, **1914.***

The Orofino coal field, Clearwater, Lewis and Idaho counties, Idaho, by C. T. Lupton: U. S. Geol. Survey Bull. 621, pp. 99-108, **1915.***

Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****

A preliminary report on the clays of Idaho, by F. H. Skeels: Idaho Bureau of Mines and Geology Bull. 2, p. 59, **1920.***

The copper deposits of the Seven Devils and adjacent districts, by D. C. Livingston and F. B. Laney: Idaho Bureau of Mines and Geology Bull. 1, **1920.***

Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 60, art. 3, pp. 1-33, **1921.**‡

Central Idaho—A rugged mining region, by G. J. Bancroft: Eng. and Min. Jour., vol. 113, pp. 438-441, Mar. 18, **1922.**§

Geology and gold resources of north-central Idaho, by F. A. Thomson and S. M. Ballard: Idaho Bureau of Mines and Geology Bull. 7, **1924.****

Gold veins of sundry areas in the Idaho batholith, by F. A. Thomson: Eng. and Min. Jour.-Press, vol. 118, pp. 533-540, Oct. 4, **1924.**§

Gold veins of central Idaho, by H. M. Roberts: Eng. and Min. Jour.-Press, vol. 118, no. 19, pp. 741-742, Nov. 8, **1924.***
Quartz veins of the Buffalo Hump, by R. H. Beckwith: Pan-Am. Geologist, vol. 46, No. 2, pp. 111-120, Sept. **1926.**§
Geological setting of Idaho batholith, by R. H. Beckwith: Pan-Am. Geologist, vol. 45, no. 5, pp. 359-376, June, **1926.***
Ore deposition at Buffalo Hump (Idaho), by R. H. Beckwith: Pan-Am. Geologist, vol. 48, no. 3, pp. 191-194, October, **1927.***
The geology and ore deposits of the Buffalo Hump district, by R. H. Beckwith: New York Acad. Sci. Annals, vol. 30, pp. 263-296, Oct. 17, **1928.***
Genesis of the anthophyllite deposits near Kamiah, Idaho, by A. L. Anderson: Jour. Geology, vol. 39, No. 1, pp. 68-81, January-February, **1931.****

KOOTENAI COUNTY

Kootenai is one of the northern counties and constitutes an important part of the Idaho Panhandle. It is bounded on the west by the State of Washington, on the north by Bonner County, on the east by Shoshone County, and on the south by Benewah County. It contains an area of 1,253 square miles and was accredited with a population of 19,469 in the 1930 census. The principal industries are lumbering, dairying, and farming. Its lumbering industry is the most important and the largest in the State.

The county is exceptionally fortunate with respect to transportation facilities. It is served by three State highways, one of which is completed, and the other two partly so; by six railroads, which include main lines or their branches; and by lake boats on Lakes Pend d'Oreille and Coeur d'Alene. Coeur d'Alene is the largest town and county seat.

The principal mining districts are the Little North Fork of the Coeur d'Alene River, Hayden Lake, and isolated sections bordering on Lake Coeur d'Alene, throughout which zinc, lead, silver, copper, gold, arsenic, and high-grade clays occur. A limited amount of development work has been done on some of the veins, with encouraging results, and many others are worthy of further attention.

1931 Activities

The Beauty Bay section witnessed a large amount of development work throughout the year. The work done by practically all of the companies holding property in this section greatly exceeded the annual labor requirements. The principal operators were: Blue Bird Mining Co., Caribou Mining Co., Ltd., Radio Mining Co., Royal Mining Co., Silvertip Mining Association, and J. G. Sullivan, at the Shamrock mine. The Coeur d'Alene-Beauty Bay Mining & Milling Co., a custom-mill enterprise, based on milling the ores from all of the mines in this section, completed construction and adjustment of its mill.

In the Hayden Lake district, the Burnt Cabin Mining Co., the Commonwealth Metals Co., and the Connie Mining & Milling Co. were active throughout the year, and all did a substantial amount of development work. Press reports were to the effect that an enterprise known as the Ramsey Oil Project had installed drilling equipment and had sunk a well approximately 1,500 feet deep. As such a concern has never filed articles of incorporation nor the reports required by law, the inspector does not know whether the press statements are correct or not.

BEAUTY BAY MINING CO.

Office: Coeur d'Alene. **Officers:** John Marshall, Pres.-Mgr.; E. V. Boughton, Sec., both of Coeur d'Alene. **Inc.:** Mar. 31, 1923. **Capital:** 1,000,000 shares; par value 5c. **Remarks:** Failed to file the reports required by law.

BLUE BIRD MINING CO.

Office: Coeur d'Alene. **Officers:** Harry Phillips, Pres.-Mgr., Coeur d'Alene. **Inc.:** Sept. 2, 1924. **Capital:** 1,000,000 shares; par value 10c; 379,500 shares issued. **Property:** Blue Bird group; 9 unpatented claims, Beauty Bay and Wolf Lodge districts; Coeur d'Alene. **Development:** Principally by 1 tunnel 180 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** Tunnel extended 60 ft. during the year.

BURNT CABIN MINING CO.
Office: Coeur d'Alene. **Officers:** E. L. Overjorde, Pres.; Geo. M. Servick, Sec., both of Coeur d'Alene. **Inc.:** Apr. 28, 1926. **Capital:** 1,500,000 shares; par value 10c; 675,721 shares issued. **Property:** 15 unpatented claims, Hayden Lake dist.; Garwood. **Development:** 3 short tunnels. **Plant:** Steam-driven hoist and compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 4. **Remarks:** Active development work throughout the summer months, the funds for which were derived from stock assessments.

CARIBOU MINING CO., LTD.
Office: Coeur d'Alene. **Officers:** F. W. Reed, Pres.; C. O. Sowder, Sec., both of Coeur d'Alene. **Inc.:** July 5, 1918. **Capital:** 1,500,000 shares; par value 10c; 1,398,363 shares issued. **Property:** Caribou group; 10 unpatented claims, Wolf Lodge dist.; Coeur d'Alene. **Development:** Total development approximately 1685 ft.; consisting principally of No. 2 tunnel, 555 ft. long, and No. 3 tunnel, 790 ft. long. **Plant:** Gas-driven Gardner-Rix compressor; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** Active development work during the summer months.

COEUR D'ALENE-BEAUTY BAY MINING & MILLING CO.
Office: Coeur d'Alene. **Officers:** J. C. White, Vice Pres.; C. O. Sowder, Sec., both of Coeur d'Alene. **Inc.:** July 31, 1929. **Capital:** 25,000 shares preferred, par value $10; 10,000 shares common, no par value; 1704 shares preferred, 471 shares common issued. **Property:** MILL: 50-ton gas-driven flotation concentrator. **Remarks:** This enterprise was organized to conduct a custom milling business based on treating the ores from all of the mining companies operating in the Beauty Bay section. Mill construction completed during the year.

COEUR D'ALENE CLAY CO., LTD.
Office: 102 Wallace Ave., Coeur d'Alene. **Officers:** Oscar Nelson, Pres.; H. H. Barton, Sec.-Treas., both of Coeur d'Alene. **Inc.:** Apr. 6, 1912. **Capital:** 100,000 shares; par value $1; 18,882 shares issued. **Property:** 40 acres patented land near Coeur d'Alene. **Plant:** 1 incomplete brick-making machine, 20,000-brick capacity.

COEUR D'ALENE MOUNTAIN MINING CO.
Office: Coeur d'Alene. **Officers:** James E. McDonnell, Pres.; H. H. Barton, Sec., both of Coeur d'Alene. **Inc.:** May 29, 1929. **Capital:** 500,000 shares; par value 10c; 220,132 shares issued. **Property:** 7 unpatented claims, Wolf Lodge dist.; Coeur d'Alene. **Development:** 1 short tunnel. **Plant:** Gas-driven compressor. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Annual labor only.

COEUR D'ALENE OIL & DEVELOPMENT CO.
Office: Coeur d'Alene. **Officers:** L. T. Severson, Pres.; Alex Barclay, Sec.-Mgr., both of Coeur d'Alene. **Inc.:** Nov. 19, 1927. **Capital:** 100,000 shares; par value $1; 92,760 shares issued. **Property:** 6000 acres patented farm land in the vicinity of Hayden Lake; held under oil and gas leases. **Development:** 2000-ft. well. **Plant:** Armstrong gas-driven rig and drilling equipment. **Remarks:** Failed to file the reports required by law.

COEUR D'ALENE-SPOKANE MINING CO.
Officers: C. A. Spaulding, Pres.; Bessie Bryte, Sec., both of Helena, Mont. **Inc.:** Sept. 6, 1918. **Capital:** 1,000,000 shares; par value $1; 500,000 shares issued. **Property:** Strobel group; 3 patented claims, unorganized dist.; Lane. **Ore:** Lead-silver. **Remarks:** Idle.

COMMONWEALTH METALS CO.
Office: Coeur d'Alene. **Officers:** Chas. Killian, Pres.; F. W. Reed, Sec., both of Coeur d'Alene. **Inc.:** Mar. 19, 1924. **Capital:** 2,375,000 shares common, par value $1; 125,000 shares preferred, par value $1; 99,068 shares common, 7,728 preferred issued. **Property:** Commonwealth group; 7 unpatented claims, Hayden Lake dist.; Coeur d'Alene. **Development:** By 2 tunnels: No. 1, 470 ft.; No. 2, 80 ft.; a vertical shaft 325 ft. deep;

and 2 inclined shafts, 150 and 225 ft. deep. **Plant:** Steam-driven I-R compressor; gas-driven hoist; complete mining equipment and camp. **Ore:** Lead-silver-copper. **Remarks:** Annual labor only. A stock assessment of 1c was levied on April 6.

CONNIE MINING & MILLING CO.

Office: 307 Ziegler Bldg., Spokane, Wash. **Officers:** E. C. Gralappe, Pres.; E. F. Gerkensmeyer, Sec., both of Spokane. **Inc.:** July 11, 1927. **Capital:** 4,000,000 shares; par value 10c; 2,300,000 shares issued. **Property:** Chilco group; 11 unpatented claims, Hayden Lake dist.; Hayden Lake. **Development:** By 1 tunnel 725 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** This company is a reorganization of the Chilco Mining & Milling Co. The tunnel was extended a short distance during the year.

GRAY WOLF MINING CO.

Office: Coeur d'Alene. **Officers:** Paul Schroder, Pres.-Mgr.; E. T. Knudson, Sec., both of Coeur d'Alene. **Inc.:** May 18, 1917. **Capital:** 1,500,000 shares; par value 10c. **Remarks:** Failed to file the reports required by law.

GREAT WESTERN COPPER CO., INC.

Office: Coeur d'Alene. **Officers:** Jackson C. Hill, Pres.-Mgr., Lane; George Lee, Sec., Richmond, Calif. **Inc.:** Filed in Idaho: Nov. 20, 1931. **Capital:** 200,000 shares; par value $1; 7,400 shares issued. **Property:** 4 unpatented claims, Hayden Lake dist.; Hayden Lake. **Development:** 1 short tunnel. **Ore:** Copper-gold-silver-lead. **Remarks:** Failed to file the reports required by law. The president reported that this company owned a property near Lane, which was being developed by a lessee.

HAMBURG AMERICAN COPPER MINING & MILLING CO.

Office: Kellogg. **Inc.:** Nov. 30, 1908. **Capital:** 1,500,000 shares; par value $1. **Remarks:** Has failed to file the reports required by law since 1928.

HAYDEN LAKE MINING & MILLING CO.

Office: Rathdrum. **Officers:** Fred H. Bradbury, Pres.; Chas. E. Gillespie, Sec., both of Rathdrum. **Inc.:** May 8, 1917. **Capital:** 1,000,000 shares; par value 5c; 900,743 shares issued. **Property:** Bradbury group; 16 unpatented claims, Hayden Lake dist.; Garwood. **Development:** By 2 tunnels: No. 1, 1600 ft.; No. 2, 800 ft. **Plant:** Small gas-driven compressor; complete mining equipment. **Ore:** Lead-silver-copper. **Remarks:** Failed to file the reports required by law.

LITTLE NORTH FORK COPPER MINING & MILLING CO., LTD.

Officers: T. R. Mason, Pres., Kellogg. **Inc.:** Sept. 29, 1903. **Capital:** 1,500,000 shares; par value $1; 1,250,000 shares issued. **Property:** Hand Spike group; 3 patented claims, Little North Fork dist.; Linfor. **Development:** 2 tunnels: No. 1, 1700 ft. long; No. 2, 500 ft. long. **Ore:** Copper.

PALISADE MINING & MILLING CO.

Office: Coeur d'Alene. **Officers:** T. W. Schmidt, Pres.-Mgr., Coeur d'Alene; A. K. Rogers, Sec., E. 1301 Providence Ave., Spokane, Wash. **Inc.:** Jan. 31, 1912. **Capital:** 1,500,000 shares; par value $1; 1,156,874 shares issued. **Property:** Palisade group; 16 unpatented claims, unorganized dist.; Kellogg. **Development:** Approximately 1250 ft. of tunnels, the principal of which is No. 2, 1130 ft. long. **Ore:** Silver-lead. **Remarks:** Annual labor only, the funds for which were derived from stock assessments.

RADIO MINING CO.

Office: 811 Riverside, Coeur d'Alene. **Officers:** W. P. Brennan, Pres.-Mgr., Coeur d'Alene; G. M. Palmerton, Sec., Pullman, Wash. **Inc.:** Dec. 13, 1928. **Capital:** 1,500,000 shares; par value 10c; 1,118,000 shares issued. **Property:** 5 unpatented claims, Wolf Lodge dist.; Coeur d'Alene. **Development:** By 3 short tunnels. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Annual labor only.

RIVERSIDE COPPER MINING CO., LTD.

Office: Kellogg. **Officers:** T. R. Mason, Pres.-Sec., Kellogg. **Inc.:** Sept. 17, 1906. **Capital:** 1,000,000 shares; par value $1; 900,000 shares issued. **Property:** 5 patented claims, Little North Fork dist.; Linfor. **Development:** 1 tunnel, 530 ft. long. **Ore:** Lead-silver.

ROYAL MINING CO.

Office: Coeur d'Alene. **Officers:** A. H. Moe, Pres.-Mgr.; Soren Simonson, Sec., both of Coeur d'Alene. **Inc.:** Dec. 24, 1910. **Capital:** 1,500,000 shares; par value $1; 576,064 shares issued. **Property:** 9 unpatented claims, Wolf Lodge dist.; Coeur d'Alene. **Development:** By 3 tunnels: No. 1, 58 ft.; No. 2, 460 ft. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** The principal tunnel was extended about 100 ft. during the year. The funds for this work were derived from stock assessments.

SHAMROCK MINE

Officers: J. G. Sullivan, Mgr., R. R. 1, Hayden Lake. **Inc.:** An association. **Capital:** 7,000 units; unit value $1; all units issued. **Property:** Shamrock group; 6 unpatented claims, Hayden Lake dist.; Hayden Lake. **Development:** Principally by 1 tunnel 650 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Active throughout the year.

SILVERTIP MINING ASSOCIATION

Office: Coeur d'Alene. **Officers:** J. V. Hawkins, Pres.; F. W. Reed, Sec., both of Coeur d'Alene. **Inc.:** An association. **Capital:** 1536 units; no par value; 1076 units issued. **Property:** Silvertip group; 16 unpatented claims, Wolf Lodge dist.; Coeur d'Alene. **Development:** By 2 tunnels, each 400 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** Active throughout the year. Its funds were derived from unit assessments.

TWIN GULCH MINING CO.

Office: 721 Harrison Ave., Coeur d'Alene. **Officers:** J. O. Holman, Pres.-Mgr.; G. W. Sonnichren, Sec., both of Coeur d'Alene. **Inc.:** Feb. 2, 1924. **Capital:** 1,000,000 shares; par value 10c; 353,000 shares issued. **Property:** Twin Gulch group; unorganized dist.; Coeur d'Alene. **Development:** By 4 short tunnels. **Ore:** Lead-silver. **Remarks:** Idle.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Commander et al.	Medimont	Albert T. Allen	Medimont
Elizabeth	Unorganized	H. C. Cullom et al	Coeur d'Alene
Fortune	Medimont	Anna M. Blessing	Medimont
Island Quartz	Killarney L.	Max R. Crosby	Kellogg
Joe et al.	Wolf Lodge	Soren Simonson	Coeur d'Alene
Kaiser William et al.	Unorganized	Frank Costin	Coeur d'Alene
Keinwood	Unorganized	R. L. Keinholz	Corbin
Pine et al.	Medimont	W. D. Tuck	Lane
Porcupine et al.	Hayden Lake	Arthur Jacobson	Enaville
Quebeck	Medimont	Achille Fortier	Medimont
Ridge et al.	Burnt Cabin	Adolf V. Johnson	Coeur d'Alene
Ruby	Unorganized	A. Benjamin	Athol
Seven Stubbs et al.	Medimont	R. W. Metler et al.	Rose Lake
Spokane Valley Zinc	Unorganized	H. J. Neely et al.	Spokane, Wash.
Sunset Gr.	Unorganized	G. C. Staggs et al	Athol

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

A geological reconnaissance in northern Idaho and northwestern Montana, by F. C. Calkins, with notes on the economic geology, by D. F. MacDonald: U. S. Geol. Survey Bull. 384, **1909.***

Guidebook of the western United States, by M. R. Campbell and others: U. S. Geol. Survey Bull. 611, pp. 150-156, 160, **1915.**‡

The mining districts of northern Idaho, by E. K. Soper: Min. and Sci. Press, vol. 116, p. 125, **1918.***

Preliminary report on the clays of Idaho, by F. H. Skeels: Idaho Bureau of Mines and Geology Bull. 2, **1920.***

Coeur d'Alene Lake, Idaho, and the overflow lands, by R. W. Davenport: U. S. Geol. Survey Water-Supply Paper 500, **1921.***

Geology of the Latah formation in relation to the lavas of the Columbia plateau near Spokane, Washington, by J. T. Pardee and Kirk Bryan: U. S. Geol. Survey Prof. Paper 140, pp. 1-16, **1926.**‡

Some Miocene and Pleistocene drainage changes in northern Idaho, by A. L. Anderson: Idaho Bureau of Mines and Geology Pamphlet 18, **1927.***

LATAH COUNTY

Latah County is bounded on the north by Benewah, on the south by Nez Perce, on the west by the State of Washington, and on the east by Shoshone and Clearwater counties. It has an area of 1,071 square miles, and was accredited with a population of 17,798 in the 1930 census. Moscow is the largest town and county seat, as well as the location of the University of Idaho and the Idaho Bureau of Mines and Geology. The county is recognized primarily as an agricultural community, particularly for wheat raising.

The principal mineral resources are copper, gold, silver, opals, mica, feldspar, beryl, and high-grade fire clay. The clay occurs near the town of Troy and two companies are engaged in manufacturing it into brick and refractory products. The principal company is the Idaho Fire Brick Co. and its output is in great demand throughout the entire northwest. The copper, gold, silver, beryl, and mica occur in the northern part of the county, north of the towns of Harvard and Vassar, in the Gold Hill, or Blackfoot, Hoodoo, and Avon districts. These districts are served by the Washington, Idaho and Montana Railroad, which connects with the Northern Pacific and the Spokane and Eastern railroads at Palouse, Washington, and the St. Maries-Elk River branch of the Chicago, Milwaukee and St. Paul Railroad at Boville.

The mica mines have produced a large tonnage of high-grade mica. The resources of the old ones have not been exhausted, many of the prospects justify further development, and there are still many possibilities for the discovery of new veins. As there are many chances for the development of profitable enterprises, these deposits are worthy of more attention than they have been receiving in the past few years.

1931 Activities

Other than annual labor, all of the companies holding mining property in this county were idle throughout the year. The Idaho Fire Brick & Clay Co. maintained operations and produced and marketed a large tonnage of manufactured fire clay products.

ACE MINING CO.

Office: R. F. D. 5, Spokane, Wash. **Officers:** Chas. G. Taylor, Pres.-Mgr., Spokane, Wash.; W. F. Clausen, Sec., Los Angeles, Calif. **Inc.:** Oct. 29, 1926. **Capital:** 1,500,000 shares; par value 10c. **Remarks:** Failed to file the reports required by law.

CASSIDY GOLD MINING & MILLING CO., LTD.

Officers: N. J. Stockbridge, Sec., Wallace. **Inc.:** Mar. 12, 1899. **Capital:** 600,000 shares; par value 5c; 437,000 shares issued. **Property:** Cassidy; 1 patented claim, Blackfoot dist. **Ore:** Gold.

COPPER CHIEF MINING & MILLING CO., LTD.

Office: Troy. **Officers:** Robert Olson, Pres., Troy; Alex Johanson, Sec., Lewiston. **Inc.:** July 27, 1914. **Capital:** 1,000,000 shares; par value $1; 500,772 shares issued. **Property:** Copper Chief group; 1 patented and 2 unpatented claims, unorganized dist.; Troy. **Development:** By 3 tunnels: No. 1, 300 ft. long; No. 2, 500 ft. long; No. 3, 550 ft. long. **Ore:** Copper. **Remarks:** Annual labor only.

COPPER MOUNTAIN MINING CO.

Office: Palouse, Wash. **Officers:** R. A. Belvail, Pres., Palouse, Wash.; J. C. Northrup, Sec., Olympia, Wash. **Inc.:** Oct. 29, 1925. **Capital:** 3,750,000 shares; par value 1c; 1,768,705 shares issued. **Property:** Mizpah group; 19 unpatented claims, Hoodoo dist.; Harvard. **Development:** Total development approximately 2600 ft. **Plant:** A 12x14 gas-driven compressor; complete mining equipment, and camp. **Ore:** Copper. **Remarks:** Property under option to Spokane-Idaho Copper Co.

GOLD CREEK METALS CO.

Office: 412 Columbia Bldg., Spokane, Wash. **Officers:** Paul Bockmier, Pres.-Mgr., Palouse, Wash.; Charles J. Webb, Sec., Spokane, Wash. **Inc.:** Oct. 30, 1929. **Capital:** 1,500,000 shares; par value $1; 1,000,000 shares

issued. **Property:** Mother Lode group; 30 unpatented claims, Gold Creek dist.; Potlatch. **Development:** By 5 tunnels: No. 1, 560 ft.; No. 2, 343 ft.; No. 3, 182 ft.; No. 4, 535 ft.; No. 5, 300 ft. **Ore:** Gold. **Remarks:** Annual labor only.

GOLD HILL MINING & MILLING CO.

Office: Harvard. **Officers:** K. F. Pinnell, Pres.-Mgr.; May Pinnell, Sec., both of Harvard. **Inc.:** Nov. 6, 1922. **Capital:** 1,000,000 shares; par value 25c; 612,959 shares issued. **Property:** Gold Bug group; 4 patented claims, 65 acres; held under lease and bond from the Garfield Mining & Milling Co., of Garfield, Wash.; Blackfoot dist.; Harvard. **Development:** Approximately 1200 ft. of tunnels and drifts, and 1 vertical shaft 300 ft. deep. **Plant:** Steam-driven hoist and compressor. **Ore:** Gold, silver, copper.

IDAHO CERAMIC MATERIALS CO.

Office: Kellogg. **Officers:** Carl R. Suksdorf, Pres.-Mgr., Troy; L. P. Mills, Sec., Kellogg. **Inc.:** Sept. 17, 1927. **Capital:** 275,000 shares, par value $1; increased Oct. 14, 1929, to 450,000 shares common, 50,000 shares preferred, par value of each $1; 203,272 shares common, 14,038 shares preferred issued. **Property:** 288 acres of patented farm land near Troy, held under lease and option. **Mineral sought:** Kaolin, silica, mica. **Remarks:** Idle.

IDAHO FIRE BRICK & CLAY CO.

Office: Troy. **Officers:** J. F. McCarthy, Pres.; Ellis L. Hale, Sec., both of Wallace. **Inc.:** May 31, 1928. **Capital:** 1,000 shares; par value $100; all shares issued. **Property:** 19 acres of patented land, held under a 99-year lease. **Plant:** Electrically driven drag-line hoist. MILL: Steam-driven puddling and molding equipment furnaces. **Mineral sought:** Fire clay. **Men employed:** Average, 16. **Remarks:** This company is the largest manufacturer of fire clay and refractory products in the State. Its output is in great demand throughout the Northwest, smelters and railroads being the principal consumers. A large part of the fire clay is obtained on a royalty basis from property other than that which the company controls. Operations maintained throughout the year. Company produced and marketed a large tonnage of manufactured fire clay products.

MUSCOVITE MICA CO.

Office: Box 166, Lewiston. **Officers:** Homer Lipps, Pres., Kooskia; W. E. Parry, Sec., Lewiston. **Inc.:** Feb. 7, 1927. **Capital:** 5000 shares; par value $100. **Remarks:** Refused to file the reports required by law.

PRIMUS PLACER GOLD CO.

Officers: Chester R. Paulson, Pres., Spokane, Wash.; W. H. Latta, Sec., Lakeview. **Inc.:** Filed in Idaho: Dec. 1, 1930. **Capital:** 1,000,000 shares; par value 5c; 563,700 shares issued. **Property:** 40 acres, Hoodoo dist., under lease from Northern Pacific Ry. Co.; Harvard. **Plant:** Drag-line shovel. **Ore:** Placer gold.

RAMSEY OIL PROJECT

Office: Unknown. **Officers:** Unknown. **Inc.:** Unknown. **Remarks:** Name gleaned from press reports, which were to the effect that drilling equipment had been sunk and a well drilled to approximate depth of 1500 ft. According to these reports the enterprise is located 14 miles north of Coeur d'Alene. The names A. F. Diehl and Albert Anderson appear in the newspaper reports.

SPOKANE-IDAHO COPPER CO.

Office: 1103 Paulsen Bldg., Spokane, Wash. **Officers:** Jay P. Graves, Pres.; Frederic Keffer, Sec., both of Spokane, Wash. **Inc.:** Nov. 27, 1929. **Capital:** 3,000,000 shares; par value 25c; 1,723,347 shares issued. **Property:** 30 unpatented claims, Hoodoo dist.; Harvard. **Development:** By 6 short tunnels. **Plant:** Gas-driven compressor; complete mining equipment and camp. **Ore:** Copper-gold. **Men employed:** Average, 5. **Remarks:** Road and camp constructed and a small amount of prospecting done during the year.

TROY GOLD & COPPER MINING CO., LTD.
Office: Troy. **Officers:** E. J. Gemmill, Pres.-Mgr.; T. H. Christie, Sec., both of Troy. **Inc.:** May 26, 1909. **Capital:** 1,000,000 shares; par value $1; 510,100 shares issued. **Property:** 20 acres patented farm land, unorganized dist.; Troy. **Ore:** Copper. **Remarks:** Idle.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Anny Gr.	Hoodoo	P. Doffner	Harvard
Avon	Hoodoo	J. H. Nesbit	Deary
Blake Gr.	Hoodoo	M. W. Nelson	Spokane, Wash.
Bonanza Gold Pl.	Gold Creek	Wm. J. Schmidt	Potlatch
Carrico Pl.	Gold Creek	Paul Bockmier	Paulsen Bldg., Spokane, Wash.
Clara Lester Gr.	Gold Creek	James C. Throop	Palouse
Eureka Gr.	Gold Creek	Edwin N. Carrico	Potlatch
Excelsior	Gold Creek	Arthur P. Gilliam	Potlatch
Gold Bug	Gold Creek	Arthur P. Gilliam	Potlatch
Idaho	Hoodoo	G. E. Arrasmith	Harvard
Knapp Bros.	Hoodoo	Harry Knapp	Harvard
Midas	Hoodoo	H. N. Gray	Potlatch
Monday	Hoodoo	V. P. Wiesenthal	Palouse, Wash.

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

Geology and water resources of Nez Perce County, Idaho, by I. C. Russell: U. S. Geol. Survey Water-Supply Papers 53 and 54, **1901.‡***

A geological reconnaissance across the Bitterroot Range and Clearwater Mountains in Montana and Idaho, by Waldemar Lindgren: U. S. Geol. Survey Prof. Paper 27, **1904.***

Mica in Idaho, New Mexico, and Colorado, by D. B. Sterrett: U. S. Geol. Survey Bull. 530, pp. 375-390, **1911.***

A preliminary report of the clays of Idaho, by F. H. Skeels: Idaho Bureau of Mines and Geology Bull. 2, **1920.***

The copper deposits of the Seven Devils and adjacent districts, by D. C. Livingston and F. B. Laney: Idaho Bureau of Mines and Geology Bull. 1, **1920.***

Mica deposits of the United States, by D. B. Sterrett: U. S. Geol. Survey Bull. 740, **1923.***

Mica deposits of Latah County, Idaho, by A. L. Anderson: Idaho Bureau of Mines and Geology Pamphlet 14, **1925.****

Ground water for municipal supply at Potlatch, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 23, **1927.****

LEMHI COUNTY

Lemhi County is situated in central-eastern Idaho, bounded on the north and east by the State of Montana, on the west by Idaho and Valley counties, and on the south by Custer, Butte, and Clark counties. It has an area of 4,597 square miles, which is about equal to the State of Connecticut, and was accredited with a population of 4,643 in the 1930 census, or 1.0 person to the square mile. A provisional county government was organized in July, 1867, and in January, 1869, the Territorial Legislature permanently established the county with Salmon City as the county seat, an honor which it has always retained. The larger part of the population is located in the Lemhi River and Pahsimeroi River valleys, and is engaged in the pursuits of agriculture and stockraising.

It is one of the principal mining counties of the State, and always ranks as one of the largest producers. The extensive and varied mineral resources; the many veins that have been discovered, yet not developed; the many un-

discovered veins; the excellent mining conditions; the many producing mines and prospects; and its location, both geographically and geologically, place this county within the area known as Central Idaho's Mineral Empire.

The county is served by the Pittsburg & Gilmore Railroad, which plies between Armstead, Montana, and Salmon, with a branch line from Leadore to Gilmore; by the Sawtooth Park State highway from Challis to Salmon, which follows the Salmon River and which is fully completed; and by a system of county roads which lead into all the outlying settlements and mining districts.

The principal mineral resources are lead, copper, silver, gold, zinc, tungsten, manganese, molybdenum, nickel, cobalt, gypsum, tin, and lignite. The formations in which the various mineral deposits occur range from early sedimentary rocks to late igneous rocks and include all those which are favorable to the deposition of ore in commercial quantities. The deposits are widely distributed throughout the vast mountainous areas which comprise a large part of the county. The wide distribution of the deposits, the diversity of mineralization, the favorable geological conditions, and the many opportunities for the development of profitable enterprises, make this county an exceptionally favorable field for prospectors and development companies.

1931 Activities

The gold resources of this county received more than the usual amount of attention. There was a substantial increase in the number of prospectors and investigators seeking gold mines, a number of new companies were organized, and some of them were active throughout the year.

The placer and lode deposits in the Shoup district received more attention than for many years. The Gold Hill Mines, Inc., a new organization, at the Kentuck mine; the Golden Dawn Mining Co., a placer mining enterprise; and the Owl Mining Co., Inc., were all active. Press reports were to the effect that a flat-boat dredge was constructed and placed in operation to exploit a placer deposit on the Salmon River, and that the Kittie Burton mine, in the Indian Creek district, which is near Shoup, was rehabilitated and that a short tramway and a small mill were under construction.

The Eldorado Gold Mining Co., a new organization, at the Ranger mine, in the Eldorado district, northeast of Salmon, commenced work early in the year and produced and marketed a small tonnage of high-grade gold ore.

The Goldstone Mines Corporation, in the Pratt Creek district, conducted mining and milling operations for the first three months of the year and produced and marketed a small tonnage of high-grade concentrate, after which all operations were suspended, and the company reorganized as the Western Gold Mines, Inc.

In the Yellow Jacket district the United Mace Smelters, Inc., employed two men during the summer months in a placer mining enterprise, and Mrs. H. F. Steen, at the Continental group, further extended the principal tunnel.

All of the lode mines in the Leesburg district were idle. Three placer mining companies further enlarged their ditches, increased their hydraulic equipment, and conducted hydraulicking operations during the spring.

There was a slight increase in prospecting and development work in the Gibbonsville district. Two new companies were organized, and each produced and marketed a small tonnage of high-grade gold ore.

Other than the necessary annual labor, all of the mining companies operating in the Nicholia, Spring Mountain and Leadore districts were idle throughout the year; however, lessees at two of the mines in the Nicholia district did a small amount of development work, and the owners of the Maryland mine, in the Leadore district, conducted development work without interruption.

The Hecla Mining Co., which, in 1930, commenced developing a discovery of high-grade copper-gold ore, on Allison Creek, 10 miles south of Salmon, on the divide between the Lemhi and Salmon rivers, continued this work during the early part of the year. Other than a small amount of work by lessees, the copper mines of the Harmony Mines Co. and Winder-Stillman Con, near Salmon, were idle throughout the year.

The Gilmore district, which for many years was one of the principal lead-silver producing sections in the State, witnessed but little activity, as all of the mining companies were idle. About 20 men were engaged in leasing operations at the Allie, Latest Out, and P-I mines. They produced a substantial tonnage of high-grade ore, all of which was stored, except one small shipment.

ALLIE MINE

Office: Gilmore. **Owners:** Gilmore Mercantile Co., Gilmore. **Property:** Allie group; 12 patented claims, Texas dist.; Gilmore. **Development:** Principally by 1 tunnel 6000 ft. long, in which are 2 inclined shafts with 6 intermediate levels, opening the vein 290 ft. below the tunnel. **Plant:** 40-kw. electric generator, driven by Fairbanks-Morse semi-Diesel engine; 2 electrically-driven hoists; 1200-ft. aerial tramway; mine buildings. **Ore:** Lead-silver. **Remarks:** A small amount of work by lessees during the year.

BEAVERHEAD LEAD MINES CO.

Office: Cheney Bldg., Reno, Nev. **Officers:** John Salsberry, Pres., 464 43d Ave., San Francisco; J. E. Sullivan, Sec., Cheney Bldg., Reno, Nev. **Inc.:** Filed in Idaho: May 12, 1927. **Capital:** 3,000,000 shares; par value 10c; no shares issued. **Property:** Viola group; 1 patented, 1 unpatented claim, Nicholia dist.; Gilmore. **Ore:** Lead-silver. **Remarks:** Idle.

CHLORIDE EUREKA CO.

Office: Salmon. **Officers:** S. E. Bowler, Pres.-Mgr.; Harriet Bowler, Sec., both of Salmon. **Inc.:** Oct. 9, 1928. **Capital:** 500,000 shares; par value $1; 5400 shares issued. **Property:** 5 unpatented claims, unorganized dist.; North Fork. **Development:** By 3 short tunnels. **Ore:** Gold-silver-lead-copper. **Remarks:** Annual labor only.

CONTINENTAL GROUP

Owner: Mrs. H. F. Steen, P. O. Box 1434, Stockton, Calif. **Property:** Continental group; 4 patented claims, Yellow Jacket dist.; Forney. **Development:** Principally by 1 tunnel 420 ft. long. **Plant:** Gas-driven Rix compressor; complete mining equipment and camp. **Ore:** Copper-gold-silver. **Men employed:** Average, 4. **Remarks:** Active during the summer.

CONTINENTAL STANDARD MINING CO.

Office: 655 Dexter Horton Bldg., Seattle, Wash. **Officers:** C. M. Sonoda, Pres., Seattle, Wash. **Inc.:** Jan. 2, 1926. **Capital:** 100,000 shares preferred, 1,000,000 shares common; Jan. 23, 1930, common stock increased to 3,000,000 shares; par value $1; 727,309 shares issued. **Property:** Grizzly Hill group; 25 unpatented claims, Junction dist.; Leadore. **Development:** By 5 tunnels, totaling approximately 1000 ft., and an inclined shaft 175 ft. long. **Plant:** 200-cu.-ft. C-P compressor, driven by semi-Diesel engine; air-driven hoist. **Ore:** Lead-silver. **Remarks:** Failed to file the reports required by law, although three times notified to do so.

ELDORADO GOLD MINING CO.

Office: Salmon. **Officers:** J. F. Johnson, Pres.-Mgr.; J. P. Jensen, Sec., both of Sandy, Utah. **Inc.:** Filed in Idaho: Mar. 12, 1931. **Capital:** 2,000,000 shares; par value 10c; 750,000 shares issued. **Property:** Ranger group; 2 patented, 14 unpatented claims, held under lease and option, Eldorado dist.; Salmon. **Development:** By 2 tunnels: No. 1, 800 ft. long; No. 2, 700 ft. long. **Ore:** Gold-silver-copper-lead. **Men employed:** Average, 3. **Remarks:** Company organized and work started during the early part of the year. A small tonnage of high-grade gold ore was produced and marketed.

GOLDEN AGE MINING CO.

Office: Sandy, Utah. **Officers:** J. R. Jensen, Pres.; J. P. Jensen, Sec., both of Sandy, Utah. **Inc.:** Nov. 29, 1930. **Capital:** 500,000 shares; par value 10c; 250,000 shares issued. **Property:** 6 unpatented claims, held under lease and option, Gibbonsville dist.; North Fork. **Development:** By 2 tunnels; No. 1, 700 ft. long; No. 2, 300 ft. long. **Ore:** Lead-silver. **Remarks:** Failed to file the reports required by law.

GOLDEN DAWN MINING CO.
Officer: A. E. Hoover, Trustee. **Inc.:** Not incorporated. **Property:** 12 unpatented claims, held under lease and option, Mineral Hill dist.; Shoup. **Ore:** Placer gold. **Remarks:** A small amount of prospecting during the early part of the year.

GOLD HILL MINES, INC.
Office: Pocatello. **Officers:** H. D. Lauderback, Pres.; Grace L. Hall, Sec., both of Pocatello; L. W. Bick, Managing Director, Shoup. **Inc.:** Jan. 9, 1931. **Capital:** 5,000,000 shares; par value 10c; Dec. 24, 1931, changed to no par; 2,340,000 shares issued. **Property:** Old Kentuck group; 3 patented, 18 unpatented claims, held under lease and option, Mineral Hill dist.; Shoup. **Development:** By 6 tunnels: No. 1, 120 ft. long; No. 2, 310 ft. long; No. 4, 250 ft. long; No. 5, 600 ft. long; No. 6, 700 ft. long. **Ore:** Gold-silver. **Men employed:** Average, 3. **Remarks:** A small amount of work throughout the year.

HARMONY MINES CO.
Office: Baker. **Officers:** A. W. Nieman, Pres.-Mgr.; Mrs. O. K. Mitchell, Sec., both of 5431 Lakewood Ave., Chicago, Ill. **Inc.:** Apr. 8, 1916. **Capital:** 3,000,000 shares; par value $1; 2,976,000 shares issued. **Property:** Harmony group; 7 patented, 16 unpatented claims; Eldorado dist.; Baker. **Development:** By 5 tunnels: No. 1, 180 ft.; No. 2, 270 ft.; No. 3, 700 ft.; No. 4, 2500 ft.; No. 5, 2650 ft. Total development, approximately 7500 ft. **Plant:** MINE: 50-h. p. hoist, 800 cu. ft. I-R compressor, both electrically driven; electric storage-battery locomotive haulage; aerial tramway connecting No. 5 tunnel with the mill; complete mining equipment and camp. MILL: 200-ton fine-grinding flotation concentrator. POWER: 450-h. p. electric generator, driven by Diesel engine; 8-mile transmission line. **Ore:** Copper. **Remarks:** A small amount of work by lessees.

IDAHO PREMIER MINES CORPORATION
Office: Kellogg. **Officers:** B. F. Tilsley, Pres., E. 2006 Bridgeport, Spokane, Wash.; E. S. Snelling, Sec., 2553 Second Ave. W., Seattle, Wash. **Inc.:** Mar. 28, 1927; charter forfeited Nov. 30, 1931. **Capital:** 2,000,000 shares; par value $1; 1,470,252 shares issued. **Property:** Leadore group; 41 unpatented claims, Junction dist.; Leadore. **Development:** By 2 tunnels: No. 1, 500 ft. long; No. 2, 876 ft. long. **Plant:** MINE: Small gas-driven compressor. MILL: Small gas-driven concentrator. **Ore:** Lead-silver. **Remarks:** An unsuccessful attempt to finance this enterprise was made in the early part of the year.

IMA CONSOLIDATED MINING & MILLING CO.
Office: 810 Deseret Bank Bldg., Salt Lake City, Utah. **Officers:** Oscar W. Moyle, Pres.; Harry W. Rudine, Sec., both of Salt Lake City, Utah. **Inc.:** Dec. 16, 1902. **Capital:** 2,000,000 shares; par value 1c; 500,000 shares issued. **Property:** Ima group; 21 patented, 4 unpatented claims, Blue Wing dist.; May. **Development:** By 2 tunnels: No. 1, 1250 ft. long; No. 2, 1000 ft. long. **Plant:** MINE: Water-driven compressor; complete mining equipment and camp. MILL: 100-ton water-driven concentrator, constructed in 1915. **Ore:** Silver-copper-tungsten. **Remarks:** Under lease and option to W. P. Barton. See Ima Mines Corp.

IMA MINES CORPORATION
Office: May. **Officers:** E. R. Miller, Pres., May; Jess O. Eastman, Sec., Buhl; W. P. Barton, Mgr., May. **Inc.:** Mar. 12, 1930. **Capital:** 1,000,000 shares; par value $1; 517,792 shares issued. **Remarks:** Lease and option on the property owned by the Ima Consolidated Mining & Milling Co. This is the fourth company that Mr. Barton has organized on this property, the former ones being: Blue Wing Tungsten Mining & Milling Co., incorporated Mar. 23, 1921, charter forfeited Nov. 30, 1923; Republic Consolidated Mining & Refining Co., incorporated Aug. 9, 1922, charter forfeited Nov. 30, 1924; Patterson Mines Corporation, incorporated Apr. 3, 1927. Idle.

LATEST OUT MINING & SMELTING CO., LTD.
Office: Salmon. **Officers:** D. L. Nichols, Sec.-Mgr., Salmon. **Inc.:** May 23, 1910. **Capital:** 500,000 shares; par value $1; all shares issued. **Property:** Latest Out; 1 patented claim, Texas dist.; Gilmore. **Development:** 1 tunnel, 365 ft. long; 2 inclined shafts, totaling 1100 ft., giving a vertical depth on the vein of 700 ft. Total development approximately 32,000 ft. **Plant:** F-M 40-h. p. gas-driven hoist; 145-cu.-ft. I-R gas-driven compressor; gravity tram; complete mining equipment and camp. **Ore:** Lead-silver. **Remarks:** A small amount of work by lessees.

LEAD MOUNTAIN MINING CO.
Office: 218 Felt Bldg., Salt Lake City, Utah. **Officers:** George W. Snyder, Pres.-Mgr.; Guy M. Snyder, Sec., both of Salt Lake City. **Inc.:** Aug. 26, 1929. **Capital:** 1,000,000 shares; par value 25c; all shares issued. **Property:** Nicholia group; 36 unpatented claims, some of which are held under lease and option, Nicholia dist.; Reno. **Development:** By 2 tunnels: No. 1, 1000 ft. long; No. 2, 300 ft. long; and an inclined shaft 150 ft. long; vertical shaft 400 ft. deep, at the bottom of which is 1200 ft. of prospects and drifts. **Plant:** Hoist and 2-drill Sullivan compressor, both gas-driven; complete mining equipment and camp. **Ore:** Lead-zinc. **Remarks:** Annual labor only.

LEADORE-LEMHI COPPER MINING CO.
Office: Leadore. **Officers:** J. D. Pritchett, Pres.-Mgr., Leadore; J. E. Pritchett, Sec., Salmon. **Inc.:** Aug. 22, 1927. **Capital:** 500,000 shares; par value 10c; 150,000 shares issued. **Property:** Baltimore group; 3 unpatented claims, McDevitt dist.; Leadore. **Development:** By 2 short tunnels. **Ore:** Copper-silver. **Remarks:** Annual labor only.

LEESBURG BONANZA PLACER CO.
Office: 611 Isabel St., Los Angeles, Calif. **Officers:** Carl A. Poulsen, Pres.-Mgr.; Hans Therkelsen, Sec., both of Los Angeles, Calif. **Inc.:** Apr. 2, 1929. **Capital:** 2,500,000 shares; par value 10c; 1,902,385 shares issued. **Property:** Bonanza placers; 12 unpatented claims, Mackinaw dist.; Leesburg. **Ore:** Placer gold. **Men employed:** Average, 3. **Remarks:** Small amount of work on hydraulicking equipment was performed during the summer months. This company is a reorganization of the Bonanza Placer, Inc. Annual labor only.

LEESBURG LODE & PLACER MINING CO.
Office: Salmon. **Officers:** O. E. Kirkpatrick, Pres.-Mgr., Leesburg; J. A. Herndon, Sec., Salmon. **Inc.:** May 12, 1930. **Capital:** 600,000 shares; par value 10c; 425,000 shares issued. **Property:** Gold Dust group; 6 patented claims, Mackinaw dist.; Salmon. **Development:** Approximately 3000 ft. **Plant:** An old steam-driven 10-stamp mill. **Ore:** Gold. **Remarks:** Annual labor only.

LEMHI GOLD DREDGING CO., LTD.
Office: 703 Market St., San Francisco, Calif. **Officers:** Roy Mires, Pres.; Franklin T. Poore, Sec., San Francisco, Calif. **Inc.:** Filed in Idaho: Apr. 21, 1931. **Capital:** 5000 shares; par value $100; 2500 shares issued. **Property:** Ranch land, on Geertson Creek, held under lease and option. **Ore:** Placer gold.

LEMHI MINING CO.
Office: Winchester, Ind. **Officers:** Albert Warren, Pres., Cleveland, Ohio; A. L. Nichols, Sec., Winchester, Ind.; R. E. Lee Ramey, Mgr., Forney. **Inc.:** Jan. 16, 1924. **Capital:** 5000 shares; no par value; 4942 shares issued. **Property:** Rabbit Foot group; 8 unpatented claims, Gravel Range dist.; Forney. **Development:** By 3 tunnels, the principal one of which is 1700 ft. long. **Plant:** MINE: Steam-driven hoist. MILL: 10-stamp amalgamation. **Ore:** Gold. **Remarks:** Failed to file the reports required by law.

MONTANA MINING & LIVESTOCK CO.
Office: William Taylor Hotel, San Francisco, Calif. **Officers:** H. A. Moss, Pres.; E. H. Devlan, Sec., both of San Francisco, Calif. **Inc.:** Mar. 8, 1919. **Capital:** 5,000,000 shares; par value 10c; 1,208,830 shares issued. **Property:** Leesburg group; 9 unpatented placer and 6 unpatented lode claims, 500 acres deeded land,Mackinaw dist.; Leesburg. **Plant:** Steam-driven hoist and 100-cu.-ft. I-R compressor; complete mining and logging equipment; sawmill; complete camp and buildings. **Ore:** Gold. **Remarks:** Failed to file the reports required by law.

NORTHWESTERN DEVELOPMENT CO., LTD.
Office: Ashland, Ky. **Officers:** C. E. Williams, Pres.; Thomas Boggess, Sec., both of Ashland, Ky. **Inc.:** Aug. 28, 1916. **Capital:** 500,000 shares; par value $1; 239,840 shares issued. **Property:** Primrose group; 6 patented claims, Eldorado dist.; Salmon. **Plant:** Gas-driven compressor; complete mining equipment and mine camp. **Ore:** Gold-silver-copper. **Remarks:** Idle.

OWL MINING CO., INC.
Office: Salmon. **Officers:** J. M. Freeman, Pres., Billings, Mont.; H. A. Simmons, Sec., Red Lodge, Mont. **Inc.:** Dec. 9, 1929. **Capital:** 1,000 shares; par value $100; 3 shares issued. **Property:** 1 patented, 36 unpatented claims, Mineral Hill dist.; Shoup. **Development:** By 5 short tunnels. **Ore:** Gold-silver. **Men employed:** Average, 6. **Remarks:** Active throughout the year.

POCATELLO-LEMHI MINING & EXPLORATION CO.
Office: Box 624, Pocatello. **Officers:** W. E. Magnuson, Pres.-Mgr.; Madge D. Hawkins, Sec., both of Pocatello. **Inc.:** Oct. 23, 1926. **Property:** Jamieson group; 14 unpatented claims, Junction dist.; Leadore. **Development:** By 6 short tunnels. **Ore:** Lead-silver. **Remarks:** Annual labor only.

PORTLAND MINING CO.
Office: Butte, Mont. **Officers:** E. J. Carleton, Pres.; W. S. Shaw, Sec., both of Butte, Mont. **Inc.:** Aug. 11, 1920. **Capital:** 500,000 shares; par value $1; all shares issued. **Property:** Portland group; 3 patented, 12 unpatented claims, Texas dist.; Gilmore. **Development:** By 1 tunnel 2000 ft. long. **Remarks:** Annual labor only.

RESCUE GOLD MINES CO.
Office: P. O. Box 624, Pasadena, Calif. **Officers:** Chas. Mushrush, Pres.; Willis H. Brown, Sec., both of Pasadena, Calif.; A. B. Post, Agent, P. O. 624, Pasadena, Calif. **Inc.:** Apr. 25, 1919. **Capital:** 90,000 shares; par value $1; 13,303 shares issued. **Property:** A. D. & M. group; 23 patented claims, Dahlonega dist.; Gibbonsville. **Ore:** Gold. **Remarks:** Idle.

SCHIELDS MINING CO.
Office: Darby, Mont. **Officers:** Thomas Schields, Pres., Darby, Mont. **Inc.:** Aug. 10, 1931. **Capital:** 1000 shares; par value $10; 998 shares issued. **Property:** 3 unpatented claims, Mineral Hill dist.; Darby, Mont. **Development:** By 5 short tunnels. **Ore:** Gold. **Men employed:** Average, 2. **Remarks:** A small amount of work during the summer.

SOUTH GILMORE MINING CO.
Office: Idaho Falls. **Officers:** Richard Martin, Pres.; Albert Martin, Sec., both of Idaho Falls. **Inc.:** Nov. 12, 1929. **Capital:** 300,000 shares; par value 10c; Apr. 1, 1931, increased to 1,000,000 shares, par value $1; 50,000 shares issued. **Property:** 10 unpatented claims, held under lease and option, Spring Mountain dist.; Gilmore. **Development:** 8 short tunnels. **Ore:** Lead-silver. **Men employed:** Average, 5. **Remarks:** A small amount of work during the summer.

UNITED IDAHO MINING CO.
Office: No. 1, State St., c|o U. S. Smelting, Refining & Mining Co., Boston. **Officers:** C. A. Hight, Pres.; F. W. Batchelder, Sec., both of Boston; D. D. Muir, Jr., Mgr., Newhouse Bldg., Salt Lake City. **Inc.:** Oct. 18, 1924. **Capital:** 10,000 shares common, no par value; 10,000 shares preferred, par value $10; June 20, 1930, preferred shares decreased to 7504; 7053

shares common, 7267 shares preferred issued. **Property:** Pittsburgh-Idaho group; 5 patented claims, Texas dist.; Gilmore. **Development:** By 4 tunnels: No. 1, 600 ft. long; No. 2, 1000 ft. long; No. 3, 1600 ft. long; No. 4, 1300 ft. long, in which is an inclined shaft 1200 ft. long, which gives a vertical depth of 950 ft. on the vein. **Plant:** MINE: 1 200-kw. Allis-Chalmers Diesel engine with generator, 1 I-R electrically driven 9x8, and 1 C. P. gas-driven compressor; 100-h. p. electrically driven double-drum hoist; complete mining equipment, camp and buildings. MILL: 50-ton gas-driven concentrator. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Idle; maintenance only.

UNITED MACE SMELTERS, INC.

Office: 2763 Blake St., Denver, Colo. **Officers:** Robert G. Ainsworth, Pres.; M. G. Ainsworth, Sec.; C. H. Mace, Mgr., all of Denver, Colo.; Emil Neering, Agent, Forney. **Inc.:** Filed in Idaho: Dec. 15, 1930. **Capital:** 1,500,000 shares; par value $1; 626,368 shares issued. **Property:** Yellow Jacket group; 7 patented, 37 unpatented claims, held under lease and option, Yellow Jacket dist.; Forney. **Development:** By 2 tunnels: No. 1, 315 ft. long; No. 3, 1700 ft. long. **Men employed:** Average, 2. **Remarks:** Press reports were to the effect that a small amount of placer mining was attempted during the early part of the year.

UTANA MINING CORPORATION

Office: 156 East Second So. St., Salt Lake City, Utah. **Officers:** Web Greene, Sec., Salt Lake City, Utah. **Inc.:** Aug. 4, 1921. **Capital:** 1,000,000 shares common, par value 10c; 100,000 shares preferred, par value $1; 119,000 shares issued. **Property:** Big Dyke group; 22 unpatented claims, Freeman dist.; Salmon. **Development:** Approximately 1600 ft. of underground workings. **Plant:** Steam-driven compressor; complete mining equipment and camp; complete machinery and equipment for cyanide plant. **Ore:** Lead-silver-copper-zinc. **Remarks:** Annual labor only.

VIRGINIA GOLD MINING & MILLING CO.

Office: 702 Utah Savings & Trust Bldg., Salt Lake City, Utah. **Officers:** W. A. Shaw, Pres., Salt Lake City, Utah. **Inc.:** Aug. 21, 1925. **Capital:** 2,500,000 shares; par value 1c; 2,300,000 shares issued. **Property:** Virginia group; 9 patented, 13 unpatented claims, Eureka dist.; Baker. **Remarks:** Annual labor only.

WESTERN GOLD MINES, INC.

Office: 626 Liggett Bldg., Seattle, Wash. **Officers:** Arthur J. Theis, Pres.-Mgr.; William S. Akers, Sec., both of Seattle, Wash. **Inc.:** Aug. 15, 1931. **Capital:** 4,000,000 shares; par value 25c; 3,500,000 shares issued. **Property:** Goldstone group; 9 unpatented claims, held under lease and option, Pratt Creek dist.; Baker. **Development:** Principally by 1 tunnel 2150 ft. long. **Plant:** MINE: Electrically driven compressor; complete mining equipment and camp. MILL: 100-ton fine-grinding amalgamation and flotation. POWER: 195-kw. hydroelectric power plant driven by a Pelton wheel. **Ore:** Gold. **Men employed:** Average, 10. **Remarks:** This company is a reorganization of the Goldstone Mines Corporation. Mining and milling operations were conducted for the first three months of the year, and a small tonnage of high-grade concentrate was produced and marketed; after which all operations were suspended.

WINDER-STILLMAN CON

Office: Salmon. **Officers:** R. H. Winder, Pres., Salt Lake City; J. W. Jones, Sec.-Mgr., Salmon. **Inc.:** Form of organization unknown. **Capital:** 1,000,000 shares; par value 1c; 446,118 shares issued. **Property:** Pope-Shenon group; 12 patented claims, Eureka dist.; Salmon. **Development:** 6 tunnels: No. 1, 70 ft. long; No. 2, 80 ft. long; No. 3, 400 ft. long; No. 4, 450 ft. long; No. 5, 800 ft. long; No. 6, 1000 ft. long. Total development approximately 3000 ft. of underground workings. **Plant:** MINE: 2 12x10 I-R electrically- driven compressors; Sullivan steel sharpener; complete mining equipment and camp. MILL: 60-ton electrically-driven concentrator, including fine grinding and flotation. **Ore:** Copper. **Remarks:** Activities unknown. Failed to file the reports required by law.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Alex Stevens	Texas	Wm. Howard	Gilmore
Anaconda Gr.	Eldorado	J. H. Adams Est.	Salmon
Anaconda et al.	Blackbird	A. C. Ludwig	Salmon
Andy Lee	Gravel Range	F. M. Pollard	Los Angeles, Cal.
Arnett Creek Pl.	Mackinaw	Christ Stuckey	Leesburg
Baby Joe Gr.	Junction	W. F. Stone	Leadore
Belcher	Gibbonsville	Chas. Goff	North Fork
Big 8-Mile	Junction	J. D. Pritchett	Leadore
Big Juneau	Leesburg	F. A. Butschke	Leesburg
Big Windy	Spring Mountain	Joe Jugovich	Gilmore
Blue Bird	McDevitt	E. G. Lynch	Digby, N. S.
Boulder Gulch	Mineral Hill	John Brittain	Salmon
Brown Bull	Texas	E. C. Ross	Gilmore
Bryn Mawr et al.	Indian Creek	Davis Davies	North Fork
Buck-a-roo	Silverton	W. J. Shoup	Salmon
Buckhorn	Junction	Sellers Bros.	Salmon
Burlington	Eureka	Paul Rossier	Salmon
Cabin	Unorganized	Frank G. Worthing	Reno, Idaho
California Pl.	Mackinaw	A. C. Ludwig	Salmon
Carrie Cody	Texas	H. S. Knight	222 Kearns Bldg., Salt Lake City, U.
Castle Rock	Blue Wing	C. B. Graves	Patterson
Clara Morris Gr.	Gibbonsville	Largey Est.	46 E. Broadway, Butte, Mont.
Clipper Bullion	Mineral Hill	Mrs. Ethel Suydam	Shoup
Columbia	Yellow Jacket	A. C. Ludwig	Salmon
Copper Glance	Yellow Jacket	Chas. Anderson	Leesburg
Copper King	Mackinaw	Earl R. Galbraith	Salmon
Daly Creek	Mackinaw	John M. Smith	Salmon
.....	Indian Creek	W. W. Smith	Ulysses
Democrat	Texas	Thos. Grooms	Gilmore
Diamond Gulch	Eureka	Geo. Matics	Salmon
Dig More No. 1	Junction	Rouche & Pottle	Leadore
Dunton Placer	Gibbonsville	Fred Dunton	Gibbonsville
Eagle Mine	Gibbonsville	Alfred Anderson	Gibbonsville
Elmira	Junction	Jas. Corcoran	Salmon
Enterprise	Nicholia	Milo W. Zook	Gilmore
Florence	Eight Mile	Fred Chase	Leadore
Forney Gr.	Gravel Range	R. E. Lee Ramey	Forney
Golden Rule	Eureka	W. B. Horn	Salmon
Goldfield Gr.	Gibbonsville	A. W. Beason	Salmon
Gold Star	Mackinaw	J. A. Fry	Leesburg
Goldstone	Pratt Creek	Mrs. Isadore Gies	Great Falls, Mont.
Governor	Gibbonsville	F. C. Nohle	Gibbonsville
Grace	Mackinaw	Thos. Pope	Salmon
Greenhorn Mines	Eureka	F. S. Wright	Salmon
Grizzly Hill	Junction	W. F. Stone	Leadore
Grunter Gr.	Mineral Hill	M. M. McPherson	Pacific Grove, Cal.
Hard Carbonate	Spring Mountain	P. H. Clarke	Gilmore
Hawkeye Gr.	Blackbird	South & Weidner	Salmon
High Ball	Junction	Sellers Bros.	Salmon
High Ore	Spring Mountain	J. W. Spiers	Gilmore
Hockensmith	Mackinaw	Chas. Goff	Leesburg
Hughes Creek Pl.	Gibbonsville	Justin Finch	Helena, Mont.
Inspiration	McDevitt	Ray Pierce	Tendoy
Iron Mask	Spring Mountain	F. L. Clark	Gilmore
Italian	Mackinaw	J. A. Herndon	Salmon
King Solomon	Eureka	Henry Pobst	Salmon
Last Chance	Mackinaw	Grant Rood	Leesburg
Last Chance	Gibbonsville	Henry Schreiber	Gibbonsville
Liberty Bell	Pratt Creek	Jasper Lyne	Tendoy

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Liberty Bond Gr.	McDevitt	R. F. Morphey	Leadore
Lick Creek	Gibbonsville	Frank Glennon	Gibbonsville
Lloyd Gr.	Junction	Chas. F. Lloyd	Dillon, Mont.
Lone Star	Eureka	Geo. Matics	Salmon
Lone Star	Pratt Creek	Mrs. Jennie Turnblade	Salmon
McCarty et al.	Gibbonsville	Percy Anderson	Salmon
McKinley Gr.	Eureka	Geo. Coronkrite	Salmon
Mahogany	Mineral Hill	A. C. Amonson	Salmon
Maine Silver Moon	Texas	J. A. Nash	Gilmore
Maryland	Junction	A. C. Amonson	Salmon
Mayflower	Mackinaw	Earl R. Galbraith	Salmon
Miser's Dream	Mineral Hill	R. A. Joseph	Gilmore
Moonshine	Silverton	W. W. St. Clair	Salmon
Modock Chief	Gibbonsville	J. Rathbun	Carmen
Moose Creek	Eureka	John E. Mullen	Salmon
Mountain Boy	Texas	Hugh Ferguson	512 W. Pearl St., Butler, Pa.
Mountain View	Eldorado	J. H. Smith et al.	Pocatello
Murphy Gr.	Texas	Joe Denton	Gilmore
Musgrove Mine	Blackbird	E. E. Edwards	Salmon
Never Sweat Pl.	Mackinaw	Thos. Hungate	Leesburg
Patton Gr.	Junction	A. J. Smith, Mgr.	Leadore
Pearl Gr.	McDevitt	Pattie Bros.	Baker
Pope Gr.	Mackinaw	Thos. Pope	Salmon
Quartz Porphyry	Blackbird	A. C. Ludwig	Salmon
.....	Spring Mountain	Oakley & Ellis	Dubois
Rabbit Foot	Gravel Range	R. E. Lee Ramey	Forney
Rainbow	Eureka	William Swan	Salmon
Ramshorn	Junction	Thompson Bros.	Salmon
Ranger	Eldorado	Camele Rock	Salmon
Rasmason	Junction	Mrs. Minnie Rasmason	Salt Lake City
Rattler	Kirtley Creek	Homer Harris	Salmon
Ready Cash	Mineral Hill	Peter Wasescha	Shoup
Red Cross Gr.	Unorganized	J. T. Pugh	Salmon
Red Gravel	Mackinaw	Ah Moon	Leesburg
Richardson Pl.	Mackinaw	Will Shoup	Salmon
Ring Bone Cayuse	Mackinaw	Fred Brough	Salmon
Road Agent	Junction	Dick Roach	Leadore
Robinson Lode	Blackbird	Chas. S. Miller	Leesburg
Rosebud	Texas	Rock Vezina	Leadore
Rose & Bohannon	Blackbird	Bohannon Est.	Salmon
Roxie	Silverton	Lemm Cummings	Salmon
Roy	Junction	W. F. Stone	Leadore
Royal Gold	Eureka	Blanche G. Williams	1059 Lexington Av., New York
Ruby	Eldorado	Alfred Erickson	Baker
Silver Glance	Spring Mountain	Chas. J. Elg	Idaho Falls
Silver Moon	Texas	J. H. Lanyon	Gilmore
Sky Scraper	Junction	P. C. Sellers	Leadore
Smuggler et al.	Texas	Mac Carson	Gilmore
Speculation	Mineral Hill	Dave Sandilands	Salmon
Standard Placer	Eureka	Harry Kelly	Salmon
Sunbeam	Blackbird	Chas. Schultz	Salmon
Sunnyside	Texas	Jas. Sims	Salmon
Sunset	Mackinaw	Crist Stuckey	Leesburg
Tempest Gr.	Spring Mountain	Joseph G. Sims	Salmon
Tendoy	Unorganized	S. A. Matthews	Salmon
Tormey Gr.	Unorganized	Dr. F. S. Wright	Salmon
Uncle Sam	Spring Mountain	J. A. Nash	Gilmore

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Union	Spring Mountain	James Sims	Salmon
Vaughn Placer	Mackinaw	T. Hungate	Leesburg
Verdun	Unorganized	Dr. F. S. Wright	Salmon
Vimedii	Carmen Creek	Burt W. Simer	Salmon
Viola	Nicholia	A. F. Shear	Reno
Walkover Placer	Hughes Creek	O. P. Kimmell	Salmon
War Eagle	Pratt Creek	Jack Turnblade	Baker
White Horse	Spring Mountain	O. M. Perkins	Gilmore
Yellow Jacket Pl.	Yellow Jacket	J. M. Burkhart, Jr.	Salmon

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

A geological reconnaissance across Idaho, by G. H. Eldridge: U. S. Geol. Survey Sixteenth Ann. Rept., pt. 2, pp. 217-276, **1895.***

Central Idaho gold field, by Don Maguire: Mines and Minerals, vol. 19, pp. 289-291, February, **1899.***

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey Twentieth Ann. Rept., pt. 3, pp. 75-256, **1900.***

The Hayden Creek, Idaho, meteoric iron, by W. E. Hidden: Am. Jour. Sci., 4th ser., vol. 9, pp. 367-368, **1900.**§

An outline of Idaho geology and of the principal ore deposits of Lemhi and Custer counties, by R.N.Bell: Proc. Int. Min.Cong.,4th sess., pp.64-80 **1901.**§

An extinct glacier of the Salmon River Range, by G. H. Stone: Am. Geology, vol. 11, pp. 406-409, **1903.**§

Mineral deposits of the Bitterroot Range and Clearwater Mountains, Montana, by Waldemar Lindgren: U. S. Geol. Survey Bull. 213, pp. 66-70, **1903.***

A geological reconnaissance across the Bitterroot Range and Clearwater Mountains in Montana and Idaho, by Waldemar Lindgren: U. S. Geol. Survey Prof. Paper 27, **1904.***

A complicated fault system (Gibbonsville, Idaho,) by H. C. Bacon: Eng. and Min. Jour., vol. 79, p. 324, Feb. 16, **1905.**§

Vein structure in the Monument mine, by H. C. Carr: Min. and Sci. Press, vol. 98, pp. 557-558, Apr. 17, **1909.***

Resources of Custer and Lemhi counties, Idaho: Salt Lake Min. Review, vol. 12, pp. 17-19, Mar. 15, **1911.**§

The Yellow Jacket mine, Idaho, by G. L. Sheldon: Eng. and Min. Jour., vol. 93, pp. 221-222, Jan. 27, **1912.**§

Gold deposits at Gibbonsville, Idaho, by F. C. Lincoln: Min. and Sci. Press, vol. 105, pp. 47-49, July 13, **1912.***

Lead-silver mines of Gilmore, Idaho, by Ralph Nichols: Am. Inst. Min. Eng. Trans., vol. 46, pp. 937-939, August, **1913.**§

Geology and ore deposits of Lemhi County, by J. B. Umpleby: U. S. Geol. Survey Bull. 528, **1913.***

Idaho placer operations, by Julius Hornbein: Eng. and Min. Jour., vol. 103, pp. 95-97, Jan. 13, **1917.**§

Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****

Note on cobalt-bearing veins, Lemhi County, Idaho (abstract), by F. L. Hess: Washington Acad. Sci. Jour., vol. 9, No. 16, p. 501, Oct. 4, **1919.**§

Mining experiences in Idaho in the nineties, by G. L. Sheldon: Eng. and Min. Jour., vol. 110, pp. 1212-1214, Dec. 25, **1920.**§

The volatilization process at the Pope Shenon mine, by R. H. Bradford: Min. and Sci. Press, vol. 123, pp. 263-266, Aug. 20, **1921.***

A new copper district near Salmon, Idaho, by C. P. Ross: Eng. and Min. Jour. Press, vol. 118, pp. 205-208, Aug. 9, **1924.**§

A glacially transported mine, by R. T. Walker: Eng. and Min. Jour.-Press, vol. 118, pp. 295-296, Aug. 23, **1924.**§

Ground water in Pahsimeroi Valley, Idaho, by O. E. Meinzer: Idaho Bureau of Mines and Geology Pamphlet 9, **1924.****

The copper deposits near Salmon, Idaho, by C. P. Ross: U. S. Geol. Survey Bull. 774, **1925.**‡

Geology and water resources of the Mud Lake basin, Idaho, by H. T. Stearns and L. L. Bryan: U. S. Geol. Survey Water-Supply Paper 560, pp. 85-134, **1925.**‡

A geologic reconnaissance of Clark and Jefferson, and parts of Butte, Custer, Fremont, Lemhi and Madison counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 19, **1927.***

Ore deposits in Tertiary lava in the Salmon River Mountains, Idaho, by C. P. Ross: Idaho Bureau of Mines and Geology Pamphlet 25, **1927.***

Geology and ore deposits of the Birch Creek district, Idaho, by P. J. Shenon: Idaho Bureau of Mines and Geology Pamphlet 27, **1928.****

Tertiary volcanic tuffs and sandstones used as building stones in the upper Salmon River valley, Idaho, by C. H. Behre, Jr.: U. S. Geol. Survey Bull. 811, pp. 237-252, **1929.**‡

Mining practice at Harmony Mines Co., Baker, Idaho, by R. D. Gardner: U. S. Bureau of Mines I. C. No. 6240, March, **1930.****

Milling methods and costs at the Harmony Mines, Baker, Idaho, by R. D. Gardner: U. S. Bureau of Mines I. C. No. 6285, June, **1930.****

LEWIS COUNTY

Lewis is one of the northern counties, being bounded on the north and west by Nez Perce, on the northeast by Clearwater, and on the east and south by Idaho County. Containing an area of but 470 square miles, and a population of 11.1 persons to the square mile, it is one of the smallest counties in the State in area and one of the largest in density of population. Excepting the small area occupied by Craig Mountains, practically all the county is tillable, and the principal industries are wheat raising and lumbering.

The county is served by the North and South State highway, by the Lewiston-Stites branch of the Northern Pacific Railroad, by the Lewiston-Grangeville branch, which is owned jointly by the Union Pacific and Northern Pacific railroads, by the Nez Perce & Idaho Railroad from Craigmont to Nez Perce, the county seat, and by the Craig Mountain Railroad from Reubens to Winchester.

The principal mineral resources are copper, gold, silver, marble, and limestone. Veins containing copper, gold, and silver have been discovered and developed in the Craig Mountains, principally along Deer Creek. At one time this section received considerable attention, and a small mill was constructed at one of the mines. The marble and limestone occur on Mission Creek near the Nez Perce County line. The marble occurs in all shades, colors, and diagrams familiar to the marble industry; it is exceptionally adaptable to commercial use.

CRAIG MOUNTAIN MINING & MILLING CO.

Office: Lewiston. **Officers:** Ben L. Schultz, Pres.-Mgr., Lewiston; W. W. Burr, Sec., Genesee. **Inc.:** Nov. 30, 1925. **Capital:** 600,000 shares; par value $1; 475,000 shares issued. **Property:** Craig Mountain group; 29 unpatented claims, Deer Creek dist.; Winchester. **Development:** Total development, approximately 5000 ft. **Plant:** Old mining and milling plant and equipment, installed in 1915. **Ore:** Copper. **Remarks:** Annual labor only.

WINCHESTER COPPER MINING & SMELTING CO.

Office: Winchester. **Officers:** T. A. Holmes, Pres., Peck; Alex Kasberg, Acting Sec., Lewiston. **Inc.:** Aug. 7, 1926. **Capital:** 1,500,000 shares; par value 10c; 928,237 shares issued. **Property:** Forest group; 10 unpatented claims, Deer Creek dist.; Winchester. **Development:** By 2 tunnels: No. 1, 520 ft. long; No. 2, 125 ft. long. **Plant:** Steam-driven Sullivan compressor; complete mining equipment and camp. **Ore:** Copper-silver. **Remarks:** Idle. Property sold under foreclosure.

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

A geological reconnaissance across the Bitterroot Range and Clearwater Mountains in Montana and Idaho, by Waldemar Lindgren: U. S. Geol. Survey Prof. Paper 27, **1904.***

Central Idaho gold districts, by S. P. Jellum: Northwest Min. News, vol. 3, pp. 83-91, 107-114, 134-139, **1908**; vol. 4, pp. 2-6, 31-37, 66-73, **1909.***

The Orofino coal field, Clearwater, Lewis, and Idaho counties, Idaho, by C. T. Lupton: U. S. Geol. Survey Bull. 621, pp. 99-108, **1915.***

A preliminary report on the clays of Idaho, by F. H. Skeels: Idaho Bureau of Mines and Geology Bull. 2, p. 59, **1920.***

The copper deposits of the Seven Devils and adjacent districts, by D. C. Livingston and F. B. Laney: Idaho Bureau of Mines and Geology Bull. 1, **1920.***

NEZ PERCE COUNTY

Nez Perce is one of the principal northern counties, bounded on the south and east by Idaho and Lewis counties, on the north and east by Clearwater and Latah counties, and on the west by the States of Washington and Oregon. It has an area of 851 square miles and was accredited with a population of 17,591 in the 1930 census. It is primarily an agricultural county, and Lewiston, the largest town and civic center of north-central Idaho, is the county seat. The county was originally organized under an act of the Legislature of Washington Territory before the Territory of Idaho was organized, and Lewiston was first settled in 1861, consequent to the discovery of, and as a supply point for, the placer mines in Clearwater and Idaho counties.

Lewiston is at the junction of the Snake and Clearwater rivers; steamboats can reach it from Portland, Oregon, although they are not used as a means of transportation from that point, and both rivers are navigable for boats of light draft. In addition to river boats, the county is served by the Union Pacific and Northern Pacific railroads, and by the North and South, and Lewis and Clark State highways.

The principal mineral resources are copper, silver, gold, marble, and limestone. The metals occur in isolated sections of the county and have never received much attention. The limestone, which is adaptable to Portland cement, occurs on the Snake River north of Lewiston, but the deposits have never been developed. The marble, which is of excellent grade and quality, occurs on the Clearwater River near Agatha. A little attempt has been made to exploit the marble deposits.

INDEPENDENT MARBLE & LIME CO.

Office: Lewiston. **Officers:** W. F. Johnson, Pres., Nez Perce; P. R. Bevis, Sec., Lewiston. **Inc.:** Jan. 25, 1926. **Capital:** 1,000,000 shares; par value $1; 250,000 shares issued. **Property:** 140 acres on Mission Creek, held under lease from U. S. government; Culdesac. **Mineral sought:** Limestone.

TAMMANY OIL CO.

Office: Lewiston. **Officers:** B. F. Lorang, Pres., Lewiston. **Inc.:** Jan. 24, 1921. **Capital:** 100,000 shares; par value $1; July 13, 1921, increased to 1,000,000 shares. **Remarks:** Failed to file the reports required by law.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Gold Standard	Cave Gulch	G. C. Ettershank	Lewiston
Homestead Entry	Clearwater	G. H. Gibbs	R. F. D. No. 2, Juliaetta
Iron Cap	Peck	W. H. Rugg	Peck
Montana	Unorganized	Frank Cole	Lewiston

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

Geology and water resources of Nez Perce County, Idaho, by I. C. Russell: U. S. Geol. Survey Water-Supply Papers 53 and 54, **1901.‡***

A geological reconnaissance across the Bitterroot Range and Clearwater Mountains of Montana and Idaho, by Waldemar Lindgren: U. S. Geol. Survey Prof. Paper 27, **1904.***

Central Idaho gold districts, by S. P. Jellum: Northwest Min. News, vol. 3, pp. 83-91, 107-114, 134-139, **1908**; vol. 4, pp. 2-6, 31-37, 66-73, **1909.***

Portland cement materials and industry in the United States, by E. C. Eckel, with contributions by E. F. Burchard and others: U. S. Geol. Survey Bull. 522, pp. 135-140, **1913.***

Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 60, art. 3, pp. 1-33, **1921.‡**

ONEIDA COUNTY

The only known mineral resources of this county are: Bentonite; various clays of excellent quality; and the reported occurrence of copper-lead ores carrying gold and silver.

BLUE JAY MINING CO.

Office: R. F. D. No. 1, Malad. **Officers:** David M. Williams, Pres.-Mgr.; T. E. Ray, Sec., both of Malad. **Inc.:** Nov. 6, 1929. **Capital:** 2,500,000 shares; par value 10c; 1770 shares issued. **Property:** Blue Jay group; 6 unpatented claims, unorganized dist.; Malad. Held under lease and option from David M. Williams. **Development:** By 3 tunnels: No. 1, 600 ft. long; No. 2, 120 ft. long; No. 3, 200 ft. long. **Ore:** Lead-copper-gold-silver. **Men employed:** Average, 2. **Remarks:** A small amount of work during the year.

OWYHEE COUNTY

Owyhee is one of the historic counties of Idaho. It is situated in the southwestern portion of the State, and is bounded on the north by Canyon, Ada and Elmore counties, on the east by Twin Falls County, on the south by the State of Nevada, and on the west by the State of Oregon. Its area is 7,956 square miles, being larger than the State of New Jersey, and its population according to the 1930 census was only 4,103, or 0.5 persons to the square mile. The principal industries are farming, stockraising, and mining. Silver City, one of the oldest towns in the State, is the county seat.

The history of this county dates back to the discovery of placer gold and the rich veins of War Eagle Mountain in 1863. The first quartz mill was constructed in 1864, and for many years thereafter Owyhee was the principal mining county. The ores which occur in this county are the richest gold-silver ores ever discovered in the State, and many tons which were either milled or sent directly to smelter had a phenomenal value. Early statistics are not very reliable, but from the best sources available, an estimated production of over $40,000,000 is conservative.

The principal mineral resources of the county are silver, gold, copper, lead, zinc, antimony, diatomaceous earth, opals, manganese, and nitrates. The diversity of mineralization, the favorable geological conditions, and the wide distribution of the deposits throughout the county make it an exceptionally favorable field for prospectors and development companies, particularly because all the high-grade ore in the old mines has not been exhausted, nor have all the veins been discovered.

1931 Activities

One of the largest and most important new enterprises based on the development of lead-zinc-silver ores which was started in the State during 1929 was that of the Exploration Co. of California, at the Golconda group, in the South Mountain district. New buildings were constructed, complete mining equipment was installed, and development work was started. A large amount of crosscutting, drifting, and sinking was done. This work greatly increased the known resources of the property. These operations continued until late in 1931, when the low price of metals caused a suspension of all operations pending a return of normal metal prices.

The most important new enterprise to enter this county was that of the Golden Chariot-War Eagle Mines Co., which acquired the principal properties on War Eagle Mountain and commenced work in May. The power line was rebuilt; equipment was repaired; and Sinker tunnel and an upper tunnel were reopened. An extensive examination was then started, a small amount of development work was done, and all operations were suspended in August. The American Gold Dredging Corporation, on Meadow Creek, near Triangle, operated its dredge during the spring months; after which time, the shortage of water made it impossible to operate. The B. B. & M. Oil & Gas Co., near Grandview, was active during the early part of the year and sunk a small well to a depth of 1,500 feet.

The silver resources of the Castle Creek section and the gold properties in the Reynolds Creek section, both received a small amount of attention, although no work of any importance was done.

Lessees at the properties of the Empire Mines Co. and the Never-Sweat Mining Co., at Silver City, were active throughout the year and produced and marketed a small tonnage of high-grade ore.

The Idaho Gold & Platinum Merger Mines Co., an enterprise based on the alleged presence of platinum in the volcanic glass sands which lie at a depth of about 200 feet in the artesian basin of Little Valley, near Bruneau, performed a small amount of work during the year and gave the project a large amount of publicity through the press and through circulars designed to finance further the project.

AFTERTHOUGHT MINING CO.

Office: 434 First Nat'l Bank Bldg., Boise. **Officers:** E. V. Orford, Pres.; S. L. Tipton, Sec., both of Boise. **Inc.:** Feb. 15, 1927. **Capital:** 400,000 shares common, 100,000 shares preferred; par value $1; 165,010 shares common, 3800 shares preferred issued. **Property:** Afterthought group; 1 patented, 4 unpatented claims, French dist.; Silver City; held under lease and option from E. V. Orford, Boise. **Development:** Principally by a vertical shaft 470 ft. deep, in which there are 5 intermediate levels. **Ore:** Silver-gold. **Remarks:** Annual labor only.

AMERICAN GOLD DREDGING CORPORATION

Office: 4817 W. Vernon Highway, Detroit, Mich. **Officers:** Walter J. Long, Pres.-Mgr., 8th St. & Garden Ave., Boise; L. H. Marvill, Sec., Detroit, Mich. **Inc.:** Filed in Idaho, Jan. 2, 1926. **Capital:** 300,000 shares common, 200,000 shares preferred; par value $1; all shares common, all shares preferred issued. **Property:** Meadow Creek group; 10 unpatented placer claims, containing 200 acres, Steele dist.; Triangle. **Plant:** Electrically driven table-type Yuba dredge with 2½ cu. ft. buckets close connected. **Ore:** Placer gold. **Men employed:** Average, 10. **Remarks:** Dredge operated for three months during the spring, after which the shortage of water made is impossible to operate.

BANNER MINING & MILLING CO.

Office: Idaho Bldg., Boise. **Officers:** Peter Steele, Pres.-Mgr., Silver City; F. S. Heer, Sec., Boise. **Inc.:** June 15, 1905. **Capital:** 1,500,000 shares; par value $1; 1,345,315 shares issued. **Property:** Banner group; 10 patented, 5 unpatented claims, Carson dist.; Silver City. **Development:** Over 11,000 ft. of underground workings. **Remarks:** Idle since 1923.



AMERICAN GOLD DREDGING CORPORATION'S DREDGE

B. B. & M. OIL & GAS CO.

Office: Boise. **Officers:** R. K. McDougal, Pres.; C. L. Blodgett, Sec.; D. A. Bowe, Mgr., all of Boise. **Inc.:** Dec. 18, 1930. **Capital:** 50,000 shares; par value $1; 34,474 shares issued. **Property:** Oil and gas leases on patented farm lands near Grandview. **Development:** 1588-ft. well. **Mineral sought:** Oil and gas. **Remarks:** Well was sunk during the early part of the year, the equipment used being rented.

COSMOPOLITAN MINING CO., LTD.

Office: Murphy. **Officers:** Fred L. Barlow, Pres., Nampa. **Inc.:** Nov. 17, 1923. **Capital:** 500,000 shares; par value $1; 114,936 shares issued. **Property:** Hammond group; 5 unpatented claims, Carson dist.; Silver City. **Development:** By 1 tunnel 700 ft. long. **Ore:** Gold and silver. **Remarks:** A small amount of work by lessees.

E. B. MINING CO.

Office: Mountain Home. **Officers:** E. G. Dollmeyer, Pres., Chicago, Ill.; O. G. Crook, Sec., Glenns Ferry. **Inc.:** Nov. 5, 1929. **Capital:** 250,000 shares; par value $1; 177,007 shares issued. **Property:** Illinois group; 7 unpatented claims, Rough Mountain dist.; Grandview. **Development:** Principally by 1 tunnel 1300 ft. long. **Ore:** Silver. **Remarks:** A small amount of work during the summer months in rehabilitating the principal tunnel.

EMPIRE MINES CO.

Office: Idaho Bldg., Boise. **Officers:** Peter Steele, Pres.-Mgr., Silver City; F. S. Heer, Sec., Boise. **Inc.:** Sept. 15, 1923. **Capital:** 2,500,000 shares; par value $1; 900 shares issued. **Property:** Trade Dollar group; 38 patented, 4 unpatented claims, Carson dist.; Silver City. **Remarks:** Part of mine under lease to the Hoosier Leasing Co.

EXPLORATION COMPANY OF CALIFORNIA

Office: 505 Balfour Bldg., San Francisco, Calif. **Officers:** Charles Butters, Pres.; A. L. Dahl, Sec., both of San Francisco, Calif. **Inc.:** Filed in Idaho Nov. 12, 1929. **Capital:** 200,000 shares; no par value; 64,305 shares issued. **Property:** Golconda group; 15 patented, 10 unpatented claims, South Mountain dist.; Jordan Valley. Held under lease and option from Golconda Group Mining Co. and M. G. Sacrider. **Development:** Principally by 4 tunnels totaling over 3500 ft. **Plant:** 2 gas-driven compressors; gas-

driven hoist; complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Men employed:** Average, 30. **Remarks:** The company was organized and the property acquired late in 1929, after which camp buildings were erected, equipment and machinery installed, and development work started. Except for a period of four weeks during 1930, work has progressed without interruption, and a large amount of crosscutting, drifting, and sinking has been done. This work has greatly increased the known resources of the property. Operations were conducted until late in 1931, when the low price of metals caused a suspension of all operations.

GOLCONDA GROUP MINING CO.

Office: N. 610 Washington St., Spokane, Wash. **Officers:** G. A. Sonneman, Pres.-Mgr.; E. W. Sonneman, Sec., both of Spokane, Wash. **Inc.:** Jan. 11, 1908. **Capital:** 1,500,000 shares; par value 1c; all shares issued. **Property:** South Mountain group; 15 patented claims, South Mountain dist.; Jordan Valley, Ore. **Plant:** Small gas-driven compressor. **Ore:** Lead-zinc-silver. **Remarks:** Under option to Exploration Co. of California.

GOLDEN CHARIOT-WAR EAGLE MINES CO.

Office: 120 Broadway, New York City. **Officers:** W. R. Wade, Pres.; Rex Townsend, Sec., both of New York City. **Inc.:** Jan. 19, 1931. **Capital:** 1,000,000 shares; par value $1; 703,000 shares issued. **Property:** 10 patented, 5 unpatented claims, held under lease and option, French dist.; Silver City. **Development:** By 4 tunnels: No. 1, 6200 ft.; approximate total development, 11,600 ft. **Plant:** Electrically driven compressor; complete mining equipment and camp. **Ore:** Gold-silver. **Men employed:** Average, 8. **Remarks:** This was the most important new enterprise to enter the county during the year. Work was commenced in May. The power line was rebuilt, equipment repaired, the Sinker tunnel reopened. An extensive examination was then started, a small amount of development work done and all operations suspended in August.

GOLD STANDARD MINING CORPORATION

Office: Boise. **Officers:** W. C. Dewey, Pres.-Mgr.; Victor Shawe, Sec., Boise. **Inc.:** Dec. 23, 1930. **Capital:** 2,000,000 shares common, 1,000,000 shares preferred; par value $1; shares issued, unknown. **Property:** Sunnyside group; 8 unpatented claims on Reynolds Creek, Carson dist.; Murphy. **Development:** By 2 tunnels: No. 1, 1380 ft. long; No. 2, 550 ft. long; and a vertical shaft 150 ft. deep. **Ore:** Gold. **Remarks:** Idle.

GREAT WESTERN MINES CO.

Office: Room 154, Republican House, Milwaukee, Wis. **Officers:** A. J. Kraemer, Pres., Menomonee Falls, Wis.; F. H. Mayhew, Sec., Milwaukee, Wis.; T. W. Galigher, Agent, 915 N. 21st St., Boise. **Inc.:** Nov. 29, 1920. **Capital:** 1,500,000 shares; par value 1c; 1,385,018 shares issued. **Property:** Quaker group; 14 unpatented claims, French dist.; Silver City. **Development:** By 2 tunnels: No. 1, 2600 ft. long; No. 2, 2800 ft. long. **Plant:** Electrically-driven 10x10 compressor; complete mining equipment and camp. **Ore:** Gold. **Remarks:** Annual labor only.

HOOSIER LEASING CO.

Office: Silver City. **Officers:** Charles A. Hackney, Pres.; Peter Steele, Mgr., both of Silver City; John W. Shore, Sec., Boise. **Inc.:** Nov. 16, 1926. **Capital:** 100,000 shares; par value $1; 64,000 shares issued. **Property:** Lease on Alpine vein from Empire Mines Co.; Carson dist.; Silver City. **Development:** Operations conducted through Blaine tunnel. **Ore:** Gold-silver. **Men employed:** Average, 2. **Remarks:** A small amount of high-grade ore was produced and marketed during the early part of the year.

IDA BELL GOLD MINES, INC.

Office: 520 16th Ave. S., Nampa. **Officers:** S. B. McCrosky, Pres.; Charles Rohm, Sec., both of Nampa. **Inc.:** Oct. 6, 1930. **Capital:** 100,000 shares; par value $1; all shares issued. **Property:** 5 unpatented claims on Reynolds Creek, held under lease and option, Carson dist.; Murphy. **Development:** By 2 tunnels: No. 1, 600 ft. long; No. 2, 150 ft. long. **Plant:** 5-ton gas-driven mill. **Ore:** Gold.

IDAHO GOLD & PLATINUM MERGER MINES CO.
Office: Box 150, Bruneau. **Officers:** Phil Thom, Pres.-Mgr.; E. A. Thom, Sec., both of Bruneau. **Inc.:** Filed in Idaho: Oct. 30, 1928. **Capital:** 5,000,000 shares; par value 10c; 3,887,390 shares issued. **Property:** 10 unpatented claims, 1380 acres, unorganized dist.; Little Valley; Bruneau. **Plant:** 30-h. p. gas-driven hoist; steam-driven compressor; complete mining equipment and camp. **Ore:** Platinum. **Men employed:** Average, 8. **Remarks:** This company's enterprise is based on the presence of platinum in a volcanic glass sand lying at a depth of about 250 ft. in an artesian basin. In 1929 work was started on sinking a vertical shaft lined with concrete. This work was continued throughout 1930 to a total depth of approximately 170 ft. A few churn drill holes were sunk during 1931, the funds for which were obtained from stock assessments and resale of delinquent stock.

IMPERIAL MINING & MILLING CO., LTD.
Office: 1025 University Bldg., Denver, Colo. **Officers:** B. M. Webster, Sec., Denver, Colo. **Inc.:** Mar. 13, 1903. **Capital:** 500,000 shares; par value $1; all shares issued. **Property:** Imperial Lode; 1 patented claim, French dist.; Silver City.

NEVER-SWEAT MINING CO.
Office: Nampa. **Officers:** Windsor J. Lloyd, Pres.; D. L. Rhodes, Sec., both of Nampa. **Inc.:** July 6, 1922. **Capital:** 50,000 shares; par value $10; 27,000 shares issued. **Property:** Never-Sweat group; 12 patented claims, French dist.; Silver City. **Development:** By 2 tunnels: No. 1, 2200 ft. long; No. 2, 1100 ft. long, in which is a vertical shaft 50 ft. deep. **Plant:** MINE: Electrically-driven compressor and complete mining equipment. MILL: 50-ton mill; fine grinding, amalgamation plates, and concentrating tables. Complete mine camp. **Ore:** Silver-gold. **Remarks:** Mill operated for a few days on ore which was extracted by 2 lessees.

OWYHEE DEVELOPMENT CO., INC.
Office: Reynolds. **Officers:** Frank W. Roberts, Pres.; A. L. Klinginsmith, Sec., both of Caldwell. **Inc.:** Sept. 29, 1930. **Capital:** 500,000 shares; par value $1; 201,840 shares issued. **Property:** Coal prospecting permit from U. S. government. **Development:** By 1 tunnel 115 ft. long. **Mineral sought:** Coal. **Men employed:** Average, 2.

OWYHEE GOLD MINING CO.
Office: Nampa. **Officers:** M. D. Polk, Pres.; V. C. Belknap, Sec., both of Nampa; John B. Platts, Mgr., Wallace. **Inc.:** Sept. 3, 1925. **Capital:** 500,000 shares; par value $1; 353,000 shares issued. **Property:** Mountain Chief group; 3 unpatented claims, French dist.; Silver City. **Development:** Principally by 3 tunnels: No. 1, 200 ft.; No. 2, 175 ft.; No. 3, 850 ft. Total depth 400 ft. **Plant:** 50-ton amalgamation mill. **Ore:** Gold. **Remarks:** Failed to file the reports required by law.

OWYHEE SILVER MINES CO.
Office: Mountain Home. **Officers:** W. C. Dodge, Pres.; Frank Dodge, Sec.; Charles Sayko, Mgr., all of Mountain Home. **Inc.:** June 2, 1928. **Capital:** 2,500,000 shares; par value 10c; 1,587,700 shares issued. **Property:** Lucky Day group; 4 unpatented claims, Rough Mountain dist.; Grandview. **Development:** By 1 tunnel 300 ft. long. **Plant:** Gas-driven hoist; 10-stamp mill and amalgamation. **Ore:** Silver. **Remarks:** Idle.

PIXLEY BASIN MINING CO.
Office: Boise. **Officers:** C. E. Beymer, Pres.; F. E. Graves, Sec., both of Boise. **Inc.:** April 11, 1930. **Capital:** 1,000,000 shares; par value 1c; 40,264 shares issued. **Property:** 6 patented claims, held under lease and option from the Castle Creek Mining & Milling Co., Steele dist.; Grandview. **Development:** Principally by 1 tunnel 870 ft. long. **Plant:** A small gas-driven flotation concentrator. **Ore:** Silver. **Men employed:** Average, 2. **Remarks:** A small amount of work during the early part of the year.

WAR EAGLE CONSOLIDATED MINING CO.

Office: 919 Real Estate Trust Bldg., Philadelphia, Pa. **Officers:** Frank S. Lewis, Pres.; E. T. Woolmington, Sec., both of Philadelphia. **Inc.:** Filed in Idaho: Apr. 22, 1907. **Capital:** 60,000 shares preferred, 240,000 shares common; par value $50; all shares issued. **Property:** South Oro Fino and Mahogany groups; 8 patented, 2 unpatented claims, French dist.; Silver City. **Remarks:** Property under lease and option to Golden Chariot-War Eagle Mines Co.

WAR EAGLE MINING & MILLING CO.

Office: Boise. **Officers:** Howard C. Price, Pres., Portland, Ore.; E. P. Barnes, Sec., Boise. **Inc.:** Jan. 4, 1927. **Capital:** 1,000,000 shares; par value 10c; 510,000 shares issued. **Property:** Red Jacket group; 5 unpatented claims, French dist.; Silver City. **Development:** 3 tunnels, the principal one of which is over 2000 ft. long. **Plant:** Electrically driven compressor; complete mining equipment and camp. **Ore:** Gold and silver. **Remarks:** Annual labor only.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Addie Group	French	F. M. Orem	Salt Lake City, U.
American Eagle et al.	Carson	Idawa Gold Mng. Co.	Boise
Browney	Carson	Henry Hugg	Silver City
Chief	Unorganized	Mrs. Lois Steen	Oreana
Daly Group	Carson	J. W. Daly	Silver City
De Lamar	Carson	W. R. Helm	Jordan Valley, Ore.
Deluge et al.	Carson	John Grete	Silver City
Demming et al.	Steele	Demming Ex. Co. Trst	Nampa
Dubuque et al.	Carson	Elisha Lewis	Silver City
Gold Bug	French	Charles Cook	Silver City
Gold Hen et al.	Carson	H. P. Cox	Murphy
Gold Mile et al.	Carson	V. Richardson	Silver City
Golden Gate	Carson	Asher A. Getchell	Twin Falls
Happy Boy	Unorganized	A. T. Evans	Mountain Home
Henrietta	Carson	C. L. Norcross	168 Dartmouth St., Boston, Mass.
Home et al.	Carson	W. J. Stoddard	Silver City
Homestake	French	Mrs. George Schlack	Silver City
Lindy et al.	Carson	H. H. Bonnell	Silver City
Little Chief	Carson	James Carrolan	De Lamar
Meadow Lark	Carson	Willenegger Bros.	De Lamar
Mountain Chief	Carson	F. Robinson	Nampa
Nellie Ann No. 1	Carson	W. W. Jones, M. D.	Jordan Valley, Ore.
Ontario	Carson	Mrs. J. Mattenson	Boise
Owyhee et al.	Carson	Emma Brumbaugh	Silver City
Pauper	Carson	R. H. Leonard	Silver City
Perseverance	Flint	R. V. Thurston	Payette
Poorman	French	Fred Grete	Silver City
Potosi	Carson	Jack Stoddard	Silver City
Rich Gulch	Carson	Sam Williams	Tulsa, Okla.
Roosevelt et al.	Carson	R. Noble Est.	Boise
Rose et al.	Carson	James McNally	De Lamar
Ruth	French	Geo. Westlake	Hailey
San Juan et al.	French	Mary Grete Est.	Silver City
Silver Leaf et al.	French	N. C. Chapman	Boise
Snow Storm et al.	French	Lafe Boone	Boise
Star Gr.	Carson	Lewis Bros.	Silver City
Sugar Loaf	French	A. P. Nugent	Silver City
Sunnyside	Carson	I. E. Barber, Trus.	Boise
Tango et al.	Carson	A. J. Swan	Nyssa, Ore.
Tennesse et al.	Carson	John Nemanic	Silver City
Village Blacksmith	Carson	Duncan & Lackey	Silver City
Wennerstein Gr.	Carson	Andrew Wennerstein	Nampa
War Eagle Gr.	French	Wm. Healy	Boise

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

Precious stones; opal, by G. F. Kunz: U. S. Geol. Survey Mineral Resources, 1893, p. 698.*

A geological reconnaissance across Idaho, by G. H. Eldridge: U. S. Geol. Survey Sixteenth Ann. Rept., pt. 2, pp. 217-276, 1895.*

An Idaho silver-gold camp (Florida Mountain district), by F. G. Corning: Eng. and Min. Jour., vol. 60, p. 244, Sept. 14, 1895.§

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey Twentieth Ann. Rept., pt. 3, pp. 65-256, 1900.*

Some Idaho mining districts, by Arthur Lakes: Mines and Minerals, vol. 22, pp. 203-206, December, 1901.*

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, pp. 42, 71 and 173, 1902.*

Notes on geology of southwestern Idaho and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Bull. 217, 1903.*

Preliminary report on artesian basins in southwestern Idaho and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Water-Supply Paper 78, 1903.‡

Description of the Silver City quadrangle, by Waldemar Lindgren: U. S. Geol. Survey Geol. Atlas, Folio No. 104, 1904.*

Description of the Nampa quadrangle, by Waldemar Lindgren: U. S. Geol. Survey Geol. Atlas, Folio No. 103, 1904.*

South Mountain, Idaho, by R. N. Bell: Eng. and Min. Jour., vol. 83, pp. 283-284, Feb. 9, 1907.§

The De Lamar mine of southwest Idaho, by H. S. Brown and F. G. Mudgett: California Jour. Tech., vol. 12, pp. 35-41, 1908.*

Some gold deposits of the Northwest, by F. C. Lincoln: Eng. and Min. Jour., vol. 92, p. 408, Aug. 26, 1911.§

Nitrate deposits in southern Idaho and eastern Oregon, by G. R. Mansfield: U. S. Geol. Survey Bull. 620, pp. 19-44, 1915.*

Reopening of old De Lamar mine under way, by R. N. Bell: Eng. and Min. Jour., vol. 110, pp. 538-539, Sept. 11, 1920.§

An occurrence of naumannite in Idaho, by E. V. Shannon: Am. Jour. Sci., 4th ser., vol. 50, pp. 390-391, November, 1920.*

A preliminary reconnaissance of the gas and oil possibilities of southwestern and south-central Idaho, by J. P. Buwalda: Idaho Bureau of Mines and Geology Pamphlet 5, 1923.*

Geology and water resources of the Bruneau River basin, Owyhee County, Idaho, by A. M. Piper: Idaho Bureau of Mines and Geology Pamphlet 11, 1924.*

Discovery of a Balkan fresh-water fauna in the Idaho formation of Snake River valley, Idaho, by W. H. Dall: U. S. Geol. Survey Prof. Paper 132, pp. 109-115, 1924.‡

Geology and metalliferous resources of the region about Silver City, Idaho, by A. M. Piper and F. B. Laney: Idaho Bureau of Mines and Geology Bull. 11, 1926.*

The geology and ore deposits of the South Mountain mining district, Owyhee County, Idaho, by R. E. Sorenson: Idaho Bureau of Mines and Geology Pamphlet 22, 1927.*

PAYETTE COUNTY

The only known mineral resources of this county are diatomaceous earth; various clays of excellent quality; and natural gas, which has been developed at Payette.

1931 Activities

In 1930 the Crystal Dome Oil & Gas Co., whose property lies in Payette and Washington counties, erected an 84-foot derrick, installed a standard steam-driven drilling rig, and sunk a well to a depth of 1,865 feet, at which point a showing of natural gas was encountered. In November, 1930, this company entered into an operating agreement with the Mountain States Oil & Gas Co. After months of intensive study by the geologists of the Ohio Oil Co. and after additional months of negotiations with the Mountain States Oil & Gas Co., the former company, operating under the name of its vice president, R. J. Berry, took over all the properties of the latter company on a lease basis. In September, 1931, a standard 122-foot derrick was erected; a complete rotary drill, run by a 125-horsepower Clark gas engine, gas-driven pumps, control heads, and a water system were installed; and drilling operations were started on October 4. The drill was manned by 16 experienced men and was operated 24 hours a day. By December 31 the new well, which was located a few feet south of the original well sunk by the Crystal Dome Oil & Gas Co., had reached a depth of 4,000 feet. The entire enterprise represented an expenditure of more than $100,000.

The wide publicity given to the encountering of natural gas by the Crystal Dome Oil & Gas Co. and the operations of the Ohio Oil Co. attracted a large amount of attention to this county and resulted in the organization of many new companies and the sinking of other wells. The Boise Petroleum Corporation, whose property is located in the Willow Creek section, erected a large derrick, installed standard steam-driven well-drilling equipment and, during the early part of the year, sunk a well to a depth of 1,100 feet.

At a site a few miles east of Payette, a small wooden derrick was erected, drilling equipment was installed, and the sinking of a well was started by a Mr. Louis Lilly. The size, type, and kind of equipment and the depth to which the well was drilled are unknown, as Mr. Lilly refused to file any information with the inspector other than that he was acting as "sole trustee."

Adjacent to Mr. Lilly's operations, a small well-drilling rig was installed, and work was started in sinking a small well, known as the "Underhill well." Whether this operation was conducted by Mr. H. H. Underhill personally or by the Northwestern Co., which filed articles of incorporation on October 19, 1931, and of which Mr. Underhill was designated as president, is unknown, as Mr. Underhill refused to file with the inspector of mines the reports which are required by law.

The Idaho-Oregon Petroleum Corporation reported that its property was idle throughout the year and was "under lease to International Finance Corporation of Payette, Idaho, H. H. Underhill, president." Such a corporation has never qualified to do business in Idaho nor has it ever filed with the inspector of mines the reports which are required by law.

ASSOCIATED OIL & GAS CO. OF CRYSTAL DOME STRUCTURE

Office: Nampa. **Officers:** Oscar Bauman, Pres.; P. W. Duffes, Sec., both of Nampa. **Inc.:** Feb. 4, 1931. **Capital:** 500,000 shares; par value $1; 150,000 shares issued. **Property:** 211 acres of oil and gas leases. **Mineral sought:** Oil and gas.

BLUE MOUNTAIN MINING & DEVELOPMENT CO.

Office: Payette. **Officers:** H. B. Catron, Pres.; M. R. Fox, Sec.; U. G. Stearns, Mgr., all of Payette. **Inc.:** Sept. 24, 1930. **Capital:** 50,000 shares; par value $1; 255 shares issued.

BOISE PETROLEUM CORPORATION

Office: Fruitland. **Officers:** Henry Reins, Pres.; Theodore Reins, Sec., both of Fruitland; L. W. Kiene, Mgr., Payette. **Inc.:** Feb. 11, 1931. **Capital:** 5,000,000 shares; no par value; 750,000 shares issued. **Property:** Oil and gas leases on 6500 acres. **Plant:** Steam-driven drill. **Mineral sought:** Oil and gas. **Men employed:** Average, 3. **Remarks:** Derrick erected, equipment installed, and well sunk to a depth of 1100 ft.



DERRICK OF BOISE PETROLEUM CORPORATION

CHERRY GULCH OIL & GAS CO.
Office: Payette. **Officers:** L. W. Kiene, Pres.-Mgr.; Henry Ashcroft, Sec., both of Payette. **Inc.:** Aug. 26, 1931. **Capital:** 50,000 shares; no par value; 24,405 shares issued. **Property:** Oil and gas leases on patented farm lands in Washington and Payette counties.

IDAHO GAS & UTILITIES CORPORATION
Officers: J. S. Jacobs, Payette. **Inc.:** Nov. 13, 1931. **Capital:** 1,000,000 shares; no par value; shares issued, unknown. **Remarks:** Failed to file the reports required by law.

IDAHO-OREGON OIL & GAS CO.
Office: Payette. **Officers:** L. Haarmann, Pres.-Mgr.; F. Rasmussen, Sec., both of Payette. **Inc.:** May 12, 1923. **Capital:** 10,000 shares; par value $10; 6500 shares issued. **Property:** Oil and gas leases on patented farm land, little Willow Creek; Payette. **Plant:** Complete small well-drilling equipment. **Mineral sought:** Oil and gas.

IDAHO-OREGON PETROLEUM CORPORATION
Office: Payette. **Officers:** L. V. Patch, Pres.-Mgr.; C. A. Smith, Sec., both of Payette. **Inc.:** Dec. 1, 1927. **Capital:** 5000 shares; no par value; 950 shares issued. **Development:** 2 wells: one 1800 ft. deep and one 1180 ft. deep. **Plant:** Complete well-drilling equipment, steam-driven. **Mineral sought:** Oil and gas. **Remarks:** Idle throughout the year. This company absorbed the assets of the Idaho Petroleum Co. through an exchange of stock. Property leased to the International Finance Corporation, which has never filed articles of incorporation in Idaho nor the reports required by law.

INTERMOUNTAIN BASIN OIL & GAS CO.
Office: Emmett. **Officers:** C. A. Robison, Pres., New Plymouth; R. L. Battan, Sec., Letha. **Inc.:** Nov. 28, 1930. **Capital:** 100,000 shares; par value $1; 5267 shares issued.

NORTHWEST DRILLING CO.
Office: Caldwell. **Officers:** D. E. Baird, Pres.; G. M. Johnson, Mgr., both of Caldwell; W. F. Homan, Sec., Weiser. **Inc.:** May 23, 1931. **Capital:** 100,000 shares; par value $1; 22,000 shares issued. **Property:** Oil and gas leases on 6000 acres.

NORTHWESTERN CO.
Officers: H. H. Underhill, Payette. **Inc.:** Oct. 19, 1931. **Capital:** 25,000 shares; par value $1; shares issued, unknown. **Remarks:** Refused to file the reports required by law, although notified three times to do so. Newspaper reports were to the effect that a small water well-drilling equipment was installed and a shallow well sunk.

OIL STATES DRILLING CO.
Office: Weiser. **Officers:** Willard Scowcroft, Pres., Ogden, Utah; John T. Shepard, Sec., Weiser. **Inc.:** Feb. 17, 1931. **Capital:** 100,000 shares; par value $1; 1000 shares issued. **Remarks:** Company states it has a drilling contract to drill on land which is leased to the Associated Oil & Gas Co. of Crystal Dome Structure.

PACIFIC GAS & OIL CO.
Office: Boise. **Officers:** Chester Cowley, Pres.; W. R. Teller, Sec., both of Boise. **Inc.:** Nov. 26, 1930; charter forfeited Dec. 1, 1931. **Capital:** 100,000 shares; par value $1; 8803 shares issued. **Property:** Lease on 320 acres, 6 miles from Payette.

PAYETTE VALLEY OIL & GAS CORPORATION
Office: Payette. **Officers:** J. C. Palumbo, Pres.; B. L. Stamey, Sec., both of Payette. **Inc.:** Apr. 28, 1930. **Capital:** 15,000 shares; par value $10; 344 shares issued. **Remarks:** Failed to file the reports required by law.

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Notes on geology of southwestern Idaho and southeastern Oregon, by I. C. Russell: U. S. Geol. Survey Bull. 217, **1903.***

Description of the Nampa quadrangle, by Waldemar Lindgren and N. F. Drake: U. S. Geol. Survey Geol. Atlas, Folio No. 103, **1904.***

Gas and oil prospects near Vale, Oregon, and Payette, Idaho, by C. W. Washburne: U. S. Geol. Survey Bull. 431, pp. 26-55, **1909.***

Oil and gas possibilities of eastern Oregon, by J. P. Buwalda: Oregon Bureau of Mines and Geology, vol. 3, No. 2, **1921.***

A preliminary reconnaissance of the gas and oil possibilities of southwestern and south-central Idaho, by J. P. Buwalda: Idaho Bureau of Mines and Geology Pamphlet 5, **1923.***

POWER COUNTY

The most active development work done in this county during the year was that of the Independent Mining Co. at its lead-silver prospect near Rockland. The oil development companies were practically idle throughout the year.

A few placer mines along the Snake River produced and marketed a small amount of placer gold.

ARBON VALLEY OIL CO.
Office: Pocatello. **Officers:** D. C. Ray, Pres.; L. B. Evans, Sec., both of Pocatello. **Inc.:** Feb. 20, 1923. **Capital:** 250,000 shares; par value $1; 222,500 shares issued. **Property:** Oil leases on patented farm land which have been assigned to Gem State Petroleum Co.

GEM STATE PETROLEUM CO.
Office: Pocatello. **Officers:** H. C. Harris, Pres.-Mgr.; S. G. Baker, Sec., both of Pocatello. **Inc.:** Oct. 2, 1923. **Capital:** 300,000 shares; par value $1; increased July 22, 1929, to 350,000 shares; 304,630 shares issued. **Property:** Oil and gas leases on approximately 5000 acres of farm land in Arbon Valley. **Development:** 10-inch well, 3450 ft. deep. **Mineral sought:** Oil and gas. **Remarks:** "Depth of well May 31, 1927: 2550 ft. Depth of well May 31, 1928: 2810 ft. Depth of well May 31, 1929: 3450 ft. Depth of well July 2, 1930: 3845 ft." Idle during 1931.

IDAHO RESEARCH AND DEVELOPMENT CO.

Office: 805 S. 10th Ave., Pocatello. **Officers:** Geo. Williams, Pres., Pocatello; Geo. Stoll, Sr., Sec.-Mgr., 4506-17 N. E. St., Seattle, Wash. **Inc.:** Aug. 2, 1920. **Capital:** 200,000 shares; par value $5; 123,504 shares issued. **Property:** Oil and gas leases in Arbon Valley. **Plant:** 15-h. p. steam-driven well-drilling rig and equipment. **Mineral sought:** Oil and gas. **Remarks:** Idle throughout the year. Leases assigned to Gem State Petroleum Co.

INDEPENDENT MINING CO.

Office: Rockland. **Officers:** G. B. Geswaldi, Pres.-Mgr., Kellogg; Jennie M. Anderson, Sec., Rockland. **Inc.:** Oct. 24, 1925. **Capital:** 2,000,000 shares; par value 25c; 1,100,000 shares issued. **Property:** Independent group; 16 unpatented claims, unorganized dist.; Rockland. **Development:** By 1 shaft 230 ft. deep. **Plant:** Gas-driven 8x10 Sullivan compressor; small air-driven hoist; complete mining equipment. **Ore:** Lead-silver. **Remarks:** Annual labor only.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Bannock Peak	Unorganized	Frazier & McClandon	American Falls
Diamond et al Pl.	Snake River	Wm. M. Main	Aberdeen
Golden Clift Pl.	Snake River	Geo. J. Wheeler	American Falls
.....Pl.	Snake River	M. Launsberry	Minidoka
.....Pl.	Snake River	L. N. Rosencrans	American Falls
.....Pl.	Snake River	J. O. Payne	American Falls
.....Pl.	Snake River	Wm. & C. Wagstaff	American Falls

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

A preliminary report on the clays of Idaho, by F. H. Skeels: Idaho Bureau of Mines and Geology Bull. 2, **1920.***

Geography, geology, and mineral resources of the Fort Hall Indian Reservation, Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 713, **1920.**‡

Possibilities of petroleum in Power and Oneida counties, Idaho, by A. M. Piper: Idaho Bureau of Mines and Geology Pamphlet 12, **1924.****

SHOSHONE COUNTY

Shoshone County lies in the northern part of the State, and is bounded on the east by the State of Montana, on the south by Clearwater County, on the west by Latah, Benewah, and Kootenai counties, and on the north by Bonner County. In area it is one of the largest counties in the State covering 2,597 square miles. Lying approximately in the geographical center of the county is the famous Coeur d'Alene mining district, which contains an area of approximately 400 square miles, and which is known throughout the world as one of the largest lead-silver producing regions of the United States.

The entire county is mountainous, containing but a very small area of agricultural land, and is entirely dependent upon the mining and timber industries, particularly mining. These industries are well established, and it is to them that credit must be given for making this county one of the wealthiest in the State, as well as the county having the smallest public debt, one of the lowest tax levies, and the greatest per capita wealth.

It is the largest and most important mining county in the State, and for many years has produced 90 per cent of the lead and 85 per cent of the silver that has been derived from Idaho mines. Its importance can be better judged from the fact that Idaho ranks second in the United States in the production of lead and third in the production of silver. In addition to its production of lead

and silver, Shoshone is the principal zinc producing county in the State, and one of the most important gold producers. The other metals which occur in commercial quantities are copper, antimony, and tungsten. At one time copper was one of the principal metal products and the largest copper mines ever developed in the State were those near Mullan.

The county is served by the O.-W. R. & N. and Northern Pacific railroads, by the Coeur d'Alene-Yellowstone State highway, which is paved between Mullan, Wallace, and Pine Creek, and by well-maintained county roads, which reach the principal mines. Wallace is the county seat and the civic and business center. Kellogg, the home of the Bunker Hill & Sullivan M. & C. Co., is the largest town. The 1930 census accredited the county with a population of 19,060.

1931 Activities

The year 1931 was one of curtailment. Production was reduced; there was but a small amount of new plant construction; no new enterprises were started; and mine development work was greatly reduced, the totals being the smallest that the county has witnessed for many years. The Bunker Hill & Sullivan M. & C. Co. and the Sunshine Mining Co. were the only two companies in the county which maintained capacity production throughout the year. The Federal Mining & Smelting Co., at the Morning and Page mines, the Hecla Mining Co., Jack Waite Mining Co., Golconda Lead Mines, and the Sidney Leasing Co., all greatly curtailed their production. The mines of the Sullivan Mining Co., Tamarack & Custer Consolidated Mining Co., Dayrock Mining Co., Sherman Lead Co., and Callahan Zinc-Lead Co. were closed early in the year; however, the Sullivan Mining Co. and the Callahan Zinc-Lead Co. maintained development work. The principal producing mines in which the ore reserves were increased by new work were those of the Bunker Hill & Sullivan M. & C. Co., Sidney Leasing Co., Sullivan Mining Co., Sunshine Mining Co., Jack Waite Mining Co., Golconda Lead Mines, and Callahan Zinc-Lead Co. New ore disclosures of importance were made in the mines of the Washington-Idaho Mining Co. and Crystal Lead Mines Co. No new mills were constructed during the year, although those of the Mutual Mines Development Co. and the Jack Waite Mining Co., construction of which was started in 1930, were completed early in 1931. New mining equipment and machinery were installed by the Stratton Silver Summit, Inc., Kellogg Silver-Lead Mines Co., Washington-Idaho Mining Co., and the Independence Lead Mines Co. The principal development enterprises which maintained work without interruption were: Bunker Chance Mining Co., Granada Lead Mines, Inc., Independence Lead Mines Co., Liberal King Mining Co., Little Sunshine Mining Co., Metropolitan Mines Corporation, Ltd., Stratton Silver Summit, Inc., and Washington-Idaho Mining Co. Other development enterprises which were active throughout a large part of the year and whose work exceeded the legal requirements for annual labor were: Atlas Mining Co., Ajax Mining Co., Pontiac Mining Co., Coeur d'Alene Mining & Smelting Co., General Mines Corporation, Louise Silver Lead Mining Co., Nine Mile Mining Co., Pearson Mining Co., and Samson Mining & Development Co., Ltd.

Under an agreement adopted on November 16, 1925, wages in the Coeur d'Alene district were to be adjusted each month in accordance with a bonus rate based on the selling price of lead in New York City. The base rate of this scale is a wage of $3.75 per day for miners when lead is selling for less than 5½ cents per pound, being graduated from 25 cents per day, when the price of lead is 5 cents per pound, to $2.75 per day, when the price of lead is 10½ cents per pound. During 1931, the price of lead declined so far that if the bonus scale had been adhered to wages would have been cut to a point entirely out of proportion to existing living conditions; so the signatories to the bonus scale waived their agreement, and, on May 16, wages were reduced to a basis of lead selling at 7 cents per pound, or $1.00 per day bonus.

The attention which all of the large operators are giving to safety conditions and supervision was reflected in a very small number of fatal accidents and by the continued interest which the employees are displaying in the mine-rescue and first-aid training which is conducted by the Central Mine Rescue Station. Working conditions throughout the Coeur d'Alene district are excep-

tionally favorable. All of the mines are well ventilated, and the operators devote much time, thought, and money to making the mines safe and to keeping them in such a condition that the men can do a full day's work without expending the energy which is required in poorly ventilated mines. It can safely be said that the mines of this district are the best ventilated ones in the United States. The solarium, installed by the Bunker Hill & Sullivan M. & C. Co., in 1929, is a distinct contribution to welfare work. It continued to be used throughout the year by a large number of the company's employees, and that its results are very beneficial was definitely proved.

The gold resources, both placer and lode, of the North Side or Murray section received a large amount of attention. Many placer miners were active throughout the year; three of the old lode mines were reopened; and a large amount of development work was done at the Mother Lode mine.

The foregoing principal activities are more extensively reviewed in the outline by companies, which follows:

The Bunker Hill & Sullivan M. & C. Co. operated its mines, mills, and smelter at capacity production throughout the year. The new development work, consisting of more than 8,000 feet, greatly increased the known resources of the mine; and the ore bodies were further opened on the 2,000-foot level, where the ore and geological conditions were found to be normal. This ore, with that on No. 6 level, which was first disclosed in 1929, adds many years to the life of the mine. Many plant betterments, which greatly increased the efficiency of the enterprise, were made in the mills and smelter; the principal one of which was the completion of the new lead refinery of the smelter. A new 75-horsepower electric hoist, which was constructed in the company's plant, was installed in the Cherry raise, which connects Kellogg tunnel with No. 6 level. This company's expenditure for plant betterments, additions, and improvements constitutes the largest expenditure made in the county during the year. The Crescent mine, which is on Big Creek, near the Sunshine mine, was operated without interruption, and a large tonnage was mined and milled. The Bunker Hill company, because of the magnitude of the Bunker Hill mine, has become more of a manufacturing than a mining organization and, with its smelter, mills, experimental plants, and organization, is one of the largest enterprises of its kind in the world. The management is conservative and progressive; and, although it was necessary to cease payment of dividends on common stock early in the year, the company's refusal to suspend or curtail production greatly added to the prosperity of the county and of Kellogg in particular. The Mining Congress Journal, in its issue of November, 1931, contained a complete description of this company's management, history, properties, and operation of its mine, mills, and smelter.

The Hecla Mining Co. maintained normal production until August, when the continued low price of metals caused a reduction to a four-days-a-week basis. The mine and mill plants were further improved, and more than 4,000 feet of development work was done in the lower levels of the mine. The dividend rate was cut to 40 cents in February and maintained at that figure throughout the year. This company is recognized as one of the principal lead-silver producers in the United States. The curtailed production greatly conserved its resources.

The Federal Mining & Smelting Co., at the Morning and Page mines, maintained capacity production until June, when the continued low price of metals compelled curtailment. Both mines were then reduced to a 12-days-a-month operation, the mines being worked every other week. At the Morning mine, the mine and mill plants were improved, and mine development work was conducted without interruption; the principal part of which was drifting on the 3,450 and 3,650 foot levels, where the ore bodies were proved to be larger and more extensive than those on the upper levels. This mine is one of the oldest in the Coeur d'Alene district in point of continuous production, as well as one of the largest lead-silver-zinc mines in the United States. As the new development work has added greatly to the known resources of the mine, the number of years that this record will continue is unknown. In addition to the ore mined under company operation, a small tonnage was extracted



PARTIAL VIEW, MINE AND MILL PLANTS, BUNKER HILL & SULLIVAN M. & C. CO.

from the upper levels of the Morning mine by lessees, although this was the smallest for many years. At the Page mine, the mill was enlarged and improved and the shaft extended from the 1,200 to the 1,500 foot level; and crosscutting to the vein was started from the new level. Additional mine and camp buildings were erected; some new milling equipment was installed; and development work progressed without interruption. This mine is now recognized as one of the large producing mines in the district. Lessees at the Frisco mine produced a large tonnage of ore and those at the Mace a small tonnage, part of which was milled by the Hercules Mining Co., at its custom mill at Wallace.

Production at the Star mine of the Sullivan Mining Co., which was suspended in April, 1930, was not resumed. However, mine development work was conducted without interruption. The Star mine is operated through the Hecla shaft, and its 4,000-foot level is the same as the 2,000-foot level of the Hecla mine; the two being connected by the Star crosscut, which is 8,900 feet long. This crosscut made a blind connection with the Star vein at a point 2,800 feet below the Star tunnel. A vertical operating raise and a vertical shaft to connect these two tunnels was then projected, and, during the year, the vertical raise was completed to the Star tunnel. In addition to advancing the raise, a large amount of development work was done on the upper levels in the Star mine. This work opened one of the most important disclosures of new ore which has been made in the district for many years. The Star crosscut approximately corresponds with the 2,250-foot level of the Morning mine, in which the ore has been proved to the 3,650-foot level or 1,400 feet deeper. As the new ore in the Star tunnel is 2,850 feet above the Star crosscut, the magnitude of the Star mine is apparent.

The Sullivan Mining Co. suspended operation at its electrolytic cadmium plant early in the year, but operated its electrolytic zinc plant at approximately 50 per cent capacity throughout the entire year. The zinc and cadmium produced by this company are exceedingly high in grade and find a ready market; the zinc selling at an increase in price over that of any other zinc metal. These plants constitute one of the most important enterprises in the Pacific Northwest, and one which greatly insures the permanence of the mining industry in Shoshone County. The uninterrupted operation of the zinc plant greatly assisted business conditions in the county.

The Sunshine Mining Co., which is the largest silver producer in the State and the second largest in the United States, maintained capacity production throughout the year. Its mine and mill plants were greatly improved, and a large amount of development work was done in the mine; the principal part of which was drifting on the 1,700-foot level, where the ore bodies were proved to be of greater extent and richer in metal content than in any of the upper levels. In addition to this, a large amount of drifting was done on the upper levels; and a 400-foot raise, to connect with the 1,300-foot level, was started on the 1,700-foot level. The total amount of new work exceeded 4,000 feet. The low price of silver greatly reduced operating profits, and but one dividend was paid.

The new 500-ton mill of the Jack Waite Mining Co., construction of which was started in 1930, was completed and placed in operation in February; but on account of low metal prices it was operated only on a one-shift basis. The greater part of the ore milled was derived from development work, which consisted principally of sinking a new inclined shaft 250 feet deep and driving a 520-foot raise from the lower tunnel to connect with the Silver King tunnel on the Montana side. In addition, a large amount of drifting was done in the shaft and on intermediate levels above the main tunnel. A new electrically driven hoist and locomotive and a large amount of new mining equipment were added to the mine plant. The company constructed new camp buildings; the county built a new road to the mine; and the Post Office Department established a post office at the mine, named Duthie, in honor of the president of the company. The new ore exposed by the development work was one of the principal disclosures of the year. It greatly increased the known resources of the mine, which is fast becoming recognized as a producer of importance.

Another important disclosure of ore was that of the Golconda Lead Mines on the 1,400-foot level, where the ore was recovered on the east side of the fault and then opened for a length of more than 600 feet. This ore was opened further by a raise, which was projected from the 1,400-foot level to trace its continuation to the upper levels. The mill was operated on a one-shift basis on ore derived from development work, and lessees produced a substantial tonnage of high-grade, hand-sorted ore from the surface discovery on the Mayflower group, which was disclosed in 1930. By the close of the year, arrangements had been completed to extend one of the lower levels into the property of the Square Deal Mining & Milling Co., which is held under lease and option. Golconda Lead Mines is fast becoming recognized as one of the principal mines in Shoshone County, and mine profits during the year were sufficient to pay more than all costs.

The Callahan Zinc-Lead Co., at its Galena mine, produced no ore; however, development work, consisting of 2,200 feet of crosscutting and drifting, principally on the 1,200-foot level, and a large amount of diamond drilling on the 800, 1,000, 1,200, and 1,600 foot levels, was done. The diamond drill holes further proved the extension of the new south vein, first opened on the 600-foot level, to additional depth and greatly increased the known resources of the mine. The favorable results of this company's work have greatly stimulated interest in prospecting throughout the section of the Coeur d'Alene district in which the Galena mine is located.

The Sidney Leasing Co. was idle throughout the first half of the year. During this period the tramway was rebuilt, and development work was conducted on the 800-foot level. On August 1, production was resumed, on a basis of 100 tons per day, and continued throughout the remainder of the year. The development work on the 800-foot level greatly increased the ore reserves of the mine, as well as being one of the principal new disclosures to be made in the Coeur d'Alene district during the year. The increase of the ore reserves of this mine, as additional depth is being gained, has been an important factor in stimulating interest in the Pine Creek section.

The Dayrock Mining Co. maintained development work and production until May, at which time all operations were suspended and the mine was closed. The development work, which was done on the four principal levels, consisted of more than 1,450 feet. This work greatly increased the known ore reserves of the mine, which is now recognized as one of the important producers of the county.

The Sherman Lead Co. continued production and development work until May, when the low price of metals caused a suspension of all operations. During the early part of the year, a large amount of development work was done, and the additional ore exposed greatly increased the known resources of the mine. This company's mine is connected with the No. 5 tunnel of the Hercules Mining Co., through which it is operated, and the ore is sold to the Hercules custom mill at Wallace. Control of the company is held by the Tamarack & Custer Consolidated Mining Co.

The Tamarack & Custer Consolidated Mining Co., which operates one of the substantial producing mines of the Coeur d'Alene district, maintained a steady output and an extensive development campaign until May, when production and all work on company account were entirely suspended and various parts of the mine were turned over to lessees. It was reported that the new work which was done during the early part of the year greatly increased the known ore reserves of the mine. This company's ore is sold to the Hercules custom mill at Wallace.

The Gold Hunter Mines, Inc., at Mullan, one of the oldest mines in Shoshone County in point of continuous production, remained idle throughout the year.

Early in the year the Washington-Idaho Mining Co. installed new mining equipment and commenced sinking a shaft from the 125-foot level to the 300-foot level, after which a large amount of crosscutting and drifting was done on the 225-foot and 300-foot levels. This work resulted in one of the substantial new ore disclosures made in the Coeur d'Alene district during the

year. As this company's property is located on Moon Creek, the new disclosures added greatly to the importance of this section of the county.

The Mutual Mines Development Co., which commenced construction and installation of a new 100-ton flotation concentrator in 1930, completed the mill and commenced milling operations in May; after which, the mill was operated intermittently, and a small tonnage of lead-silver concentrate was produced and marketed.

Stratton Silver Summit, Inc., which was one of the principal development enterprises in the Coeur d'Alene district to maintain development work throughout the year, installed a new compressor and additional mining equipment, and drove more than 3,000 feet of crosscuts and drifts. The new disclosures made by this work greatly enhanced the possibilities of this enterprise.

The Independence Lead Mines Co., which was active throughout the year, installed a new hoist and commenced extending the shaft from the 100 to the 200 foot level.

Kellogg Silver Lead Mines Co. constructed a new building and headframe, installed a new electrically driven hoist and pumps, and unwatered the shaft to the 400-foot level, after which work was started on opening this and the 200-foot level.

The Pine Creek Lead-Zinc Mining Co., which completed construction of a new mill and placed its mine in condition for production late in 1930, was idle throughout the year, although during 1931 the company completed all payments on the purchase price of the property.

The Atlas Mining Co. resumed operations in May and commenced work on driving a raise to connect its long lower tunnel with the lower workings of its Carbonate Hill group. In addition to the raise, a small amount of drifting was done and a small tonnage of ore mined. This ore was milled at the mill of the Gold Hunter Mines, Inc., and shipped to the Bunker Hill Smelter at Kellogg.

Granada Lead Mines, Inc., whose property adjoins that of the Golconda Lead Mines, was active throughout the larger part of the year and extended its crosscut approximately 500 feet.

Metropolitan Mines Corporation, Ltd., whose property is located on Big Creek, maintained work throughout the year in extending its principal tunnel. Press reports were to the effect that this work opened two veins of importance.

Bunker Chance Mining Co., whose property is in Milo Gulch, near Wardner, was active throughout the year in extending its principal tunnel.

Liberal King Mining Co., whose property is located on Pine Creek, was one of the few enterprises in this section which maintained work throughout the year. This company is driving a long crosscut, which was extended to a total distance of 1,600 feet.

The Little Sunshine Mining Co. performed a substantial amount of development work at its Palmer group on Big Creek and at the Elk group, near Mullan, during the larger part of the year. Late in the year this company and the Lookout Mountain Mining & Milling Co. were merged with the United Mines & Metals Corporation, a new corporation.

Pontiac Mining Co., at the Terrible Edith group, near Murray, reported employing four men during the larger part of the year and starting work on a new lower tunnel.

Coeur d'Alene Mining & Smelting Co., whose property is located on Nine Mile Creek and whose stock is controlled by residents of Wallace, extended its crosscut a distance of 600 feet.

Ajax Mining Co., which is one of the oldest development enterprises in the Coeur d'Alene district and one which has conducted work for many years, drove more than 1,000 feet of drifts and crosscuts on the Bixby tunnel level during the early part of the year.

The General Mines Corporation reported employing three men until October in extending its principal tunnel, in which there is approximately 3,800 feet of workings. Press reports were to the effect that gold is the principal metal contained in the minerals encountered by this work.

Nine Mile Mining Co. was active during a large part of the year in extending its principal tunnel to a total distance of more than 2,200 feet.

Pearson Mining Co., in the St. Joe district, near Falcon, was active throughout the year in extending its long crosscut.

Samson Mining & Development Co., Ltd., whose property is in Eagle district, near Prichard, rehabilitated its mine plant and commenced sinking a new shaft.

The Louise Silver Lead Mining Co., a new organization, whose property is in Eagle district, near Delta, installed equipment and was active for five months in driving a drift on the vein.

The Coeur d'Alene Mines Corporation was active for a short period during the early part of the year. The principal work consisted of approximately 500 feet of crosscutting and drifting. Lessees at the property of the North Star Mining & Development Co. drove a 500-foot tunnel.

AETNA MINES CORPORATION

Office: Empire State Bldg., Spokane, Wash. **Officers:** Dr. Peter Reid, Pres.; E. R. Allen, Sec., both of Spokane, Wash. **Inc.:** Apr. 22, 1927. **Capital:** 1,000,000 shares; par value 25c; 805,000 shares issued. **Property:** 2 patented, 21 unpatented claims, Evolution dist.; Osburn. **Development:** By 7 tunnels: No. 1, 400 ft. long; No. 2, 1200 ft. long; No. 3, 200 ft. long; No. 4, 500 ft. long; No. 5, 250 ft. long; No. 6, 350 ft. long; No. 7, 300 ft. long. **Ore:** Silver-lead. **Men employed:** Average, 3. **Remarks:** Annual labor only. A stock assessment of 5 mills was levied on Oct. 7.

AETNA MINING & MILLING CO., LTD.

Office: Wallace. **Officers:** P. J. Maggy, Pres.; W. A. Devan, Sec., both of Wallace. **Inc.:** March 9, 1915. **Capital:** 1,500,000 shares; par value 10c; 434,935 shares issued. **Property:** 4 unpatented claims, Lelande dist.; Burke. **Development:** By 2 tunnels: No. 1, 250 ft. long; No. 2, 762 ft. long. **Remarks:** Annual labor only.

AJAX MINING CO.

Office: 714 W. 14th Ave., Spokane. **Officers:** F. Moriarity, Pres.; J. A. Havighorst, Sec., both of Spokane, Wash.; A. G. Anderson, Mgr., Burke. **Inc.:** Oct. 20, 1902. **Capital:** The capital stock was increased to 2,000,000 shares on July 6, 1925; par value $1; 879,486 shares issued. **Property:** 17 patented, 3 unpatented claims, Lelande dist.; Burke. **Development:** Principally by 3 tunnels and 3 shafts. Total development approximately 32,000 ft. Main or Bixby tunnel is located in Gorge Gulch a short distance above the town of Burke. This tunnel intersects the Ajax vein at a distance of 6000 ft., at which point is a 400-ft. vertical shaft with over 2000 ft. of drifting at the 200 and 400-ft. levels. **Plant:** MINE: Type-10 I-R 550-cu.-ft. electrically-driven air compressor; I-R No. 50 steel sharpener, Hoar shovel. **Ore:** Lead-silver. **Men employed:** Average, 12. **Remarks:** More than 1000 ft. of crosscuts and drifts were run on the Bixby tunnel level. A stock assessment of 1c was levied on Mar. 2.

ALAMEDA MINING CO.

Office: Wallace. **Officers:** O. W. Lewis, Pres.; James A. Wayne, Sec.-Mgr., both of Wallace. **Inc.:** Feb. 14, 1910. **Capital:** 1,500,000 shares; increased on Sept. 20, 1929, to 2,000,000 shares; par value $1; 1,500,000 shares issued. **Property:** Alameda group; 8 patented, 7 unpatented claims, Lelande dist.; Wallace. **Development:** By 2 tunnels: No. 1, 500 ft. long; No. 2, 3600 ft. long. **Plant:** Electrically-driven I-R compressor and complete mining equipment. **Ore:** Lead-zinc-silver. **Remarks:** Failed to file the reports required by law.

ALHAMBRA MINING CO., LTD.

Office: 504 Empire State Bldg., Spokane, Wash. **Officers:** W. J. C. Wakefield, Pres., Peyton Bldg., Spokane, Wash.; William A. Corey, Sec., Spokane, Wash. **Inc.:** Dec. 26, 1898. **Capital:** 1,000,000 shares; par value $1; 987,399 shares issued. **Property:** Alhambra group; 23 patented claims, Yreka dist.; Kellogg. **Development:** Approximately 13,200 ft. **Ore:** Lead-

silver. **Plant:** MINE: 12x12 Laidlaw-Dunn Gordon electrically-driven compressor, complete mining equipment. **Remarks:** Property under lease to Bunker Hill & Sullivan M. & C. Co., which is operating it through the Hooper tunnel on Big Creek.

ALICE MINING CO.

Office: Wallace. **Officers:** James F. McCarthy, Pres.; Leo J. Hoban, Sec., both of Wallace. **Inc.:** July 30, 1902. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** 20 patented, 3 unpatented claims, Hunter dist.; 3½ miles east of Wallace. **Development:** 10,000 ft. of underground workings. **Plant:** MINE: Complete mine camp and buildings. MILL: Partly dismantled 125-ton concentrator. **Ore:** Lead-silver. **Remarks:** Idle.

ALMA RAY MINING CO.

Office: Kellogg. **Officers:** Elmer E. Brown, Pres.-Mgr.; C. B. Forbes, Sec., both of Kellogg. **Inc.:** April 21, 1917. **Capital:** 1,500,000 shares; par value 25c; 565,274 shares issued. **Property:** Alma Ray group; 5 unpatented claims, Yreka dist.; Kellogg. **Development:** Principally by 2 tunnels: No. 1, 300 ft. long; No. 2, 480 ft. long. **Ore:** Lead-silver, copper. **Remarks:** Annual labor only.

ALPENA COPPER MINING CO., LTD.

Office: Wallace. **Officers:** C. W. Beale, Pres.; A. H. Featherstone, Sec.; J. C. Purcell, Mgr., all of Wallace. **Inc.:** Aug. 9, 1900. **Capital:** 1,000,000 shares; par value 10c; all shares issued. **Property:** Alpena group; 6 unpatented claims, St. Joe dist.; Adair. **Ore:** Copper-gold. **Remarks:** Annual labor only.

ALTURA MINING CO.

Office: Kellogg. **Officers:** A. A. Crane, Pres., Smith Tower, Seattle, Wash.; Lester S. Harrison, Sec.; Fred D. Crane, Mgr., both of Kellogg. **Inc.:** Apr. 13, 1931. **Capital:** 2,000,000 shares; par value 25c; 1,500,300 shares issued. **Property:** 4 unpatented claims, Yreka dist., Wardner. **Development:** By 2 tunnels: No. 1, 50 ft. long; No. 2, 1300 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** This company appears to be a reorganization of the Slavonian Mining Co. Annual labor only.

AMAZON MANHATTAN MINING CO.

Office: Wallace. **Officers:** P. J. Maggy, Clerk, Wallace. **Inc.:** A partnership. **Property:** Amazon Manhattan group; 9 patented claims, Beaver dist.; Carbonite. **Development:** By 3 tunnels: No. 1, 510 ft.; No. 2, 1180 ft.; No. 3, 3856 ft. **Ore:** Lead-zinc-silver. **Remarks:** Idle.

AMBERGRIS CONSOLIDATED MINING CO.

Office: Wallace. **Officers:** Harry L. Day, Pres.; W. B. Heitfeld, Sec., both of Wallare. **Inc.:** Dec. 14, 1928. **Capital:** 3,500,000 shares; par value $1; 3,476,300 shares issued. **Property:** Ambergris, Guelph, and Honolulu groups; 13 patented, 10 unpatented claims, Beaver and Lelande dists.; Burke. **Development:** Mine opened and operated through No. 5 Hercules tunnel, in addition to which there are 8 intermediate tunnels and 3 shafts; total development, approximately 19,000 ft. **Plant:** Mine plant and equipment leased from Hercules Mining Co. **Ore:** Lead-silver. **Remarks:** This is a consolidation of the Ambergris Mines Co., the Guelph Mining & Milling Co., Ltd., and the Honolulu Mining Co., Ltd. Annual labor only and a small amount of work by lessees, who extracted and shipped a small tonnage of mill ore.

AMERICAN LEAD MINES, LTD.

Office: 323 Lindelle Block, Spokane. **Officers:** R. L. Brainard, Pres., Kellogg; Matt Baumgartner, Sec.-Mgr., Spokane. **Inc.:** Feb. 2, 1925. **Capital:** 1,000,000 shares; par value 10c; 527,500 shares issued. **Property:** Crescent group; 10 unpatented claims on the West Fork of Big Creek, Yreka dist.; Kellogg. **Development:** By 1 tunnel 650 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 1. **Remarks:** Annual labor only.

AMERICAN MINING CO., LTD.
Office: Wallace. **Officers:** T. Sheppard, Pres.; W. E. Stache, Sec., both of Wallace. **Inc.:** Nov. 1, 1899. **Capital:** 1,000,000 shares; par value 10c; 135,883 shares issued. **Property:** American group; 2 unpatented claims, Placer Center dist.; Wallace. **Development:** 3 tunnels: No. 1, 65 ft. long; No. 2, 80 ft. long; No. 3, 480 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of 2 mills was levied on Mar. 25.

ANACONDA COPPER MINING CO.
Office: 25 Broadway, New York City. **Officers:** C. F. Kelley, Pres.; A. H. Melin, Sec., both of New York City. **Inc.:** Filed in Idaho, Apr. 10, 1916. **Capital:** 12,000,000 shares; par value $50; 8,866,380 shares issued. **Property:** Sunset group; 6 patented claims, Beaver and Summit dists.; Wallace. **Development:** By 1 tunnel 3785 ft. long and a vertical shaft 800 ft. deep with 4 intermediate levels. Total development, approximately 10,000 ft. **Ore:** Lead-silver-zinc. **Remarks:** Idle.

ANCHOR MINING CO.
Office: 803 Sherwood Bldg., Spokane, Wash. **Officers:** Lloyd E. Gandy, Agent, Spokane, Wash. **Inc.:** Nov. 18, 1897. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Anchor group; 8 patented claims, Lelande dist.; Burke. **Development:** Principally by 1 tunnel 6000 ft. long and 1 vertical shaft 210 ft. deep. **Plant:** 20-h. p. hoist and 3-drill I-R compressor, both electrically driven. **Ore:** Lead-silver. **Remarks:** Property under option to Hecla Extension Mining Co.

ARCTIC MINING & MILLING CO., LTD.
Office: Kellogg. **Officers:** Henry Lalonde, Pres., Wallace; Geo. H. Heller, Sec., Osburn. **Inc.:** July 5, 1907. **Capital:** 1,500,000 shares; par value $1; 519,720 shares issued. **Property:** Arctic group; 5 unpatented claims, Placer Center dist.; Wallace. **Development:** By 1 tunnel 990 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

ARGENTA MINING CO., LTD.
Office: Wallace. **Officers:** W. C. Richardson, Pres.-Mgr., Mullan; C. D. Brock, Sec., St. Maries. **Inc.:** Dec. 10, 1906. **Capital:** 1,500,000 shares; par value $1; 1,185,000 shares issued. **Property:** Argenta group; 3 patented claims, Hunter dist.; Mullan. **Development:** 2 tunnels: No. 1, 900 ft. long; No. 2, 250 ft. long. **Ore:** Lead-silver. **Remarks:** Idle throughout the year.

ASSOCIATED MINES CORPORATION, LTD.
Office: Lindelle Bldg., Spokane, Wash. **Officers:** Matt Baumgartner, Pres.-Mgr., Spokane, Wash.; Roy H. Kingsbury, Sec., Wallace. **Inc.:** Nov. 7, 1930. **Capital:** 3,000,000 shares; par value 10c; 1,275,616 shares issued. **Property:** Rex and Red Monarch groups; 6 patented, 64 unpatented claims, Placer Center and Beaver dists.; Wallace. **Development:** By 4 tunnels, the principal of which are No. 4 or Rex tunnel, approximately 4000 ft. long, in which is a vertical shaft 700 ft. deep; and Red Monarch tunnel, 5900 ft. long. **Plant:** 3 electrically driven compressors; complete mining equipment and 2 mine camps. **Ore:** Lead-zinc-silver. **Men employed:** Average, 1. **Remarks:** This company is a reorganization of the Delaware Mines Corporation in order to make the stock assessable. No activities for 1931 were reported. Stock assessments were levied as follows: Feb. 17, 2 mills; June 17, 3 mills; Aug. 12, 3 mills; Oct. 15, 3 mills; Dec. 12, 3 mills.

ATLANTIC MINING CO.
Office: Wallace. **Officers:** Herman J. Rossi, Pres.; Otto A. Olsson, Sec.-Mgr., both of Wallace. **Inc.:** June 11, 1897. **Capital:** 1,000,000 shares; par value $1; 725,300 shares issued. **Property:** Atlantic group; 7 unpatented claims, Beaver dist.; Prichard. **Development:** Principally by 1 tunnel 340 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

ATLAS MINING CO.
Office: Mullan. **Officers:** Thomas F. Keeley, Pres., 516 E. 28th St., Chicago; Charles K. Cartwright, Sec.; W. Earl Greenough, Mgr., both of Mullan. **Inc.:** Mar. 4, 1924. **Capital:** 2,000,000 shares; par value $1; all shares issued. **Property:** Atlas group; 19 patented, 19 unpatented claims,

Hunter dist.; Mullan. **Development:** 7 tunnels and 2 inclined shafts; the principal of which is the Atlas tunnel 7030 ft. long, at the end of which is the Carbonate Hill drift 3000 ft. long. **Plant:** Electrically driven compressor, and complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 6. **Remarks:** The property of the Atlas Mining Co. is a consolidation of four properties, the Carbonate Hill, Idaho Giant, Boulder Creek, and Atlas, on which there is approximately 22,852 ft. of tunneling, drifting, crosscutting, and sinking. The principal work during the year consisted of driving a raise from the Atlas tunnel to connect with the lower workings in the Carbonate Hill group. A small amount of drifting was done and a small tonnage of ore mined. This ore was concentrated in the mill of the Gold Hunter Mines, Inc. A stock assessment of 1c was levied on Feb. 5.

ATLAS X CO.

Office: Mullan. **Officers:** James A. Wayne, Pres.; M. M. Yeoman, Sec., both of Wallace; W. Earl Greenough, Mgr., Mullan. **Inc.:** Nov. 24, 1906, as Carney Copper Co., Ltd. Name changed Jan. 7, 1928. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Carney group; 9 unpatented claims; Mullan. **Development:** By 3 tunnels: No. 1, 500 ft. long; No. 2, 1600 ft. long; No. 3, 1050 ft. long. **Remarks:** Control of stock in this company is held by the Atlas Mining Co. Annual labor only.

AULBACH GROUP

Owner: Adam Aulbach, Murray. **Property:** Aulbach group; 5 patented, 1 unpatented claim, Coeur d'Alene dist.; Murray. **Development:** By 3 tunnels, the longest of which is No. 2, 450 ft. long. **Ore:** Gold. **Remarks:** This property is one of the oldest locations in the Coeur d'Alene district and has been held almost continuously by the present owner.

BASIN MINING CO.

Office: Wallace. **Officers:** Jerome J. Day, Pres.; P. J. Maggy, Sec., both of Wallace. **Inc.:** June 22, 1915. **Capital:** 1,500,000 shares; par value 5c; 1,000,000 shares issued. **Property:** Basin group; 5 patented claims, Lelande dist.; Burke.

BEAR PLACER MINING CO.

Office: 608 Empire State Bldg., Spokane, Wash. **Officers:** F. R. Clark, Pres.; G. M. Johnson, Sec., both of Spokane. **Inc.:** Aug. 5, 1924. **Capital:** 10,000 shares; par value $10; 6938 shares issued. **Property:** Bear Placer group: 2 unpatented placer claims, unorganized dist.; on St. Joe River; Superior, Mont. **Ore:** Placer gold. **Remarks:** Annual labor only.

BEAVER CREEK MINING CO.

Office: Wallace. **Officers:** Mike Lorenzi, Pres.; Pete Lorenzi, Mgr., both of Wallace; A. Vannini, Sec., S. 1311 Walnut St., Spokane, Wash. **Inc.:** Apr. 25, 1931. **Capital:** 1,000,000 shares; par value 10c; 557,500 shares issued. **Property:** Tilling group; 1 patented, 9 unpatented claims, Beaver dist.; Wallace. **Development:** Total development, approximately 2600 ft. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

BELL MINING CO.

Office: 504 Empire State Bldg., Spokane, Wash. **Officers:** Robert C. Moffitt, Pres., Seattle; Charles Hussey, Sec., Spokane, Wash. **Inc.:** Oct. 17, 1898. **Capital:** 500,000 shares; par value 25c; all shares issued. **Property:** 9 patented claims, Lelande dist.; Wallace. **Remarks:** Under lease and option to Goodenough Mining Co.

BELL OF THE WEST MINING CO.

Office: Wallace. **Officers:** George R. Trask, Pres.-Mgr.; M. E. Trask, Sec., both of Wallace. **Inc.:** Oct. 23, 1899. **Capital:** 1,500,000 shares; par value 5c; all shares issued. **Property:** Bell of the West group; 2 patented, 4 unpatented claims, Placer Center dist.; Wallace. **Development:** 2 tunnels: No. 1, 250 ft. long; No. 2, 1070 ft. long with 300 ft. of crosscuts **Plant:** Electrically driven hoist and I-R compressor; complete mining equipment and mine camp. **Ore:** Lead-silver.

BELMONT MINING CO., LTD.
Office: Wallace. **Officers:** James H. Taylor, Pres.-Mgr.; L. W. Defenbach, Sec., both of Wallace. **Inc.:** Mar. 26, 1900. **Capital:** 1,000,000 shares; par value $1; 137,000 shares issued. **Property:** Belmont group; 14 unpatented claims, Evolution dist.; Osburn. **Development:** Principally by 1 tunnel 1500 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only. Control of stock under option to Silver Basin Consolidated Mining Co.

BELVEDERE GOLD MINING CO.
Officers: C. E. Biggs, Mgr., Wallace. **Inc.:** Apr. 13, 1929, as Humbolt Mining & Milling Co.; name changed Mar. 26, 1931. **Capital:** 3,000,000 shares, par value 50c; changed Mar. 26, 1931, to 6,000,000 shares, par value 25c. **Remarks:** Failed to file the reports required by law.

BENTON MINING CO., LTD.
Office: Wallace. **Officers:** Mary Callahan, Pres., Spokane, Wash.; E. G. Gnaedinger, Sec.-Mgr., Wallace. **Inc.:** Feb. 14, 1903. **Capital:** 1,500,000 shares; par value $1; 1,160,000 shares issued. **Property:** Benton group; 5 patented claims, Lelande dist.; Burke. **Development:** By 6 tunnels, the principal one of which is 1000 ft. long, and 1 vertical shaft 200 ft. deep. **Ore:** Lead-silver. **Remarks:** Idle.

BIG DIVIDE MINING CO., LTD.
Office: E. 3122 18th Ave., Spokane, Wash. **Officers:** Frank P. Markwell, Pres., Los Angeles, Calif.; J. F. Markwell, Sec., Spokane, Wash. **Inc.:** Aug. 23, 1904. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Big Divide group; 10 patented, 5 unpatented claims, Lelande dist.; Wallace. **Development:** Principally by 1 tunnel 2500 ft. long. **Plant:** Electrically driven compressor. **Ore:** Lead-silver. **Remarks:** Property under lease and option to West Mammoth Mining Co.

BIG ELK MINING CO., LTD.
Office: Wallace. **Officers:** Peter Peterson, Pres.-Mgr., Saltese, Mont.; A. H. Featherstone, Sec., Wallace. **Inc.:** April 26, 1909. **Capital:** 2,000,000 shares; par value $1; all shares issued. **Property:** Big Elk group; 17 unpatented claims, St. Joe dist.; Delage. **Ore:** Copper-gold. **Remarks:** Annual labor only.

BIG IT MINING & MILLING CO.
Office: Kellogg. **Officers:** H. S. Davenport, Pres., Enaville; M. L. Pratt, Sec.-Mgr., Kellogg. **Inc.:** Dec. 5, 1916. **Capital:** 1,500,000 shares; par value 10c; 1,070,543 shares issued. **Property:** Big It group; 13 unpatented claims, Yreka dist.; Masonia. **Development:** By 2 tunnels: No. 1, 270 ft.; No. 2, 850 ft. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

BIG THREE MINING CO.
Office: Wallace. **Officers:** William Tyler, Pres., Burke; Paul Leuschel, Sec., Wallace. **Inc.:** Sept. 14, 1929. **Capital:** 1,500,000 shares; par value 25c; 963,200 shares issued. **Property:** 6 patented, 2 unpatented claims, patented claims being held under lease and option; Lelande dist.; Burke. **Development:** By 2 tunnels: No. 1, 90 ft. long; No. 2, 800 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

BISMARCK MINING CO.
Office: Wallace. **Officers:** R. E. M. Strickland, Pres., Amsterdam, Holland; Henri Crommelin, Sec., Spokane, Wash.; W. H. Herrick, Mgr., Wallace. **Inc.:** Jan. 18, 1924. **Capital:** 1,250,000 shares, increased to 1,500,000 shares, Sept. 25, 1930; par value 10c; 950,000 shares issued. **Property:** Bismarck group; 3 unpatented claims, Big Creek, Yreka dist.; Kellogg. **Development:** By 1 tunnel 1400 ft. long. **Plant:** Gas-driven compressor; complete mining equipment. **Ore:** Lead-silver. **Remarks:** Annual labor only.

BITTER ROOT MOUNTAIN MINING CO.
Office: 939 S. Cowley St., Spokane, Wash. **Officers:** W. P. Flood, Pres.; Mrs. F. A. Noteware, Sec., both of Spokane, Wash. **Inc.:** May 6, 1901. **Capital:** 1,500,000 shares; par value 5c; all shares issued. **Property:** Lookout group; 3 patented claims, Hunter dist.; Mullan. **Development:** Principally by 1 tunnel 1000 ft. long. **Ore:** Lead-silver. **Remarks:** Inactive since 1900. Property under option to W. Earl Greenough.

BLACK BEAR MINES CO.

Office: Wallace. **Officers:** Walter H. Hanson, Pres.; A. G. Kennedy, Sec., both of Wallace. **Inc.:** Feb. 24, 1917. **Capital:** 2,000,000 shares; par value 20c; 1,388,051 shares issued. **Property:** Black Bear group; 5 patented, 2 unpatented claims, Lelande dist.; Wallace. **Development:** Principally by 1 tunnel 4100 ft. long. **Plant:** 750 cu. ft. electrically-driven compressor; complete mining equipment. **Ore:** Lead-zinc-silver. **Remarks:** Under stock option to the United Metals Co.

BLACK HAWK MINING & DEVELOPING CO., LTD.

Office: Wallace. **Officers:** A. W. Hoover, Sec.; H. G. Washburn, Mgr., both of Wallace. **Inc.:** Aug. 19, 1901. **Capital:** 1,500,000 shares; par value 10c; 1,332,352 shares issued. **Property:** Black Hawk group; 13 patented claims, Yreka dist.; Kellogg. **Development:** By 2 tunnels: Black Hawk, 2920 ft. long; Page, 2600 ft. long. **Ore:** Silver-lead-zinc. **Remarks:** Property under lease to the Federal M. & S. Co., which operated it throughout the year in conjunction with the Page mine, which see.

BLAINE & EMMETT MINING CO., LTD.

Office: Kellogg. **Officers:** Merrill Heblethwaite, Pres.-Mgr., Murray; R. W. Skeman, Sec., Kellogg. **Inc.:** Dec. 20, 1909. **Capital:** 1,000,000 shares; par value $1; 559,474 shares issued. **Property:** Blaine & Emmett group; 5 unpatented claims, Eagle dist.; Prichard. **Development:** 2 tunnels: No. 1, 300 ft. long; No. 2, 700 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

BLUE EAGLE MINING CO.

Office: Kellogg. **Officers:** Ed McCarty, Pres.; C. B. Forbes, Sec., both of Kellogg. **Inc.:** Apr. 18, 1925. **Capital:** 1,500,000 shares; par value 1c. Increased Dec. 8, 1928, to 3,000,000 shares; par value 10c; 1,433,980 shares issued. **Property:** Blue Eagle group; 15 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 2 tunnels: No. 2, 285 ft. long; No. 3, 500 ft. long. **Plant:** Electrically-driven 8x9 I-R compressor; complete mining equipment. **Ore:** Lead-zinc-silver. **Men employed:** Average, 2. **Remarks:** Active throughout the year in extending the principal tunnel. A stock assessment of 1 mill was levied on June 19.

BLUE RIBBON MINING CO.

Office: 601 N. Monroe St., Spokane, Wash. **Officers:** Al Harris, Sec., Spokane, Wash. **Inc.:** Oct. 22, 1914. **Capital:** 1,500,000 shares; par value 10c; 367,842 shares issued. **Property:** Blue Ribbon group; 9 unpatented claims, Hunter and Lelande dists.; Burke. **Development:** Principally by 1 tunnel 2500 ft. long. **Men employed:** Average, 3. **Remarks:** Active throughout the year. Stock assessments were levied as follows: Jan. 28, 1 mill; Apr. 13, 1 mill.

BLUE STAR MINING & MILLING CO., LTD.

Office: Kingston. **Officers:** Peter Weida, Pres., Kellogg; A. C. Morbeck, Sec., Kingston. **Inc.:** June 8, 1901. **Capital:** 1,000,000 shares; par value $1; 300,000 shares issued. **Property:** 160 acres patented land, Yreka dist.; Kingston.

BLUE WING MINING CO., LTD.

Office: Wallace. **Officers:** Herman J. Rossi, Sec., Wallace. **Inc.:** July 8, 1901. **Capital:** 1,000,000 shares; par value 10c; all shares issued. **Property:** Blue Wing group; 3 patented, 12 unpatented claims, Placer Center dist.; Wallace. **Plant:** Electrically driven compressor; complete mining equipment. **Ore:** Lead-silver. **Remarks:** Annual labor only.

BOBBY ANDERSON GROUP MINING CO.

Office: Kellogg. **Officers:** F. N. Johnson, Pres., Spokane, Wash.; T. R. Mason, Sec., Kellogg. **Inc.:** June 16, 1906. **Capital:** 1,500,000 shares; par value $1. Increased on March 25, 1929, to 2,000,000 shares; par value $1; 1,243,447 shares issued. **Property:** Bobby Anderson group; 19 unpatented claims, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel 1300 ft. long and an inclined shaft 100 ft. long. **Plant:** Electrically driven compressor and hoist; complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Men employed:** Average, 5. **Remarks:** 400 ft. of tunnel driven during the year. A stock assessment of 5 mills was levied on Apr. 28.

BRITISH AMERICAN MINES & SMELTER CORPORATION
Office: Smith Tower Bldg., Seattle, Wash. **Inc.:** Not filed in Idaho. **Remarks:** Has never filed the reports required by law.

BULLFROG SILVER LEAD MINING CO.
Office: Box 241, Spokane, Wash. **Officers:** L. J. Oatman, Pres.; Geo. F. Gaub, Sec., both of Spokane, Wash. **Inc.:** May 17, 1930. **Capital:** 500,000 shares; par value 20c; 260,250 shares issued. **Property:** 5 unpatented claims, Lelande dist.; Burke. **Development:** By 3 tunnels: No. 1, 97 ft. long; No. 2, 460 ft. long; No. 3, 76 ft. long. **Remarks:** Annual labor only.

BULLION MINING CO., LTD.
Office: Wallace. **Officers:** William Squance, Pres.; James H. Taylor, Sec.-Mgr., both of Wallace. **Inc.:** Dec. 5, 1902. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Bullion group; 16 patented, 1 unpatented claim, St. Joe dist.; Mullan. **Development:** 3 tunnels: No. 1, 500 ft. long; No. 2, 2000 ft. long; No. 3, 4800 ft. long; 1 vertical shaft 100 ft. deep. **Plant:** Pelton water wheel driving an I-R compressor. **Ore:** Copper-gold. **Remarks:** Idle throughout the year.

BUNKER CHANCE MINING CO.
Office: Wardner. **Officers:** Nick Petrinovich, Pres.-Mgr.; R. L. Brainard, Sec., both of Wardner. **Inc.:** May 8, 1922. **Capital:** 750,000 shares non-assessable and 750,000 shares assessable common stock; par value 25c; all nonassessable and 565,000 shares assessable, issued. **Property:** Bunker Chance group; 1 patented, 6 unpatented claims, Yreka dist.; Wardner. **Development:** By 4 tunnels, the principal one of which is 1425 ft. long. **Plant:** Electrically driven 7x9 I-R compressor and complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Principal tunnel extended 700 ft. during the year.

BUNKER HILL & SULLIVAN MINING & CONCENTRATING CO.
Office: Kellogg. **Officers:** F. W. Bradley, Pres.; J. W. Crosby, Sec., both of 1022 Crocker Bldg., San Francisco, Calif.; Stanly A. Easton, Mgr., Kellogg. **Inc.:** Originally incorporated in Oregon and filed in Idaho, Aug. 20, 1903; changed to a Delaware corporation and filed in Idaho, April 16, 1924. **Capital:** 327,000 shares common; par value $10; 20,000 shares preferred; par value $100; 8555 shares preferred, and all common shares issued. **Property:** Bunker Hill; 362 patented, 17 unpatented claims, Yreka dist.; Kellogg. **Development:** The principal adit is the Kellogg tunnel, which is 24,000 ft. long, in which are the two principal inclined shafts, one of which is known as the White Raise, and the other the main shaft, which is approximately 2785 ft. long, giving a vertical depth of 2000 ft. below the Kellogg tunnel level. In the main shaft are 13 intermediate levels. Total development, approximately **62.1 miles. Plant:** MINE: 2 electrically driven hoists, 2 electrically driven I-R compressors, 1 steam-driven Nordberg compressor. Trolley locomotive haulage in Kellogg tunnel; storage-battery locomotive haulage in intermediate levels. Complete and modern machine shop, blacksmith shop and change house. MILL: 4 complete and modern concentrators, including flotation: Sweeny mill, capacity 300 tons, accommodates custom ores, particularly those from Pine Creek; West mill, capacity 1200 tons, treats output from the Bunker Hill mine; South mill, capacity 600 tons, treats output from Star mine of Sullivan Mining Co.; Crescent mill on Big Creek, capacity 100 tons, treats output from Crescent and Alhambra mines. **Ore:** Lead-silver. **Men employed:** In mine, mill and smelter, average 1133.

BUNKER HILL SMELTER

Officers: Frank M. Smith, Director, 1117 Paulsen Bldg., Spokane, Wash.; A. F. Beasley, Supt., Kellogg. **Remarks:** This smelter was erected during 1917, since which time it has been continually enlarged and improved and is now one of the most modern, complete and up-to-date plants in the United States. The smelting plant covers an area of about 30 acres and consists of complete buildings and equipment for sampling, roasting,

sintering, smelting and refining lead, silver, and gold ores. During 1929 its capacity was doubled, in anticipation of the termination on Feb. 1, 1930, of the company's smelting contract with the American Smelting & Refining Co., to whom the Bunker Hill was obliged to ship one-half of its production. In addition to refined lead, silver, and gold, antimonial lead and copper sulphate are also produced. The principal supply of ore is from the company's own mine and the mines of the Coeur d'Alene district. The company is doing a general custom business and is drawing ore from all of the northwestern states as well as from British Columbia and Alaska, and is becoming a strong competitor in the smelting business. This smelter and its operations are fully described and illustrated in many of the articles listed under the bibliography of Shoshone County. The enlargements and modernization, commenced in 1929, were fully completed in 1931. The smelter output for the year, as a result of lessened receipts of custom ore, was smaller than that of 1930.

REMARKS

This company is the largest dividend payer and maintains the largest pay roll of any mine in Idaho; it is also the largest producer of lead-silver ore in the State, if not in the world; and is one of the few companies in the United States that mine, mill, smelt, refine, manufacture, and sell lead ore and lead products. The enterprise, particularly the mine and mill, has been established for such a long period and all operations have become so well founded that it has practically expanded into a manufacturing operation. The mine is opened by over 62 miles of underground workings and has a sufficient tonnage of ore reserves to assure many years of continued operations.

During the past few years this organization has been actively engaged in prospecting and developing mining properties throughout the State, and during 1924 acquired the mines owned by the Hall-Interstate Mining Co. and the Lost Pilgrim Mining Co., situated near the head of the Deadwood River in Valley County. The interest shown in developing lead mines outside of the Coeur d'Alene district is having a tremendous influence in attracting attention to the State's undeveloped resources.

The management is progressive and intelligent and an unusual amount of initiative is shown in the conduct of the affairs of the company and civic activities. An excellent spirit of cooperation has been created and maintained in the employees, and everything possible is done to promote their welfare. The common stock was listed on the New York Curb Exchange during the latter part of 1926; in January, 1927, it sold at a low of $67.50 per share; in March, 1929, it had risen to a high of $165 per share, and in December, 1931, it had dropped to a low of $22 per share, these being the highest and lowest points.

This company owns a 50 per cent interest with the Hecla Mining Co. in the Sullivan Mining Co., the owner of the Star mine at Mullan and the electrolytic zinc plant at Kellogg; and a 50 per cent interest in the Alaska-Treadwell Gold Mining Co. and the Treadwell Yukon Co., Ltd., both of Alaska. Ore from the latter property was shipped to the smelter at Kellogg. In addition to the foregoing, the company is actively interested in developing properties in Nevada, and at Sudbury, Ontario, Canada.

The mines, mills, and smelter were operated at capacity production throughout the year, and the company's refusal to suspend or curtail production greatly added to the prosperity of the county and of Kellogg in particular. The new development work, consisting of more than 8000 ft., greatly increased the known resources of the mine. The ore bodies were further opened on the 2000-ft. level, where the ore and geological conditions were found to be normal, and the winze-shaft from the 1900-ft. level to the 2000-ft. level was extended to the 2100-ft. level and crosscutting started to the ore. The ore on the 2000-ft. level, with that on No. 6 level, which was first disclosed in 1929, adds many years to the life of the mine. Many plant betterments, which greatly increased the efficiency of the enterprise, were made in the mills and



BUNKER HILL SMELTER

smelter; the principal one of which was the completion of the new lead refinery of the smelter. A new 75-h. p. electric hoist, which was constructed in the company's plant, was installed in the Cherry raise, which connects Kellogg tunnel with No. 6 level. This company's expenditure for plant betterments, additions, and improvements constitutes the largest expenditure made in the county during the year. The Crescent mine, which is on Big Creek, near the Sunshine mine, was operated without interruption, and a large tonnage was mined and milled. The Mining Congress Journal, in its issue of November, 1931, contained a complete description of this company's management, history, properties, and operation of its mine, mills, and smelter.

BURKE MINING CO., LTD.
Office: Wallace. **Officers:** Wm. Bailey, Pres.-Mgr.; John C. Glahe, Sec., both of Wallace. **Inc.:** May 31, 1902. **Capital:** 1,000,000 shares; par value $1; 200,000 shares issued. **Property:** 12 patented claims, Lelande dist.; Burke. **Development:** 2 tunnels: No. 1, 125 ft. long; No. 2, 1000 ft. long. **Ore:** Lead-silver. **Remarks:** Idle.

BUTTE & COEUR D'ALENE DEVELOPMENT CO.
Office: Wallace. **Officers:** T. B. Cosgrove, Pres.-Mgr., Seattle, Wash.; Wm. J. Stratton, Sec., Wallace. **Inc.:** Sept. 17, 1927. **Capital:** 2,500,000 shares; par value $1; 1,861,870 shares issued. **Property:** Plymouth group; 11 unpatented claims, Hunter dist.; Mullan. **Development:** By 2 tunnels: No. 1, 400 ft. long; No. 2, 1480 ft. long. **Ore:** Lead-silver. **Remarks:** No. 2 tunnel extended 200 ft. during the year.

CALABRIA MINING CO.
Office: Kellogg. **Officers:** Mike Amabile, Pres.; Gabriel Faraca, Sec., both of Kellogg. **Inc.:** Apr. 8, 1929. **Capital:** 1,000,000 shares; par value 25c; 15 shares issued. **Property:** Royal group; 5 unpatented claims, Evolution dist., Moon Creek; Kellogg. Held under lease and option. **Development:** By 3 tunnels: No. 1, 625 ft.; No. 2, 75 ft.; No. 3, 450 ft. **Plant:** Electrically driven hoist and compressor; complete mining equipment. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

CALEDONIA MINING CO.
Office: Kellogg. **Officers:** Stanly A. Easton, Pres.-Mgr.; Lee Prather, Sec., both of Kellogg. **Inc.:** July 1, 1907. **Capital:** 2,605,000 shares; par value $1; all shares issued. **Property:** Caledonia; 3 patented claims, Yreka dist.; Kellogg. **Development:** Approximately 19,250 ft. of underground workings. **Plant:** Equipment rented from Bunker Hill & Sullivan M. & C. Co. **Ore:** Silver-lead. **Remarks:** Small amount of work by lessees throughout the year.

CALEDONIA SILVER-LEAD MINING CO.
Office: Kellogg. **Officers:** A. C. Beal, Pres-Mgr., Spokane, Wash.; Lester S. Harrison, Sec., Kellogg. **Inc.:** Oct. 24, 1927. **Capital:** 10,000 shares preferred, par value $5; 800,000 shares common, par value 25c; 6000 shares preferred, 1300 shares common issued. **Property:** 7 unpatented claims, Yreka dist.; Wardner. **Development:** Principally by 1 tunnel 1300 ft. long. **Ore:** Lead-silver. **Remarks:** Failed to file the reports required by law.

CALLAHAN ZINC-LEAD CO.
Office: Wallace. **Officers:** D. A. Callahan, Pres.; C. W. Newton, Sec.-Mgr., both of Wallace. **Inc.:** July 18, 1912, as Consolidated Interstate Mining Co.; name changed March 25, 1921. **Capital:** 1,000,000 shares; par value $10; 716,592 shares issued.

CALLAHAN MINE

Property: Interstate-Callahan group; 81 patented, 2 unpatented claims, Beaver dist.; Interstate. **Development:** Principal development is main transportation tunnel which is 5500 ft. long and a three-compartment vertical shaft 2000 ft. deep. Total development, approximately 10 miles.

Plant: MINE: Two single drum air-driven hoists and one 250-h. p. electrically-driven double drum hoist; three large I-R electrically-driven compressors; trolley locomotive haulage in main tunnel. Complete and modern blacksmith shop, machine shop, sawmill, mine equipment, camp and company buildings. MILL: 600-ton concentrator, including flotation. **Ore:** Zinc-lead-silver. **Men employed:** Average, 2. **Remarks:** At one time this property was one of the largest zinc mines in the United States. No ore has been mined since October, 1923.

GALENA MINE

Property: Chicago-Boston, Killbuck, Vulcan, Argentine, Wallace, and Silver Range groups; 31 patented, 67 unpatented claims, Lake Gulch, Placer Center dist.; Wallace. **Development:** By 33 tunnels, a 600-ft. vertical shaft, and an 800-ft. vertical winze in the 600-ft. level. Total development, approximately 34,000 ft. **Plant:** MINE: One 150-h. p. Lidgerwood, one 200-h. p. Coeur d'Alene Hdw. electrically-driven hoist; 3 I-R electrically-driven compressors, total capacity 1500 cu. ft.; complete equipment and mine camp. MILL: 150-ton flotation. **Ore:** Lead-silver. **Men employed:** Average, 15. **Remarks:** This company at its Galena mine produced no ore; however, development work, consisting of 2200 ft. of crosscutting and drifting, principally on the 1200-ft. level, and a large amount of diamond drilling on the 800, 1000, 1200 and 1600 ft. levels, was done. The diamond drill holes further proved the extension of the new south vein, first opened on the 600-ft. level, to additional depth and greatly increased the known resources of the mine. The favorable results of this company's work have greatly stimulated interest in prospecting throughout this section of the Coeur d'Alene district, in which the Galena mine is located.



GALENA MILL: CALLAHAN ZINC-LEAD CO.

CARBONATE MINING & MILLING CO.

Office: Wardner. **Officers:** C. Wiese, Pres.-Mgr., Wardner. **Inc.:** Oct. 7, 1899. **Capital:** 1,000,000 shares; par value 25c; 363,075 shares issued. **Property:** Carbonate group; 4 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 4 tunnels: No. 1, 700 ft.; No. 2, 300 ft. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only. A stock assessment of 2 mills was levied on Feb. 7.

CEDAR CREEK MINING & DEVELOPMENT CO., LTD.
Office: Wallace. **Officers:** Charles Bollinger, Pres.; L. W. Defenbach, Sec., both of Wallace. **Inc.:** June 28, 1905. **Capital:** 1100 nonassessable, 998,900 assessable shares; par value $1; all nonassessable and 760,815 assessable shares issued. **Property:** Cedar Creek group; 5 patented, 28 unpatented claims, Summit dist.; Murray. **Development:** 3 tunnels: No. 1, 1200 ft. long; No. 2, 2125 ft. long; No. 3, 4730 ft. long; 1 inclined shaft 343 ft. long. Total development, approximately 9800 ft. **Plant:** MINE: 12x12 electrically driven compressor and air-driven hoist; complete mining equipment and camp. MILL: 100-ton flotation concentrator. **Ore:** Lead-zinc-silver. **Men employed:** Average, 2. **Remarks:** A small amount of development work during the year. A stock assessment of 1c was levied on Jan. 10.

CENTRAL MINING CO.
Office: Burke. **Officers:** M. V. McNamee, Pres.; F. H. Richardson, Sec.; F. C. Richardson, Mgr., all of Burke. **Inc.:** Oct. 28, 1911. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Central group; 5 patented claims, lying between Hercules and Oom Paul; Lelande dist.; Burke. **Development:** Approximately 1200 ft., principally tunnels. **Ore:** Lead-silver. **Remarks:** Idle.

CHESTER MINING CO., LTD.
Office: Kellogg. **Officers:** P. P. Weber, Pres.; C. W. Simmons, Sec., both of Kellogg. **Inc.:** July 31, 1900. **Capital:** 1,000,000 shares; par value $1; 923,945 shares issued. **Property:** Chester group; 6 patented claims, Evolution dist.; Osburn. **Development:** By 1 tunnel 1500 ft. long.

CINCINNATI MINING CO.
Office: Wallace. **Officers:** R. E. Seysler, Pres.; W. H. Herrick, Sec.-Mgr., both of Wallace. **Inc.:** Jan. 18, 1924. **Capital:** 1,000,000 shares; par value 25c; 800,000 shares issued. **Property:** Cincinnati group; 5 unpatented claims, Hunter dist.; Mullan. **Development:** By 5 tunnels: No. 1, 1200 ft. long; No. 2, 1200 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

CLEAR GRIT MINING CO., LTD.
Office: Wallace. **Officers:** F. C. Rood, Pres., Longview, Wash.; E. G. Gnaedinger, Sec.-Mgr., Wallace. **Inc.:** May 9, 1906. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** 6 unpatented claims, Beaver dist.; Prichard. **Development:** By 1 tunnel approximately 2000 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

CLIMAX SILVER-LEAD MINING CO.
Inc.: Apr. 22, 1914. **Capital:** 1,500,000 shares; par value 25c. **Remarks:** Company has refused to file reports required by law since 1928.

COEUR D'ALENE BIG CREEK MINING CO.
Office: 146 30th Ave., Seattle, Wash. **Officers:** E. J. Brown, Pres.; C. F. Uhden, Sec., both of Seattle. **Inc.:** Jan. 31, 1925. **Capital:** 1,500,000 shares; par value 10c; all shares issued. **Property:** 4 unpatented claims, Yreka dist.; Big Creek; Kellogg. **Development:** Principally by 1 tunnel 1407 ft. long. **Plant:** 12x10 C-P compressor, electrically driven; drill sharpener; complete mining equipment and camp. **Ore:** Lead-silver. **Remarks:** Annual labor only.

COEUR D'ALENE CHAMPION MINING CO.
Office: E. 1827 Sprague Ave., Spokane, Wash. **Officers:** J. Reeves, Pres.; James Keeth, Sec., both of Spokane, Wash. **Inc.:** Jan. 22, 1907. **Capital:** 1,500,000 shares; par value $1; 440,000 shares issued. **Property:** Champion group; 16 unpatented claims, Hunter and Lelande dists.; Burke. **Development:** By 4 tunnels, the principal one of which is 3200 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of 2 mills was levied on May 6.

COEUR D'ALENE CRESCENT MINING CO.
Office: 404 Jamieson Bldg., Spokane, Wash. **Officers:** G. H. Walters, Pres.; F. W. Mauser, Sec., both of Spokane, Wash. **Inc.:** Dec. 12, 1913. **Capital:** 1,250,000 shares; par value $1; 650,000 shares issued. **Property:** Evolution group; 6 unpatented claims, Evolution dist.; Osburn. **Ore:** Lead-silver. **Remarks:** Under option to Evolution Mining Co.

COEUR D'ALENES LEAD CO.
Office: Wallace. **Officers:** Walter H. Hanson, Pres.; Herman Marquardt, Sec., both of Wallace. **Inc.:** Apr. 28, 1927. **Capital:** 4,000,000 shares; par value $1; 3,550,000 shares issued. **Remarks:** "The only assets of this company are 500,000 shares of the capital stock of the Atlas Mining Co." Stock assessments were levied as follows: Feb. 4, 3 mills; May 1, 1 mill.

COEUR D'ALENE METALS CO.
Office: Eagle Blk., Wallace. **Officers:** M. W. Neary, Pres., San Francisco, Calif.; A. G. Kennedy, Sec., Wallace. **Inc.:** Jan. 18, 1926. **Capital:** 10,000 shares: par value $100; 285 shares issued. **Property:** Lease and option on property of Great Eastern Mining Co., Ltd. **Remarks:** Idle.

COEUR D'ALENE MINES CORPORATION
Office: 605 Columbia Bldg., Spokane, Wash. **Officers:** George Turner, Pres.; F. E. Coffeen, Sec., both of Spokane, Wash.; S. H. Richardson, Mgr., Wallace. **Inc.:** Nov. 1, 1928. **Capital:** 3,000,000 shares; par value $1; 1,663,026 shares issued. **Property:** Mineral Point and St. Elmo groups; 2 patented, 18 unpatented claims, held under lease and option, Evolution dist.; Osburn. **Development:** By 12 tunnels: No. 3, 1000 ft. long; No. 4, 1100 ft. long; No. 5, 4740 ft. long. Total development, approximately 9865 ft. **Plant:** 350 cu. ft. Worthington compressor, electrically driven; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 4. **Remarks:** A small amount of work during the early part of the year.

COEUR D'ALENE MINING CO.
Office: Ames Bldg., Boston, Mass. **Officers:** Burton E. Eames, Pres.; John P. Wright, Sec., both of Boston, Mass. **Inc.:** July 20, 1900. **Capital:** 125,000 shares; par value $10; 118,586 shares issued. **Property:** Placer claims, which were exhausted by Yukon Gold Co.

COEUR D'ALENE MINING & SMELTING CO.
Office: Wallace. **Officers:** A. D. Wallace, Pres.-Mgr.; F. F. Brewer, Sec., both of Wallace. **Inc.:** July 18, 1904. **Capital:** 1,000,000 shares; par value $1; 923,800 shares issued. **Property:** 1 patented, 9 unpatented claims, Placer Center dist.; Wallace. **Development:** By 2 tunnels: No. 1, 350 ft. long; No. 2, 2500 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 4. **Remarks:** The principal tunnel was extended without interruption for a period of six months. A stock assessment of 3 mills was levied on Jan. 7.

COEUR D'ALENE SILVER-LEAD MINING CO.
Office: 1004 E. 8th Ave., Spokane, Wash. **Officers:** Charles J. Heidenreich, Pres., Spokane, Wash. **Inc.:** Filed in Idaho: June 16, 1916: charter forfeited Dec. 1, 1922. **Capital:** 1,200,000 shares; par value $1; 752,800 shares issued. **Property:** 6 patented claims, Hunter dist.; Mullan. **Development:** By 2 tunnels: No. 1, 1200 ft. long; No. 2, 300 ft. long. **Ore:** Lead-silver. **Remarks:** Idle for 10 years. Failed to file the reports required by law.

COEUR D'ALENE SYNDICATE MINING CO.
Office: Wallace. **Officers:** Philip Wiseman, Pres.; P. Kenneth Wiseman, Sec., both of 1206 Pacific Mutual Bldg., Los Angeles, Calif. **Inc.:** Sept. 16, 1922. **Capital:** 900,000 shares; 200,000 preferred, par value $5; 700,000 common, par value $1; 86,233 common shares issued. **Property:** Flynn and Senator groups held under lease and bond; 42 patented, 4 unpatented claims, Lelande and Hunter dists.; Gem. **Development:** 11,000 ft. of underground workings. **Ore:** Lead-silver. **Remarks:** Idle.

COLUMBIA COPPER CO., LTD.
Office: Wallace. **Officers:** Joseph Huber, Pres.-Mgr., Mullan; C. W. Betts, Sec., Wallace. **Inc.:** April 24, 1914. **Capital:** 2,500,000 shares; par value $1; 1,635,385 shares issued. **Property:** Columbia group; 22 unpatented claims, Hunter dist.; Mullan. **Development:** By 11 tunnels, totaling approximately 2900 ft. **Ore:** Lead-silver-copper. **Remarks:** Annual labor only.

COMMERCIAL TRAVELER MINING CO.

Office: 203 Standard Stock Exchange Bldg., Spokane, Wash. **Officers:** H. N. Dias, Pres.; M. L. Lieb, Sec., both of Spokane; Otto Achord, Mgr., Masonia. **Inc.:** May 6, 1926. **Capital:** 2,000,000 shares; par value 5c; 1,666,665 shares issued. **Property:** 12 unpatented claims, Pine Creek, Yreka dist.; Kellogg; held under lease and option from Shrine Mining Co. **Development:** By 4 tunnels, the principal one of which is 1800 ft. long. **Plant:** Electrically-driven D-G compressor; complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Remarks:** Failed to file the reports required by law, although three times notified to do so.

COMSTOCK COPPER MINING CO.

Office: Wallace. **Officers:** Therrett Towles, Pres.; Otto A. Olsson, Sec., both of Wallace. **Inc.:** Nov. 23, 1906. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Remarks:** The officers of this company report that the property has been sold to the British American Mines & Smelter Corporation. The latter company has never filed articles of incorporation in Idaho, nor has it filed with the inspector of mines the reports required by law.

CONSOLIDATED INDEPENDENT CALUMET MINING CO.

Office: Wallace. **Officers:** John H. Nordquist, Pres.-Mgr.; A. G. Kennedy, Sec., both of Wallace. **Inc.:** Oct. 9, 1906, as Lucky Calumet Copper Mining Co., Ltd. Name changed Nov. 24, 1928. **Capital:** 1,500,000 shares; par value $1; 1,134,767 shares issued. **Property:** Lucky Calumet group; 13 patented, 2 unpatented claims, Hunter dist.; Mullan. **Development:** Principally by 2 tunnels: No. 1, 1400 ft. long; No. 2, 1950 ft. long. Total development, approximately 13,090 ft. **Plant:** Electrically driven 5-drill I-R two-stage compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 5. **Remarks:** Active development work for 3 months. This company is developing its property through the lower tunnel of the National Copper Mining Co., Ltd.

CONSOLIDATED MINING CO.

Officers: Donald A. Callahan, Sec., Wallace. **Inc.:** May 18, 1931. **Capital:** 5,000,000 shares; par value 10c. **Remarks:** Press reports were to the effect that this company was organized to acquire the properties of the Tuscumbia Mining Co., Ltd., and the Idora Mining Co., Ltd. Failed to file the reports required by law.

CONSTITUTION MINING & MILLING CO.

Office: Masonia. **Officers:** J. P. Graves, Pres.; B. H. Kizer, Sec., both of Spokane, Wash.; Wm. P. White, Mgr., Masonia. **Inc.:** Sept. 17, 1902. **Capital:** 1,750,000 shares; par value $1. Increased Aug. 31, 1929, to 3,500,000 shares; par value $1; 2,672,934 shares issued. **Property:** Constitution group, 21 patented, 23 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 3 tunnels: No. 1, 205 ft.; No. 2, 2508 ft.; No. 3, 2359 ft.; an inclined shaft from the surface 240 ft. deep, extending to the 200-ft. level; and a vertical shaft 862 ft. deep in No. 3 tunnel. Total development, approximately 11,280 ft. **Plant:** MINE: Double-drum 150-h. p. hoist, 530-cu.-ft. C. P. and 1575-cu.-ft. I-R compressor, all electrically driven; drill sharpeners; storage-battery locomotive haulage; complete mining equipment and camp. MILL: 200-ton concentrator, fine grinding and flotation. **Ore:** Lead-zinc-silver. **Men employed:** Average, 3. **Remarks:** This enterprise is fully described in the Mining Congress Journal of September, 1929. Idle throughout the year.

COPPER CHIEF MINING CO.

Office: Wallace. **Officers:** D. E. Wickward, Pres.; James H. Taylor, Sec.-Mgr., both of Wallace. **Inc.:** Sept. 25, 1907. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Copper Chief group; 7 patented, 4 unpatented claims, St. Joe dist.; Adair. **Ore:** Copper-gold. **Remarks:** Idle.



CONSTITUTION MINING & MILLING CO. MILL

COPPER KING MINING & SMELTING CO.

Office: Wallace. **Officers:** W. B. Heitfeld, Pres.; W. A. Devan, Sec., both of Wallace. **Inc.:** Aug. 13, 1901. **Capital:** 125,100 nonassessable shares, 1,374,900 assessable shares; par value $1; 988,302 assessable shares issued. **Property:** Copper King group; 18 patented, 3 unpatented claims, Lelande and Hunter dist.; Mullan. **Development:** Principally by 3 tunnels: No. 1, 200 ft. long; No. 2, 2000 ft. long; No. 3, 5000 ft. long. Total development, approximately 10,000 ft. **Plant:** Electrically driven compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Remarks:** Idle.

CORBY LODE MINING CO.

Office: Kellogg. **Officers:** John B. Steffes, Pres.-Mgr.; F. William Voigtlander, Sec., both of Kellogg. **Inc.:** Jan. 27, 1930. **Capital:** 1,000,000 shares; par value 25c; 608,000 shares issued. **Property:** Corby group; 5 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** 1 tunnel 700 ft. long. **Ore:** Gold-copper-silver. **Remarks:** Principal tunnel extended 50 ft. during the year.

C. & R. MINING CO.

Office: 312 Old Nat'l Bank Bldg., Spokane, Wash. **Officers:** E. R. Week, Pres.; Ben L. Collins, Sec.; Russell F. Collins, Mgr., all of Spokane, Wash. **Inc.:** June 16, 1904. **Capital:** 1,250,000 shares; par value $1; all shares issued. **Property:** C. & R. group; 10 patented claims, on Sunset Peak, Lelande dist.; Burke. **Development:** By 3 tunnels: No. 1, 400 ft.; No. 2, 1200 ft.; No. 3, 6000 ft. **Plant:** Electrically-driven I-R compressor; complete mining equipment. **Ore:** Lead-silver. **Remarks:** Refused to file the reports required by law, although notified three times to do so.

CRYSTAL LEAD MINES CO.

Office: Wallace. **Officers:** W. B. Heitfeld, Pres.; W. A. Devan, Sec., both of Wallace. **Inc.:** Jan. 13, 1931. **Capital:** 1,500,000 shares; par value 10c; 1,498,996 shares issued. **Property:** Lead Crystal group; 10 unpatented claims, Eagle dist.; Prichard. **Development:** By 3 tunnels: No. 1, 250 ft. long; No. 2, 1010 ft. long; No. 3, 710 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** This company is a reorganization of the Lead Crystals Mining Co., Ltd. Press reports were to the effect that the development work done during the year opened an important showing of new ore.

CUBA MINING CO.

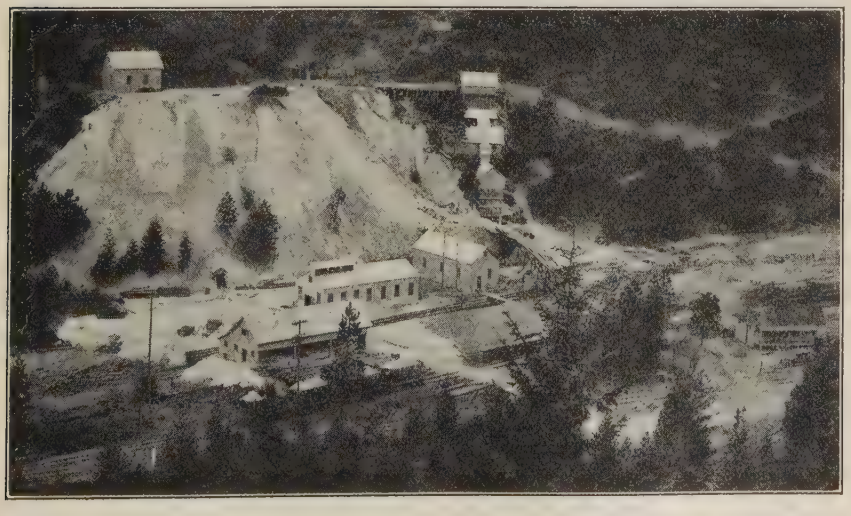
Office: Wallace. **Officers:** W. H. Hanson, Pres.; Herman Marquardt, Sec., both of Wallace. **Inc.:** Nov. 18, 1899. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Cuba group; 2 patented claims, Placer Center dist.; Wallace. **Development:** 2 tunnels: No. 1, 500 ft. long; No. 2, 1100 ft. long. **Plant:** Electrically-driven I-R compressor; complete mining equipment. **Ore:** Lead-silver. **Remarks:** Idle.

DAY DEVELOPMENT CO.

Office: Wallace. **Officers:** Harry L. Day, Pres.; W. B. Heitfeld, Sec., both of Wallace. **Inc.:** Filed in Idaho as Hercules Exploration Co. Nov. 27, 1928; named changed Nov. 25, 1930. **Capital:** 10,000 shares; par value $100; 473 shares issued.

DAYROCK MINING CO.

Office: Wallace. **Officers:** F. M. Rothrock, Pres., Spokane; Jerome J. Day, Sec.; Henry L. Day, Mgr., both of Wallace. **Inc.:** Nov. 30, 1923, as Strattons Mines Co.; name changed Nov. 19, 1928. **Capital:** 2,000,000 shares; par value 10c; 1,711,055 shares issued. **Property:** Dayrock, Panhandle, and Monarch-Bonanza groups; 26 patented, 27 unpatented claims, Placer Center dist.; Wallace. **Development:** Dayrock group: Principally by 1 tunnel 1450 ft long, in which is an inclined shaft 460 ft. long, with 4 intermediate levels, which opens the vein to a vertical depth of 400 ft. Panhandle group: Principally by 1 tunnel 1562 ft. long, and an inclined shaft 360 ft. long, with 3 intermediate levels, which opens the vein to a vertical depth of 253 ft. Total development in both groups, over 36,000 ft. **Plant:** Electrically driven hoist and 2 electrically driven compressors; complete mining equipment; storage-battery locomotive haulage.. **Ore:** Lead-silver. **Men employed:** Average, 50. **Remarks:** Other than rehabilitation and annual labor all operations were confined to the Dayrock group. Over 1500 ft. of crosscuts, drifts, and raises were run on the four principal levels. Production was maintained without interruption until May, when all operations were suspended. The ore is sold to the Hercules custom mill at Wallace. The property is conservatively and intelligently managed, and the management is to be congratulated upon the attention which it gives to safety and avoidance of accidents. The development work of the past year greatly increased the known ore reserves. This mine is recognized as one of the important producers of the Coeur d'Alene district.



SURFACE PLANT: DAYROCK MINING CO.

DECKER DEVELOPMENT CO.

Office: Kellogg. **Officers:** George Decker, Pres.-Mgr.; Mrs. M. E. Morgan, Sec., both of Kellogg. **Inc.:** Oct. 1, 1927. **Capital:** 500,000 shares; par value 10c; 244,430 shares issued. **Property:** Stewart group; 12 patented, 3 unpatented claims, held under lease, Yreka dist.; Kellogg. **Development:** By Fir tunnel, 2400 ft. long. **Ore:** Lead-silver. **Remarks:** Idle.

DEEP WONDER MINE

Office: 408 Ziegler Bldg., Spokane, Wash. **Officers:** Charles J. Kapps, Trustee, Spokane, Wash. **Property:** Deep Wonder group; 12 patented claims, Hunter dist.; Mullan. **Ore:** Lead-silver. **Remarks:** Property under lease and option to Mutual Mines Development Co.

DEER CREEK MINING CO.

Office: Wallace. **Officers:** C. E. Biggs, Pres.; N. S. Jacobs, Sec., both of Spokane, Wash. **Inc.:** May 23, 1925. **Capital:** 2,000,000 shares, par value 1c; increased on Jan. 22, 1930, to 2,000,000 common, par value 20c, 10,000 preferred, par value $10; 1,526,800 common issued. **Property:** 30 unpatented claims, part of which are held under lease and option, Beaver dist.; Wallace. **Development:** Principally by an 800-ft. tunnel and a 100-ft. inclined shaft. **Plant:** Gas-driven 10x12 Sullivan compressor and hoist; complete mining equipment and camp. **Ore:** Lead-silver. **Remarks:** Annual labor only. Part of 2 claims under lease to Delta Leasing Co.

DICKENS CONSOLIDATED MINES CO.

Office: 402 Standard Stock Exchange Bldg., Spokane, Wash. **Officers:** Guy E. Reigel, Pres., Spokane, Wash.; Walter Hansen, Sec., Wallace. **Inc.:** Mar. 18, 1925. **Capital:** 2,500,000 shares; par value 10c; 761,886 shares issued. **Property:** Dickens group; 31 unpatented claims, Moon Creek, Evolution and Yreka dists.; Kellogg. **Development:** Principally by a vertical shaft 700 ft. deep. Total development, approximately 7000 ft. **Plant:** MINE: 900 cu. ft. Sullivan compressor and hoist, both electrically driven; complete mining equipment and camp. MILL: 150-ton flotation concentrator. **Ore:** Lead-zinc-silver. **Remarks:** Idle. A stock assessment of 1c was levied on May 14

DICKENS-EAST MINING CO.

Office: 215 Waverly Place, Spokane, Wash. **Officers:** C. Fred Kratzer, Sec., Spokane, Wash. **Inc.:** Aug. 18, 1926. **Capital:** 2,500,000 shares; par value 10c; 1,500,000 shares issued. **Property:** 10 unpatented claims, Moon Creek, Yreka dist.; Kellogg. **Development:** By 3 tunnels: No. 1, 100 ft. long; No. 2, 125 ft. long; No. 3, 150 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

DOUGLAS MINING CO., LTD.

Office: Wallace. **Officers:** Frank F. Johnson, Pres., Boise; Leo Hoban, Sec., Wallace. **Inc.:** Oct. 24, 1903. **Capital:** 1,200,000 shares; par value $1; all shares issued. **Property:** Douglas group; 15 patented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 4 tunnels: No. 1, 930 ft.; No. 2, 1350 ft.; No. 3, 1900 ft.; No. 4, 650 ft.; and an inclined shaft 330 ft. long. **Plant:** Electrically driven compressor and hoist; complete mining equipment and camp. **Ore:** Zinc-lead-silver. **Men employed:** Average, 1. **Remarks:** A small amount of work by a lessee. A stock assessment of 4 mills was levied on Oct. 15.

DU BOIS MINING CO.

Office: Kellogg. **Officers:** H. E. Ginter, Pres., Du Bois, Pa.; J. B. Eberhart, Sec.-Treas., Punxsutawney, Pa. **Inc.:** Aug. 9, 1914. **Capital:** 1,000,000 shares; par value $1; 300,000 shares issued. **Property:** 7 patented, 1 unpatented claim, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel 1250 ft. long. **Ore:** Lead-silver. **Remarks:** Property under option to New Jersey Consolidated Mines Co. Charter forfeited Dec. 1, 1931.

DULUTH MINING CO.

Office: Wallace. **Officers:** W. B. Heitfeld, Pres., Wallace. **Inc.:** June 10, 1909. **Capital:** 1,500,000 shares; par value 25c; 322,210 shares issued. **Property:** Duluth group; 8 patented claims, Lelande dist.; Burke. **Development:** By 5 tunnels, with a total development of approximately 1000 ft. **Ore:** Lead-silver. **Remarks:** Idle.

EAGLE CREEK GOLD MINING CO.
Office: Wallace. **Officers:** Archibald Smith, Sec., Wallace. **Inc.:** July 10, 1922. **Capital:** 500,000 shares; par value $1. **Remarks:** Has not filed the reports required by law since 1924.

EAST ALAMEDA MINING CO., LTD.
Office: E. 3132 18th Ave., Spokane, Wash. **Officers:** J. Fred Markwell, Sec., Spokane, Wash. **Inc.:** July 25, 1907. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** East Alameda group; 1 patented, 1 unpatented claim, Lelande dist.; Black Bear. **Ore:** Lead-silver.

EAST CALEDONIA MINES CO.
Office: Wallace. **Officers:** H. J. Rossi, Pres.; Franklin Pfirman, Sec., both of Wallace. **Inc.:** Mar. 6, 1915. **Capital:** 1,000,000 shares; par value 25c; 156,730 shares issued. **Property:** East Caledonia group; 2 patented, 5 unpatented claims, Yreka dist.; Kellogg. **Ore:** Lead-silver. **Remarks:** Annual labor only.

EASTERN STAR MINING CO., LTD.
Office: Wallace. **Officers:** Jack Johnstone, Pres.-Mgr., Burke; John C. Glahe, Sec., Wallace. **Inc.:** Aug. 29, 1906. **Capital:** 1,000,000 shares; par value $1; 600,000 shares issued. **Property:** Eastern Star group; 18 unpatented claims, Lelande dist.; Burke. **Development:** 2 tunnels: No. 1, 150 ft. long; No. 2, 900 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

EAST HECLA MINING CO., LTD.
Office: Wallace. **Officers:** John P. Gray, Pres., Coeur d'Alene; A. H. Featherstone, Sec., Wallace. **Inc.:** Nov. 24, 1906. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** East Hecla group; 4 patented claims, Hunter dist.; Mullan. **Remarks:** Idle for a number of years.

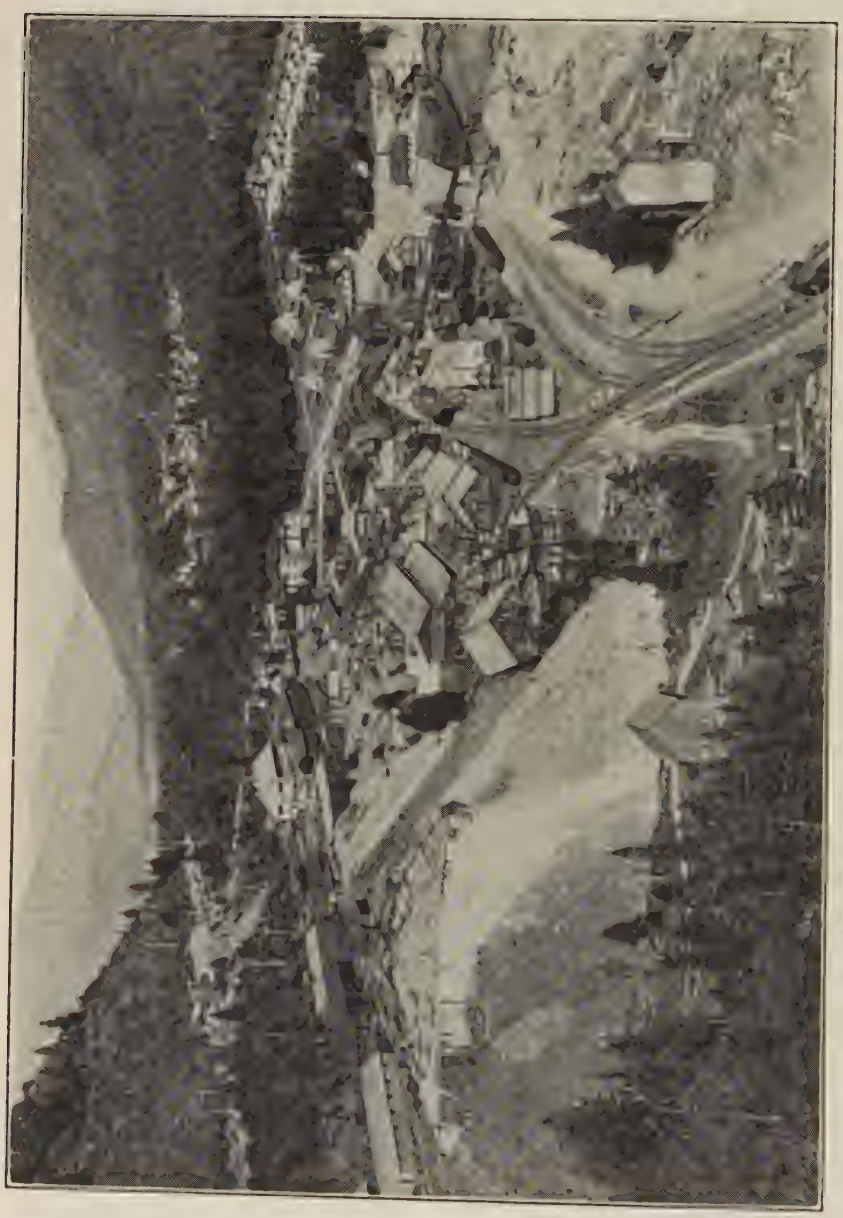
EAST STANDARD MINING CO.
Office: Wallace. **Officers:** J. E. Gyde, Sec., Wallace. **Inc.:** Aug. 9, 1911. **Capital:** 1,000,000 shares; par value $1. **Remarks:** Has refused to file the reports required by law since 1926. The Big Three Mining Co. reports that it is operating the property owned by this company under a lease and option.

ELDORADO MINING & SMELTING CO., LTD.
Office: Wallace. **Officers:** J. C. Waddell, Pres., Coeur d'Alene; G. W. Dougherty, Sec., Wallace. **Inc.:** July 5, 1907. **Capital:** 1,250,000 shares; par value 10c; 723,565 shares issued. **Property:** 1 patented, 3 unpatented claims, Yreka dist.; Kellogg. **Development:** By 1 tunnel, approximately 1000 ft. long. **Plant:** Gas-driven compressor. **Ore:** Lead-silver. **Remarks:** Property under lease and option to Pasco Mining Co.

ELGIN & OGDEN MINING CO.
Office: Kellogg. **Officers:** Wesley J. Herring, Pres.-Mgr.; W. H. Lang, Sec., both of Kellogg. **Inc.:** July 11, 1921. **Capital:** 1,000,000 shares; par value 5c; 643,012 shares issued. **Property:** 5 unpatented claims, Big Creek, Yreka dist.; Kellogg. **Development:** By 2 tunnels: No. 1, 500 ft.; No. 2, 470 ft. **Ore:** Lead-silver. **Remarks:** Annual labor only.

ENCHANTED HILL MINING CO.
Office: Kellogg. **Officers:** A. C. Beal, Pres.-Mgr., Spokane, Wash.; Lester S. Harrison, Sec., Kellogg. **Inc.:** Feb. 27, 1928. **Capital:** 2,000,000 shares common, par value 10c; 25,000 shares preferred, par value $1; 1,500 shares common, all shares preferred issued. **Property:** Enchanted Hill group; 19 unpatented claims, unorganized dist.; St. Joe. **Development:** By 1 tunnel 60 ft. long. **Ore:** Lead-copper-silver. **Remarks:** Failed to file the reports required by law.

ENTERPRISE MINING CO.
Office: Kellogg. **Officers:** Fred F. Donaldson, Pres.-Mgr.; W. A. Tuson, Sec., both of Kellogg. **Inc.:** June 4, 1910. **Capital:** 1,000,000 shares; par value $1; 589,250 shares issued. **Property:** Enterprise group; 1 patented, 7 unpatented claims, Yreka dist.; Kellogg. **Development:** By 5 tunnels: No. 1, 150 ft. long; No. 2, 180 ft. long; No. 3, 1300 ft. long. **Men employed:** Average, 1. **Ore:** Lead-silver. **Remarks:** Annual labor only.



MORNING MILL AND SURFACE PLANT, FEDERAL M. & S. CO.

EQUITABLE MINING & MILLING CO.

Office: 303 Sherman Ave., Coeur d'Alene. **Officers:** C. L. Dittimore, Pres.; H. W. Fintzel, Sec., both of Coeur d'Alene. **Inc.:** April 3, 1916. **Capital:** 1,250,000 shares; par value 1c; 599,926 shares issued. **Property:** 2 unpatented claims; Pine Creek, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel 1100 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only. A stock assessment of 1 mill was levied on Apr. 9.

EVOLUTION MINING CO.

Office: S. 2526 Hatch St., Spokane, Wash. **Officers:** Montgomery Waddell, Pres., New York City; A. P. Young, Sec., Spokane, Wash. **Inc.:** July 25, 1927. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Evolution group; 8 patented, 2 unpatented claims, Evolution dist.; Osburn; held under lease and option from the Coeur d'Alene Crescent Mining Co. **Development:** By 1 tunnel 1500 ft. long; a vertical shaft 300 ft. deep; and an inclined shaft 800 ft. long, giving a vertical depth of 340 ft. **Plant:** Electrically driven compressor and hoist; complete mining equipment. **Ore:** Lead-silver. **Remarks:** Idle through the year.

FANNIE GREMM MINING CO.

Office: Wallace. **Officers:** P. P. Weber, Pres., Kellogg; Alfred J. Dunn, Sec., Wallace. **Inc.:** Dec. 6, 1900. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** 2 patented claims adjoining the Morning mine on the east, Hunter dist.; Mullan. **Development:** Approximately 1600 ft. of underground workings. **Ore:** Lead-silver. **Remarks:** Idle.

FEDERAL MINING & SMELTING CO.

Office: 120 Broadway, New York City. **Officers:** F. H. Brownell, Pres.; J. L. Martin, Sec., both of New York City; H. G. Washburn, Mgr., Wallace. **Inc.:** Sept. 24, 1903. **Capital:** 200,000 shares preferred, 100,000 shares common; par value of each, $100; 29,836 shares preferred, 49,328 shares common issued.

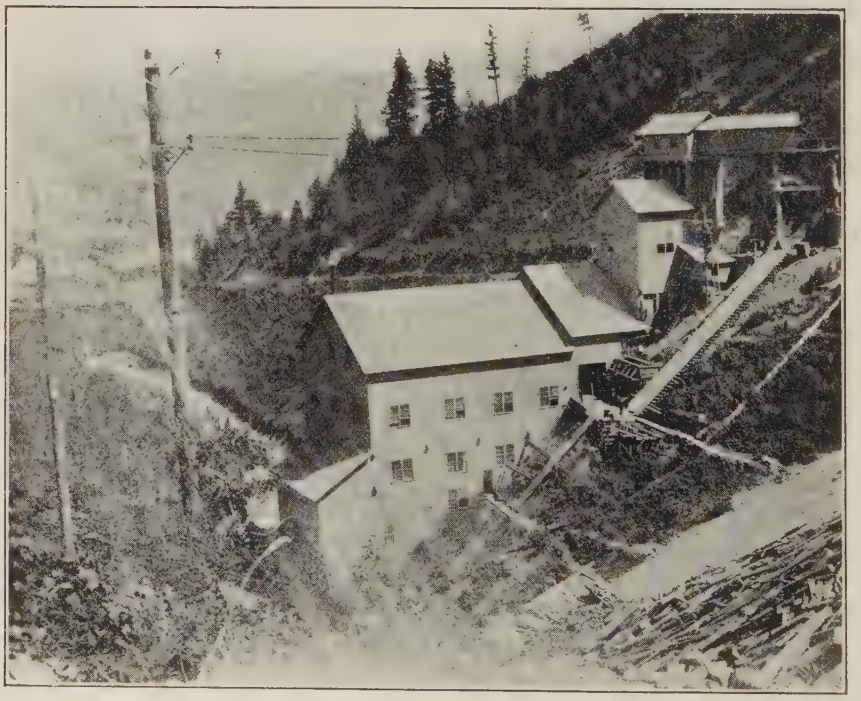
MORNING GROUP

Property: 41 patented claims, Hunter dist.; Mullan. **Development:** The two principal tunnels are No. 5, 1600 ft. long, and No. 6, the main transportation tunnel, 9500 ft. long. The principal shaft, which is located in No. 6 tunnel, is a vertical, 4-compartment shaft, 2850 ft. deep, with 14 intermediate levels below No. 6 tunnel, which opens the vein to a depth of approximately 5220 ft. Total development, approximately **37 miles.** **Plant:** MINE: 1 double-reel hoist, arranged for electric drive by means of direct-current hoist motor 600 h. p., 450 r. p. m., through single reduction herringbone gear, driven by synchronous motor generator (motor 700 h. p.; generator 500 KW-D. C.) 1200 r. p. m., 265 volts; one 600-h. p. electrically driven double-drum Nordberg hoist; one Nordberg single-drum geared hoist, driven by 300-h. p. electric motor; one water-driven 5200 cu. ft. Ricks compressor; one Laidlaw-Dunn-Gordon 3200 cu. ft. compressor, two Ingersoll-Rand 2500-cu.-ft. compressors, and one Prescott pump, 400 gal. capacity, on 2450 level, all electrically driven; complete mining equipment, machine shops, sawmill, company buildings and hotel. HAULAGE: 500-volt electric in main, or No. 6, tunnel; 250-volt electric and 10 storage-battery locomotives in intermediate levels. MILL: 1200-ton concentrator, including flotation. Two ore-sorting plants and complete modern change house. **Ore:** Lead-silver-zinc. **Men employed:** Average, 512, exclusive of lessees. **Remarks:** Capacity production was maintained until June, when the continued low price of metals compelled curtailment and operations were reduced to a 12-days-a-month basis, the mine being worked every other week. The mine and mill plants were improved, and mine development work was conducted without interruption; the principal part of which was drifting on the 3450 and 3650 ft. levels, where the ore bodies were proved to be larger and more extensive than those on the upper levels. This mine is one of the oldest in the Coeur d'Alene district in point of continuous production, as well as one of the largest lead-silver-zinc mines in the United States. As the

new development work has added greatly to the known resources of the mine, the number of years that this record will continue is unknown. In addition to the ore mined under company operation, a small tonnage was extracted from the upper levels of the Morning mine by lessees, although this was the smallest for many years.

PAGE GROUP

Property: 86 patented claims, Yreka dist.; Kellogg. **Development:** By 9 tunnels, the principal one of which is the Curlew, 650 ft. long; and an inclined shaft 900 ft. long, giving a vertical depth of 700 ft. Total development, approximately 23,000 ft. **Plant:** MINE: A 100 h. p. hoist and a 75-h. p. double-drum hoist, both electrically driven; a 400-cu.-ft., an 800-cu.-ft., and a 2550-cu.-ft. electrically driven compressor; 1 trolley locomotive and 2 storage-battery locomotives; complete and modern mine camp, equipment and buildings. MILL: 300-ton flotation concentrator. **Ore:** Lead-zinc-silver. **Men employed:** Average, 118. **Remarks:** Capacity production was maintained until June, when the continued low price of metals compelled curtailment and operations were reduced to a 12-days-a-month-basis, the mine being worked every other week. The mill was enlarged and improved and the shaft extended from the 1200 to the 1500 ft. level; and crosscutting to the vein was started from the new level. Additional mine and camp buildings were erected; some new milling equipment was installed; and development work progressed without interruption. This mine is now recognized as one of the large producing mines in the district. The success of this operation can be accredited entirely to flotation, because with the old milling methods it was impossible to mine and mill the ore at a profit.



PAGE MILL: FEDERAL M. & S. CO.

MACE GROUP

Property: 35 patented claims, Lelande dist.; Mace. **Development:** Principal development consists of No. 6 tunnel, 3600 ft. long; No. 2, Campbell, 3000 ft. long; and a 3-compartment vertical shaft 2400 ft. deep, with 22 intermediate levels. Total development: Approximately 4 miles. **Plant:** MILL: Two 500-ton concentrators, including flotation. **Ore:** Lead-silver. **Remarks:** Except for the operation of a few lessees, who produced a small tonnage of ore, this property was idle. No. 6 tunnel is now known as No. 7 of the Tamarack & Custer Consolidated Mining Co.

BURKE GROUP

Property: One millsite, Lelande dist.; Burke. **Plant:** A small hydroelectric power plant.

FRISCO GROUP

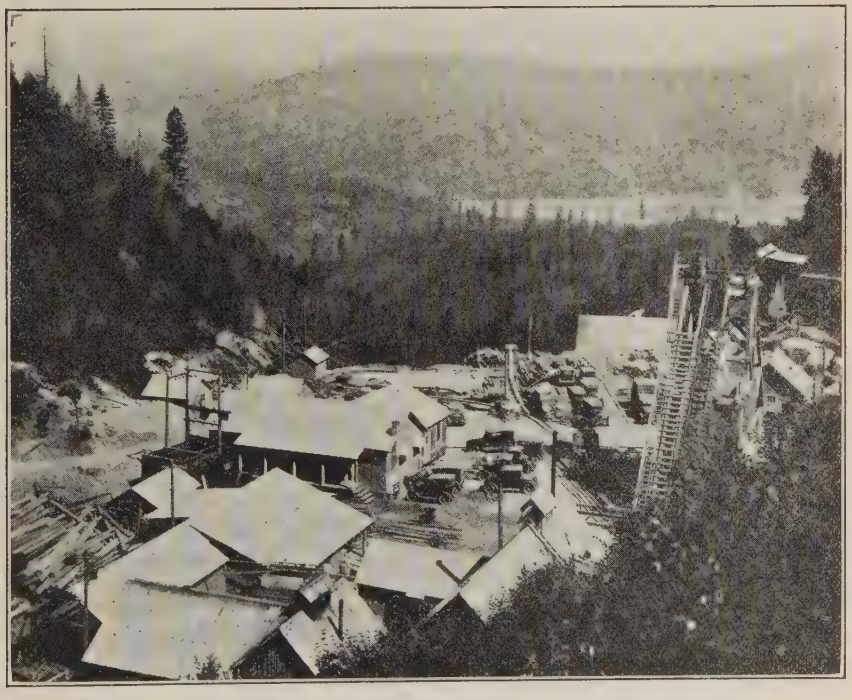
Property: 15 patented claims, Lelande dist.; Gem. **Development:** Principally by 4 tunnels: No. 1, 1000 ft. long; No. 2, 1500 ft. long; No. 3, 550 ft. long; No. 4, 1000 ft. long; and a vertical 4-compartment shaft 1650 ft. deep. Total development, approximately 6 miles. **Ore:** Lead-zinc-silver. **Remarks:** A substantial tonnage of ore was produced by lessees during the year.

GLAMORGAN GROUP

Property: 3 patented claims, Evolution dist.; Kellogg. **Development:** By 1 tunnel, 75 ft. long. **Ore:** Lead-zinc-silver.

GOVERNMENT GULCH GROUP

Property: Five-sixteenths interest in 1 patented claim, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel, which is 500 ft. long. Total development, approximately 1700 ft. **Ore:** Lead-silver.



PAGE MINE: FEDERAL M. & S. CO.

CON. BIEDERMAN GROUP

Property: One-half interest in 2 patented claims and one-third interest in 2 patented claims, Yreka dist.; Kellogg. **Development:** By 2 tunnels: No. 1, 320 ft. long; No. 2, 125 ft. long. **Ore:** Lead-zinc-silver.

REMARKS

This company is one of the largest lead-zinc-silver producers in the United States, operating properties in Missouri and Idaho. The total production from its Idaho properties makes it rank second in production in Idaho.

FIDELITY COMPANY, LTD.

Office: Wallace. **Officers:** Oscar B. Bergstrom, Pres., 149 Broadway, New York City; Allan G. Kennedy, Sec.-Mgr., Wallace. **Inc.:** Nov. 5, 1915. **Capital:** 2,500,000 shares; par value 20c; 1,675,309 shares issued. **Property:** Monarch group; 7 patented, 29 unpatented claims, Summit dist.; Murray. **Development:** By 3 tunnels, the principal of which is No. 3, or main crosscut tunnel, which is 3120 ft. long; and an inclined shaft 300 ft. deep; total development, approximately 13,500 ft. **Plant:** MINE: Ottumwa air-driven hoist, 10-drill water-driven compressor, complete mining equipment and camp. MILL: 150-ton concentrator, jigs and tables. **Ore:** Lead-zinc-silver. **Men employed:** 1 watchman. **Remarks:** Annual labor only.

FLAGSTAFF MINING CO.

Office: 2418 N. Normandie St., Spokane, Wash. **Officers:** Emery Guay, Pres.; Evelyn Vowels, Sec., both of Spokane, Wash.; E. L. Vowels, Mgr., Kellogg. **Inc.:** Oct. 29, 1927. **Capital:** 1,000,000 shares; par value 10c; 418,295 shares issued. **Property:** Jippo group; 2 unpatented claims, Eagle dist.; Prichard. **Remarks:** Annual labor only. A stock assessment of 1 mill was levied on May 11.

FLORENCE MINING & MILLING CO., LTD.

Office: 618 W. Gordon Ave., Spokane, Wash. **Officers:** J. R. M. Culp, Pres., Rathdrum; E. C. Franks, Sec., Spokane, Wash.; L. E. Franks, Mgr., Kellogg. **Inc.:** Aug. 15, 1908. **Capital:** 1,000,000 shares; par value $1; 424,652 shares issued. **Property:** Dallaire group; 10 unpatented claims, Big Creek, Yreka dist.; Kellogg. **Development:** By 5 tunnels: No. 1, 100 ft. long; No, 2, 150 ft. long; No. 3, 80 ft. long; No. 4, 180 ft. long; No. 5, 2145 ft. long. **Plant:** Electrically driven I-R compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Remarks:** Property under option to Keystone Mining Co.

FLYNN GROUP MINING CO.

Office: Wallace. **Officers:** J. J. Cronin, Pres.; J. F. Whelan, Sec., both of Wallace. **Inc.:** Aug. 21, 1905. **Capital:** 2,500,000 shares; par value 25c; 1,605,000 shares issued. **Property:** Flynn group; 21 patented claims, Lelande dist.; Black Bear. **Development:** Total development, 6600 ft. **Remarks:** Under option to Coeur d'Alene Syndicate Mining Co.

FORMOSA LEAD MINING CO., LTD.

Office: 504 Empire State Bldg., Spokane, Wash. **Officers:** Charles Hussey, Sec., Spokane, Wash. **Inc.:** Jan. 19, 1907. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** 3 patented claims, Lelande dist.; Wallace. **Remarks:** Under development by Mutual Mines Development Co., which see.

GALENA MINING CO.

Office: Wallace. **Officers:** A. H. Featherstone, Pres.; Herman Marquardt, Sec., both of Wallace. **Inc.:** Not filed in Idaho. **Capital:** 3,000,000 shares; par value $1; 2,000,000 shares issued. **Property:** Idaho Galena group; 10 unpatented claims, Placer Center dist.; Plymouth group, 2 unpatented claims, West Federal group, 10 unpatented claims, Hunter dist.; Wallace. **Remarks:** This company is a consolidation of and acquired the property, through an exchange of stock, of the following companies: Idaho Galena Mining Co., Plymouth Lead Mines Co., and West Federal Mining Co. Annual labor only.

GEM STATE MINING CO.

Office: E. 1008 Illinois Ave., Spokane, Wash. **Officers:** W. E. Horstkotte, Pres.; A. H. Burk, Sec., both of Spokane, Wash. **Inc.:** Aug. 25, 1924. **Capital:** 2,200,000 shares, no par value; Sept. 3, 1931, changed to 2,000,000 shares, par value 5c; 750,000 shares issued. **Property:** 8 patented, 10 unpatented claims, Hunter dist.; Wallace. **Development:** By 6 tunnels, the longest of which is No. 4, 1900 ft. in length. **Ore:** Lead-silver-zinc. **Remarks:** Annual labor only. A stock assessment of 2 mills was levied on June 27.

GENERAL MINES CORPORATION

Office: 402 Empire State Bldg., Spokane, Wash. **Officers:** H. G. Loop, Pres.-Mgr.; E. I. Fisher, Sec., both of Spokane, Wash. **Inc.:** Nov. 23, 1925. **Capital:** 2,000,000 shares; par value 5c; 1,348,330 shares issued. **Property:** Big Eight group; 14 unpatented claims and 106 acres patented land, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel 3786 ft. long. **Plant:** Electrically driven G. D. compressor; complete mining equipment. **Ore:** Gold-silver-copper-lead. **Men employed:** Average, 3. **Remarks:** Three men were employed in extending the principal tunnel until October, at which time all operations were suspended. Press reports were to the effect that gold is the principal metal contained in the minerals encountered by this work.

GERTIE MINING CO.

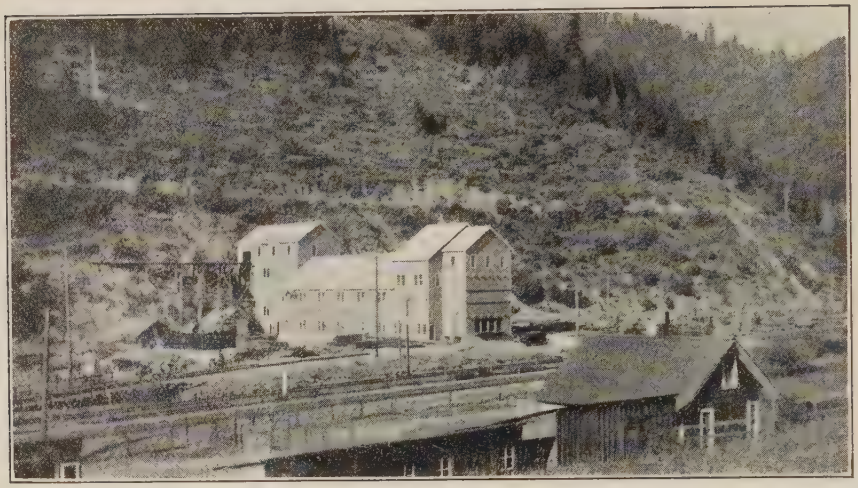
Office: Wallace. **Officers:** E. E. Flood, Pres.; F. M. Rothrock, Sec., both of Spokane, Wash. **Inc.:** July 23, 1914. **Capital:** 2,500,000 shares; par value 10c; all shares issued. **Property:** Gertie group; 3 patented claims, Lelande dist.; Burke.

GIANT MINING & DEVELOPMENT CO.

Office: Wallace. **Officers:** Paul Liver, Pres.-Mgr.; E. R. Turk, Sec., both of Wallace. **Inc.:** Sept. 22, 1899. **Capital:** 1,000,000 shares; par value 10c; 554,990 shares issued. **Property:** 8 unpatented claims, Beaver dist.; Wallace. **Development:** Principally by 1 tunnel, which is 1050 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Annual labor only.

GOLCONDA LEAD MINES

Office: Wallace. **Officers:** A. H. Featherstone, Pres., Wallace; Chas. P. Lund, Sec.; Wm. A. Beaudry, Mgr., both of Spokane, Wash. **Inc.:** Jan. 18, 1927. **Capital:** 2,000,000 shares; par value $1; all shares issued. **Property:** Hector group; 18 patented, 2 unpatented claims, Hunter dist.; Wallace; Mayflower group; 14 unpatented claims, Lelande and Hunter dists.; Wallace. **Development:** Mine opened by the Mayflower tunnel, 5000 ft. in length, an inclined raise 800 ft. long, and a vertical shaft 800 ft. deep, both from Mayflower tunnel (1000-ft. level). **Plant:** MINE: Two electrically driven 750-cu.-ft. Sullivan compressors; 2 air-driven hoists and a large electrically driven hoist; storage-battery locomotive haulage; sawmill, yards, and timber-shed; complete mining equipment. MILL: 200-ton concentrator, fine-grinding, flotation. **Ore:** Lead-zinc-silver. **Men employed:** Average, 30. **Remarks:** The mill was operated on a one-shift basis on ore derived from development work, and lessees produced a substantial tonnage of high-grade, hand-sorted ore from the surface discovery on the Mayflower group, which was disclosed in 1930. The development work consisted principally of drifting on the 1400-ft. level, where the ore was recovered on the east side of the fault and then opened for a length of more than 600 ft. This ore was opened further by a raise, which was projected from the 1400-ft. level to trace its continuation to the upper levels. By the close of the year, arrangements had been completed to extend one of the lower levels into the property of the Square Deal Mining & Milling Co., which is held under lease and option. The Golconda mine is fast becoming recognized as one of the principal mines in Shoshone County, and mine profits during the year were sufficient to pay more than all costs.



GOLCONDA LEAD MINES: MILL

GOLDEN CHEST CONSOLIDATED MINING CO.

Remarks: Name gleaned from the press. Supposed to have an option on the Aulbach group at Murray.

GOLD HUNTER MINES, INC.

Office: 516 E. 28th St., Chicago, Ill. **Officers:** Edwin C. Hennessy, Pres.; Thomas F. Keeley, Sec., both of Chicago, Ill.; C. K. Cartwright, Mgr., Mullan. **Inc.:** April 24, 1925; formerly Gold Hunter Mining & Smelting Co. **Capital:** 20,000 shares; par value $10; all shares issued. **Property:** Gold Hunter; 12 patented claims, Hunter dist.; Mullan. **Development:** Principal main haulage tunnel 7600 ft. long, from which level is a shaft 1500 ft. deep to the 1200-ft. level, in which there is another shaft 600 ft. deep. **Plant:** MINE: Complete and modern; electric hoist; two 3000-cu-ft. electrically-driven compressors; pumps; machine and blacksmith shop; electric haulage. MILL: 500-ton concentrator, including flotation. **Ore:** Lead-silver. **Men employed:** Average, 4. **Remarks:** Idle.

GOODENOUGH MINING CO.

Office: E. 3132 18th Ave., Spokane, Wash. **Officers:** F. P. Markwell, Pres., S. 689 Catalina St., Los Angeles, Calif.; J. Fred Markwell, Sec., Spokane, Wash. **Inc.:** Apr. 6, 1922. **Capital:** 2,500,000 shares; par value 1c; all shares issued. **Property:** Goodenough group; 13 patented, 5 unpatented claims, Lelande and Hunter dists.; Gem. **Remarks:** Property under option to United Metals Co.

GOVERNMENT GULCH MINING CO.

Office: Wallace. **Officers:** H. G. Washburn, Pres.-Mgr.; A. W. Hoover, Sec., both of Wallace. **Inc.:** July 15, 1918. **Capital:** 1,500,000 shares; par value 10c; 1,350,567 shares issued. **Property:** Government Gulch group; 6 patented claims, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel 500 ft. long and a vertical shaft 100 ft. deep. Total development, approximately 1800 ft. **Ore:** Lead-zinc-silver. **Remarks:** Idle.

GRANADA LEAD MINES, INC.

Office: Wallace. **Officers:** A. H. Featherstone, Pres.; O. W. Lewis, Sec., both of Wallace. **Inc.:** Feb. 5, 1930. **Capital:** 2,000,000 shares; par value $1; 1,164,720 shares issued. **Property:** 110 acres patented land, 9 unpatented claims, Hunter dist.; Wallace. **Development:** Principally by 1 tunnel more than 1000 ft. long. **Plant:** Electrically driven compressor; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** This company's property adjoins that of the Golconda Lead Mines. The principal tunnel was extended 500 ft. during the year.

GREAT DUNKER MINING & MILLING CO.

Office: 316 Lindelle Bldg., Spokane, Wash. **Officers:** Carl A. Pearson, Sec.-Mgr., Star Route, Kellogg. **Inc.:** Jan. 11, 1924. **Capital:** 1,000,000 shares; par value 10c; 315,980 shares issued. **Property:** Great Dunker group; 3 patented, 2 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 7 short tunnels. **Ore:** Lead-zinc-silver, antimony. **Remarks:** Annual labor only.

GREAT EASTERN MINING CO., LTD.

Office: Wallace. **Officers:** John Carlson, Pres., Medimont; John C. Furst, Sec., Wallace. **Inc.:** Oct. 22, 1900. **Capital:** 1,000,000 shares; par value $1; 750,000 shares issued. **Property:** Great Eastern group; 12 patented claims, Lelande dist.; Gem. **Development:** Total development, approximately 4000 ft.; the principal tunnel is 600 ft. long. **Ore:** Lead-silver-zinc.

GREAT HELENA MINING & MILLING CO.

Office: Kellogg. **Officers:** P. J. Lynch, Pres.- Mgr., Kellogg; Thomas C. Lynch, Sec., Neppel, Wash. **Inc.:** Aug. 24, 1922. **Capital:** 1,500,000 shares; par value 10c; no shares issued. **Property:** 13 unpatented claims, Yreka dist., Kellogg. **Development:** By 7 tunnels: No. 1, 580 ft. long; No. 2, 300 ft. long; No. 3, 350 ft. long; No. 4, 400 ft. long; No. 5, 375 ft. long; No. 6, 270 ft. long; No. 7, 106 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

GREEN HILL CLEVELAND MINING CO.

Office: Wallace. **Officers:** F. H. Brownell, Pres., 120 Broadway, New York City; John H. Wourms, Sec.; H. G. Washburn, Mgr., both of Wallace. **Inc.:** Oct. 7, 1912. **Capital:** 320,000 shares; par value $1; all shares issued. **Property:** Green Hill group; 3 patented claims, Lelande dist.; Mace. **Ore:** Silver-lead-zinc. **Remarks:** Idle since 1917.

HAPPY DAY MINING CO., LTD.

Office: Day Bldg., Wallace. **Officers:** Daniel Morgan, Pres., Spokane, Wash. **Inc.:** Sept. 30, 1899. **Capital:** 1,000,000 shares; par value 10c; 791,737 shares issued. **Property:** Happy Day group; 6 patented claims, Lelande dist.; Burke. **Development:** Principally by 1 tunnel 1500 ft. long. **Ore:** Lead-silver.

HECLA EXTENSION MINING CO.

Office: Wallace. **Officers:** Chas. Oster, Pres., Wallace; George C. Hollister, Sec., 14 Wall St., New York. **Inc.:** Oct. 21, 1926. **Capital:** 1,500,000 shares; par value 25c; all shares issued. **Property:** Anchor group; 8 patented claims, held under lease and option from the Anchor Mining Co., and 1 unpatented claim, Lelande dist.; Burke. **Development:** By 2 tunnels: No. 1, 700 ft. long; No. 2, 2800 ft. long; and a 600-ft. vertical shaft. **Plant:** Electrically driven I-R compressor; electrically driven hoist; and complete mining equipment. **Ore:** Lead-silver. **Remarks:** Failed to file the reports required by law.

HECLA MINING CO.

Office: Wallace. **Officers:** James F. McCarthy, Pres.-Mgr.; L. E. Hanley, Sec., both of Wallace. **Inc.:** Sept. 26, 1898. **Capital:** 1,000,000 shares; par value 25c; all shares issued. **Property:** 46 patented claims, Lelande dist.; Burke. **Development:** Principally by a 4-compartment vertical shaft, which is 2800 ft. deep, and a 3-compartment vertical shaft from the 2000-ft. level, which is 800 ft. deep. Total development, approximately 10 miles. **Plant:** MINE: 2 electrically driven I-R compressors, totaling 7500 ft., housed in steel and concrete buildings; one of the largest, most complete and modern mine plants in the United States; 2 electrically driven hoists. MILL: 700-ton concentrator, including flotation. **Ore:** Lead-silver. **Men employed:** Average, 404.

REMARKS

Normal production was maintained until August, when the continued low price of metals caused a reduction to a four-days-a-week basis. The mine and mill plants were further improved, and more than 4000 ft. of development work was done in the lower levels of the mine.



HECLA MINING CO.: MINE BUILDINGS AND TOWN OF BURKE

The dividend rate was cut to 40 cents in February and maintained at that figure throughout the year. This company is recognized as one of the principal lead-silver producers in the United States. The curtailed production greatly conserved its resources. The company was actively interested in two other properties in the Coeur d'Alene district, in one property in Lemhi County, and in the Union mine in British Columbia, the latter being placed on a profitably operating basis during the year.



HECLA MINING CO.'S MILL

HERCULES MINING CO.

Office: Wallace. **Officers:** Harry L. Day, Pres.-Mgr.; A. P. Ramstedt, Sec., both of Wallace. **Inc.:** Dec. 31, 1923. **Capital:** 500,000 shares; par value $10; 430,180 shares issued.

HERCULES GROUP

Property: Hercules group, 36 patented claims; Columbia lode, 1 patented claim; Lelande and Placer Center dists.; Burke. **Development:** Principally by 5 tunnels: No. 1, 280 ft.; No. 2, 3350 ft.; No. 3, 3900 ft.; No. 4, 5900 ft.; No. 5, 8550 ft.; and a 4-compartment vertical shaft 1300 ft. deep, with 8 intermediate levels. Total development, approximately 18 miles. **Plant:** MINE: Special first motion, double-reel, Nordberg electric hoist, direct connected to 700-h. p. motor. One 22x16 I-R and 1 29x21 I-R compressor, both electrically driven. Electric trolley locomotive in main transportation tunnel and storage-battery locomotives in intermediate levels. Complete and modern mine equipment and shops. MILL: 900-ton concentrator, including flotation. See pages 23 to 27 of the 1929 report for complete description. **Ore:** Lead-silver. **Men employed:** Average, 19.

MAHER-HEARN GROUP

Property: 38 patented claims; Lelande dist.; Burke. **Development:** Through 4500-ft. tunnel of Gertie Mining Co., at the end of which is over 4000 ft. of tunnel and a 400-ft. vertical shaft. **Plant:** Electrically-driven 1000-cu.-ft. I-R compressor; air-driven hoist; trolley electric locomotive haulage; complete and modern equipment. **Ore:** Lead-silver.

ANDREWS GROUP

Property: 4 unpatented claims, Lelande dist.; Burke. **Development:** By 1 tunnel 300 ft. long.



HERCULES MINING CO., MILL

REMARKS

During the year the Hercules mine surface plant and tunnels Nos. 4 and 5 were used in the operation of the Sherman Lead Co., the Humming Bird Mining Co., and the Ambergris Consolidated Mining Co. The mill was operated on a custom basis and treated the entire output of the Sherman Lead Co., Dayrock Mining Co., and Tamarack & Custer Mining Co., in addition to that of a large number of small producers and lessees. The principal mines and mining companies which this company owns or controls are: Hercules and Maher-Hearn mines, Ambergris Consolidated Mining Co.; Humming Bird Mining Co.; Roanoke Mining Co.; Western Union Mining Co.; and Marsh Mines, Consolidated.

HIDDEN TREASURE MINING CO.

Office: Wallace. **Officers:** A. W. Hoover, Sec.; H. G. Washburn, Mgr., both of Wallace. **Inc.:** May 18, 1908. **Capital:** 500,000 shares, par value $10; decreased Sept. 6, 1930, to 10c; all shares issued. **Property:** Hidden Treasure group; 4 patented claims, Lelande dist.; Burke. **Development:** Principally by 1 tunnel 2540 ft. long. **Ore:** Silver-lead-zinc.

HIGH CROPPING SILVER-LEAD MINING CO.

Office: Burke. **Officers:** Loy L. Vose, Mgr., Burke. **Inc.:** Sept. 18, 1924. **Capital:** 1,500,000 shares; par value 25c; 375,000 shares issued. **Property:** High Cropping group; 5 unpatented claims, Lelande dist.; Burke. **Development:** By 1 tunnel, 365 ft. long. **Remarks:** Annual labor only.

HIGHLAND-SURPRISE CONSOLIDATED MINING CO.

Office: Kellogg. **Officers:** Dr. Charles R. Mowery, Pres., Spokane, Wash.; George D. Lamielle, Sec., Kellogg. **Inc.:** Aug. 27, 1912. **Capital:** 1,200,000 shares; par value $1; 1,190,122 shares issued. **Property:** 3 patented, 36 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** Approximately 2 miles of underground workings. **Plant:** MINE: A 7-drill I-R compressor, electrically driven; complete mining equipment and camp. MILL: 150-ton concentrator. **Ore:** Lead-zinc-silver. **Men employed:** Average, 1. **Remarks:** Annual labor only.

HILARITY LEAD-SILVER MINING CO.

Office: Mullan. **Officers:** J. A. Glowe, Pres.; C. W. Ingram, Sec.- Mgr., both of Mullan. **Inc.:** Apr. 24, 1916, as Pine Creek Mining & Milling Co.; name changed May 7, 1923; charter forfeited Nov. 30, 1930. **Capital:** 2,000,000 shares; par value 10c; 1,250,000 shares issued. **Property:** 12 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel 500 ft. long, and a 200-ft. vertical shaft. **Plant:** Electrically driven compressor; complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Remarks:** Failed to file the reports required by law.

HILL MINING & MILLING CO.

Office: First State Bank Bldg., Kellogg. **Officers:** Elmer Brown, Pres.-Mgr.; F. Wm. Voightlander, Sec., both of Kellogg. **Inc.:** May 10, 1916. **Capital:** 1,000,000 shares; par value 2c; 515,928 shares issued. **Property:** Hill group; 3 unpatented claims, Yreka dist.; Kellogg. **Development:** By 3 tunnels: No. 1, 800 ft. long; No. 2, 600 ft. long; No. 3, 300 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

HORNSILVER MINING & MILLING CO.

Office: Coeur d'Alene. **Officers:** Ben L. Collins, Pres., 312 Old Nat'l Bank Bldg., Spokane, Wash.; Russell F. Collins, Sec.-Mgr., Coeur d'Alene. **Inc.:** May 31, 1901. **Capital:** 1,000,000 shares; par value 10c; 719,845 shares issued. **Property:** 9 unpatented claims, Placer Center dist.; Wallace. **Development:** By 4 tunnels, the principal one being 1200 ft. long. **Ore:** Lead-silver-gold. **Remarks:** Annual labor only.

HORSESHOE MINING CO.

Office: Mullan. **Officers:** Jas. B. Scoles, Pres.-Mgr., Mullan. **Inc.:** July 16, 1908. **Capital:** 1,500,000 shares; par value $1; 900,000 shares issued. **Property:** Horseshoe group; 9 unpatented claims, Hunter dist.; Mullan. **Development:** 2 tunnels: No. 1, 400 ft. long; No. 2, 3000 ft. long. **Ore:** Lead-silver. **Remarks:** Tunnel controlled by Atlas Mining Co.

HULL SILVER LEAD CO.
Office: Wallace. **Officers:** P. J. Maggy, Sec., Wallace. **Inc.:** July 1, 1929. **Capital:** 2,000,000 shares; par value $1; all shares issued. **Property:** 4 unpatented claims, Lelande dist.; Wallace. **Development:** By 1 tunnel 165 ft. long. **Ore:** Silver-lead.

HUMBOLT GROUP
Owner: James Dunne, Burke. **Property:** 8 unpatented claims, Lelande dist.; Burke. **Development:** 3 short tunnels. **Ore:** Lead-silver. **Remarks:** Annual labor only.

HUMMING BIRD MINING CO.
Office: Burke. **Officers:** Harry L. Day, Pres.-Mgr., Wallace; W. H. Hoover, Sec., Burke. **Inc.:** June 27, 1898. **Capital:** 1,500,000 shares; par value $1; 1,411,075 shares issued. **Property:** Humming Bird group; 18 patented claims, Lelande dist.; Burke. **Development:** Total development, approximately 12,400 ft. of tunnels, the principal of which are No. 4, 1253 ft. long, and No. 5, Hercules, 12,086 ft. long. **Plant:** All equipment used in operation furnished by Hercules Mining Co. **Ore:** Lead-silver. **Remarks:** Idle.

HYPOTHEEK MINING & MILLING CO.
Office: Wallace. **Officers:** E. G. Gnaedinger, Pres.; Otto A. Olsson, Sec.-Mgr., both of Wallace. **Inc.:** Feb. 13, 1901. Capital: 2,000,000 shares; par value 10c; 681,145 shares issued. **Property:** 760 acres of patented land, Yreka dist.; Kellogg. **Development:** By 2 tunnels: No. 1, 700 ft. long; No. 2, 1500 ft. long; and a vertical shaft 1100 ft. deep. Total development, approximately 37,000 ft. **Plant:** MINE: Double-drum electric hoist; No. 10 I-R compressor, electrically driven; machine shop; sawmill; and complete mining equipment; 12 buildings. MILL: 200-ton concentrator. **Ore:** Lead-silver. **Remarks:** Idle. A stock assessment of 5 mills was levied on June 17.

IDAHO COPPER MINING CO., LTD.
Office: Wallace. **Officers:** W. H. Herrick, Pres.; A. H. Featherstone, Sec., both of Wallace. **Inc.:** Aug. 24, 1906. **Capital:** 1,250,000 shares; par value $1; all shares issued. **Property:** 3 patented claims, Hunter dist.; Mullan. **Ore:** Copper. **Remarks:** Idle for a number of years.

IDAHO & EASTERN MINING & MILLING CO.
Office: Wallace. **Officers:** John H. Wourms, Pres.; W. A. Devan, Sec., both of Wallace. **Inc.:** Aug. 20, 1903. **Capital:** 1,000,000 shares; par value $1; 753,150 shares issued. **Property:** Idaho & Eastern group; 4 patented, 2 unpatented claims, Lelande dist.; Burke. **Development:** By 1 tunnel 86 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only. Stock assessments were levied as follows: Jan. 19, 3½ mills; Aug. 18, 1 mill.

IDAHO-LEADVILLE MINES CO.
Office: 823 W. First Ave., Spokane, Wash. **Officers:** Thomas Fahey, Pres.; E. P. Ryan, Sec., both of Spokane, Wash. **Inc.:** Apr. 1, 1914. **Capital:** 1,000,000 shares; par value 10c; 548,020 shares issued. **Property:** 12 unpatented claims, Evolution dist.; Osburn. **Development:** By 3 tunnels: No. 1, 900 ft. long; No. 3, 205 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

IDAHO & LOS ANGELES MINING & MILLING CO.
Office: Wallace. **Officers:** Thomas McCabe, Pres.; Alfred J. Dunn, Sec.-Mgr., both of Wallace. **Inc.:** June 6, 1904; charter forfeited Dec. 2, 1916. **Capital:** 1,000,000 shares; par value $1; 820,000 shares issued. **Property:** 16 patented claims, Beaver dist.; Wallace. **Development:** By 3 tunnels: No. 1, 150 ft. long; No. 2, 1700 ft. long; No. 3, 800 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** Idle.

IDAHO MONTANA MINING & OIL CO.
Office: Peyton Blk., Spokane, Wash. **Officers:** E. W. Conrad, Pres.-Mgr.; J. M. Henneck, Sec., both of Spokane, Wash. **Inc.:** Sept. 22, 1924, as Fort Wayne Mining Co.; name changed July 8, 1930. **Capital:** 1,500,000 shares, par value 33 1-3c; increased July 8, 1930, to 2,000,000 shares, par value

50c; 1,174,622 shares issued. **Property:** Eclipse group; 19 unpatented claims, Evolution dist.; Osburn. **Development:** Principally by 1 tunnel, which is 2300 ft. long. **Plant:** Gas-driven compressor. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of 2 mills was levied on May 4.

IDAHO-MONTANA AND ORLANDO CONSOLIDATED MINING CO.
Office: Wallace. **Officers:** John A. Swan, Pres.-Mgr.; Carl Johnson, Sec., both of Burke. **Inc.:** July 14, 1925. **Capital:** 1,500,000 shares; par value 10c; 1,039,002 shares issued. **Property:** 7 unpatented claims, Lelande dist.; Burke. **Development:** By 3 tunnels: No. 1, 80 ft. long; No. 2, 500 ft. long; No. 3, 600 ft. long. **Ore:** Antimony. **Remarks:** Idle.

IDAHO STAR MINING CO.
Office: E. 1302 Newark Ave., Spokane, Wash. **Officers:** Hans Peterson, Pres.; R. T. Lawrence, Sec.-Mgr., both of Spokane, Wash. **Inc.:** Oct. 8, 1924. **Capital:** 1,500,000 shares; par value 10c; 1,298,310 shares issued. **Property:** 32 unpatented claims, St. Joe dist.; Adair. **Development:** By 1 tunnel 915 ft. long. **Plant:** Water-driven compressor. **Ore:** Lead-silver. **Remarks:** Annual labor only.

IDORA MINING CO., LTD.
Office: Jamieson Blk., Spokane, Wash. **Officers:** James C. Broad, Pres.; C. E. Mallette, Sec.-Mgr., both of Spokane, Wash. **Inc.:** Apr. 23, 1915. **Capital:** 1,500,000 shares; par value 10c; 447,780 shares issued. **Property:** Idora group; 1 patented, 8 unpatented claims, Beaver dist.; Carbonite. **Plant:** MINE: 1 electrically-driven compressor. MILL: 100-ton concentrator. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only. This company reports that its property has been consolidated with that of the Consolidated Mining Corporation.

IMPERIAL MINING CO.
Office: Wallace. **Officers:** William Becker, Pres.; Homer G. Brown, Sec.-Mgr., both of Wallace. **Inc.:** Nov. 21, 1906. **Capital:** 1,500,000 shares; par value $1; 1,178,981 shares issued. **Property:** Imperial group; 8 patented claims, Lelande dist.; Burke. **Development:** Principally by 2 tunnels: No. 2, 1000 ft. long; No. 3, 4000 ft. long. Total development, approximately 10,000 ft. **Plant:** Electrically-driven 4-drill I-R compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Remarks:** Idle throughout the year.

INDEPENDENCE LEAD MINES CO.
Office: Wallace. **Officers:** W. D. Greenough, Pres., Spokane, Wash.; Herman Marquardt, Sec.; Henry B. Kingsbury, Mgr., both of Wallace. **Inc.:** Filed in Idaho: Nov. 12, 1929. **Capital:** 4,000,000 shares; par value $1; 2,400,000 shares issued. **Property:** Independence group, 10 patented claims; American Commander group, 2 patented claims; Hunter dist.; Mullan. **Development:** American Commander group: By 4 tunnels: No. 1, 190 ft. long; No. 2, 1160 ft. long; No. 3, 1300 ft. long; No. 4, 2500 ft. long; Independence group: Principally by 4 tunnels: No. 1, 100 ft. long; No. 2, 300 ft. long; No. 3, 1200 ft. long; No. 4, 6000 ft. long, a vertical raise 313 ft. long connecting No. 3 and No. 4 tunnels; and a 100-ft. vertical shaft in No. 4 tunnel. **Plant:** Electrically driven 9x12 Sullivan compressor; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 5. **Remarks:** A new hoist was installed and the vertical shaft extended from the 100 to the 200 ft. level and drifting started on the latter level. Stock assessments were levied as follows: Jan. 2, 1c; July 20, 1c.

INDEPENDENCE MINING CO., LTD.
Office: Kellogg. **Officers:** W. A. Taylor, Pres.-Mgr., Kellogg. **Inc.:** June 5, 1928. **Capital:** 1,500,000 shares; par value 10c; 774,000 shares issued. **Property:** 9 unpatented claims, Eagle dist.; Murray. **Ore:** Lead-silver. **Remarks:** Annual labor only.

INLAND EMPIRE MINING & MILLING CO.
Office: Rookery Bldg., Spokane, Wash. **Officers:** A. C. Schirmer, Pres.-Mgr., Hibbing, Minn.; John H. Roche, Sec., Spokane, Wash. **Inc.:** June 18, 1910. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Never Sweat; 1 patented claim, Lelande dist.; Burke. **Development:** By 2 tunnels: No. 1, 350 ft. long; No. 2, 400 ft. long; and an inclined shaft 300 ft. deep. **Plant:** Electrically-driven compressor and complete mining equipment. **Ore:** Lead-silver.

INSPIRATION LEAD CO., INC.
Office: Wallace. **Officers:** L. K. Stratton, Pres.; W. J. Stratton, Sec.-Mgr., both of Wallace. **Inc.:** Aug. 14, 1929. **Capital:** 10,000,000 shares; par value 10c; 3,977,781 shares issued. **Property:** Moe and Troy groups; 4 patented, 30 unpatented claims; Moe group held under lease and option from Moe Mining Co.; Hunter dist.; Mullan. **Development:** By 3 tunnels: No. 1, 500 ft. long; No. 2, 1100 ft. long; No. 3, 2400 ft. long. **Plant:** 14x12 I-R compressor and hoist, both electrically driven; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** Annual labor only. A stock assessment of 5 mills was levied on Jan. 6.

INTERNATIONAL MINES, LTD.
Office: Wallace. **Officers:** James White, Pres.; A. H. Featherstone, Sec., both of Wallace. **Inc.:** July 2, 1903. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** 13 patented claims, Lelande dist.; Burke. **Ore:** Lead-silver. **Remarks:** Idle for many years.

INTERNATIONAL MINING CO.
Office: Kellogg. **Officers:** C. A. May, Pres., Minneapolis, Minn.; Fred C. May, Mgr., Kellogg. **Inc.:** July 8, 1912. **Capital:** 1,000,000 shares; par value $1; shares issued, unknown. **Property:** International group; 7 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 2 tunnels: No. 1, 150 ft.; No. 2, 1500 ft. **Plant:** Gas-driven compressor; complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

IONE MINING CO.
Office: Wallace. **Officers:** O. M. Nordquist, Pres.-Mgr.; L. L. Brainard, Sec., both of Wallace. **Inc.:** Dec. 19, 1922. **Capital:** 1,500,000 shares; par value 10c; 300,000 shares issued. **Property:** Ione group; 3 unpatented claims, Summit dist.; Murray. **Ore:** Lead-silver. **Remarks:** Annual labor only.

IRON KING MINING CO., LTD.
Office: Wallace. **Officers:** Herman J. Rossi, Pres.; Otto A. Olsson, Sec., both of Wallace. **Inc.:** Jan. 8, 1904. **Capital:** 1,000,000 shares; par value $1; 838,433 shares issued. **Property:** Iron King group; 4 unpatented claims, Evolution dist.; Wallace. **Development:** Principally by 2 tunnels: No. 1, 2000 ft. long; No. 2, 150 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

ISAIAH MINING & MILLING CO.
Office: Kellogg. **Officers:** Wm. A. Hallead, Pres.; A. T. Combs, Sec., both of Kellogg. **Inc.:** Jan. 1, 1930. **Capital:** 2,000,000 shares; par value 25c; 1,000,000 shares issued. **Property:** 12 unpatented claims, Yreka dist.; Kellogg. **Remarks:** Annual labor only.

IVANHOE MINING CO., LTD.
Office: Mullan. **Officers:** J. A. Bean, Pres., Los Angeles, Calif.; C. D. Miller, Sec., Mullan. **Inc.:** Oct. 18, 1906. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** 2 patented claims, Hunter dist.; Mullan. **Ore:** Lead-silver. **Remarks:** Idle for many years. A stock assessment of 1 mill was levied on Nov. 13.

JACK WAITE MINING CO.
Office: P. O. Box 1832, Seattle, Wash. **Officers:** J. F. Duthie, Pres.; G. W. Klinefelter, Jr., both of Seattle, Wash.; John R. Turner, Mgr., Duthie. **Inc.:** Jan. 30, 1928, as Jack Waite Consolidated Mining Co.;

reorganized, name changed, and filed in Idaho, Sept. 4, 1930. **Capital:** 3,500,000 shares; par value $1; 3,000,000 shares issued. **Property:** Jack Waite group; 4 patented, 78 unpatented claims in Idaho; Silver King group; 36 unpatented claims in Montana; Eagle dist.; Duthie. **Development:** Jack Waite group: principally by 2 tunnels: No. 1, 2100 ft. long; No. 2, 4600 ft. long, in which is an inclined shaft 250 ft. deep. Silver King group: principally by 1 tunnel 1820 ft. long. **Plant:** MINE: 1 air-driven and 1 electrically driven hoist; 3 electrically driven compressors; electric trolley haulage; complete mining equipment and camp. MILL: 500-ton, fine-grinding, flotation concentrator. **Men employed:** Average, 48. **Ore:** Lead-silver-zinc. **Remarks:** Construction of the 500-ton mill, which was started in 1930, was completed and the mill placed in operation in February; but on account of low metal prices it was operated only on a one-shift basis. The greater part of the ore milled was derived from development work, which consisted principally of sinking a new inclined shaft 250 ft. deep and driving a 520-ft. raise from No. 2 tunnel to connect with the Silver King tunnel on the Montana side. In addition, a large amount of drifting was done in the shaft and on intermediate levels above the main tunnel. A new electrically driven hoist and locomotive and a large amount of new mining equipment were added to the mine plant. The company constructed new camp buildings; the county built a new road to the mine; and the Post Office Department established a post office at the mine, named Duthie, in honor of the president of the company. The new ore exposed by the development work was one of the principal disclosures of the year. It greatly increased the known resources of the mine, which is fast becoming recognized as a producer of importance.



MILL: JACK WAITE MINING CO.

JIM BLAINE SILVER SYNDICATE, LTD.

Office: 323 Lindelle Blk., Spokane, Wash. **Officers:** Dan Krehbiel, Pres., Lind, Wash.; Matt Baumgartner, Sec.-Mgr., Spokane, Wash. **Inc.:** Apr. 12, 1920. **Capital:** 2,000,000 shares; par value 5c; 1,399,000 shares issued. **Property:** Jim Blaine group; 25 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 3 tunnels: No. 1, 1500 ft. long; No. 2, 1000 ft. long; No. 3, 1320 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

JUPITER MINING CO.

Office: Wallace. **Officers:** Theodore Wellman, Pres.-Mgr.; Chas. E. Horning, Sec., both of Wallace. **Inc.:** Nov. 27, 1928. **Capital:** 2,500,000 shares; par value 10c; no shares issued. **Property:** Jupiter group; 6 unpatented claims, Hunter dist.; Wallace. **Development:** By 2 tunnels: No. 1, 450 ft.; No. 2, 50 ft. **Ore:** Lead-silver. **Remarks:** Annual labor only.

KELLOGG SILVER-LEAD MINES CO.

Office: 808 Sherwood Bldg., Spokane, Wash. **Officers:** F. William Voigtlander, Vice Pres., Kellogg; Geo. W. Sommer, Sec., Spokane, Wash. **Inc.:** Feb. 24, 1930; charter forfeited Nov. 30, 1931. **Capital:** 2,000,000 shares common, par value 10c; 200,000 shares preferred, par value $1; all shares issued. **Property:** 13 claims and 80 acres, all patented, Yreka dist.; Kellogg. **Development:** Total development approximately 3500 ft. **Plant:** Electrically driven hoist and compressor. **Ore:** Lead-silver-zinc. **Remarks:** This company is a reorganization of the Idaho American Mining & Milling Co. New mine buildings and headframe constructed, electrically driven hoist and pump installed, and shaft unwatered to the 400-ft. level, after which work was started on opening this and the 200-ft. level.

KENNAN MINING CO.

Office: N. 1111 Hamilton St., Spokane, Wash. **Officers:** E. J. Roberts, Jr., Pres., Spokane, Wash. **Inc.:** Sept. 4, 1917. **Capital:** 250,000 shares; par value $1; 200,000 shares issued. **Property:** 14 unpatented claims, Beaver dist.; Murray. **Development:** Approximately 2800 ft. of tunnel. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Annual labor only.

KEYSTONE MINING CO.

Office: Kellogg. **Officers:** Geo. M. Cloudy, Pres.; Elizabeth Franks, Sec., both of Spokane, Wash.; Leonard E. Franks, Mgr., Kellogg. **Inc.:** July 22, 1929. **Capital:** 2,500,000 shares; par value 10c; 2,000,000 shares issued. **Property:** Lease and option on property of Florence Mining & Milling Co., Ltd. **Development:** Principally by 1 tunnel 2145 ft. long. **Plant:** Electrically driven I-R compressor; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 4. **Remarks:** Principal tunnel extended throughout a period of 2 months. A stock assessment of 1c was levied on Feb. 24.

KING OF PINE CREEK MINING CO.

Office: Wallace. **Officers:** Andrew Anderson, Pres., Burke; C. A. Magnuson, Sec., Wallace. **Inc.:** Aug. 10, 1904. **Capital:** 1,500,000 shares; par value $1; 935,572 shares issued. **Property:** King of Pine Creek group; 6 patented, 3 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 2 tunnels: No. 1, 400 ft.; No. 2, 400 ft. **Ore:** Lead-zinc-silver. **Remarks:** Under lease and option to the New Jersey Consolidated Mines Co.

LACLEDE MINING CO., LTD.

Office: Wallace. **Officers:** O. W. Lewis, Pres.; W. B. Heitfeld, Sec., both of Wallace. **Inc.:** Dec. 10, 1903. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Laclede group; 9 patented claims, Lelande dist.; Burke. **Development:** Principally by 1 tunnel, 2600 ft. long, and an inclined shaft 340 ft. long. **Ore:** Lead-silver. **Remarks:** Idle.

LANSING SILVER-LEAD MINING CO.

Office: Wallace. **Officers:** W. V. Stansfield, Pres.-Mgr., Wallace. **Inc.:** June 14, 1916. Charter forfeited Nov. 30, 1927. **Capital:** 1,000,000 shares; par value 25c; 42,000 shares issued. **Property:** 10 patented, 3 unpatented claims, Placer Center dist.; Wallace. **Development:** By 3 tunnels: No. 1, 1000 ft. long; No. 2, 350 ft. long; No. 3, 350 ft. long. **Plant:** 10x12 Sullivan gas-driven compressor; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Active development work throughout the larger part of the year.

LEAD BLOSSOM MINING & MILLING CO.
Office: Wallace. **Officers:** Walter H. Hanson, Pres.; Herman Marquardt, Sec., both of Wallace. **Inc.:** June 5, 1922, as Iron Blossom Mining & Milling Co.; name changed Nov. 2, 1922. **Capital:** 1,500,000 shares; par value 25c; all shares issued. **Property:** Iron Blossom group; 3 patented, 10 unpatented claims, Yreka dist.; Wardner. **Development:** By 2 tunnels: No. 1, 300 ft. long; No. 2, 600 ft. long; and an inclined shaft 360 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of 3 mills was levied on Oct. 3.

LEAD CRYSTALS MINING CO., LTD.
Remarks: Reorganized as Crystal Lead Mines Co.

LEROY GOLD & COPPER CO., LTD.
Office: Wallace. **Officers:** G. F. Damm, Pres.; C. E. Clarke, Sec., both of Wallace. **Inc.:** Aug. 2, 1897. **Capital:** 1,000,000 shares; par value $1, 320,031 shares issued. **Property:** Leroy group; 5 patented claims, unorganized dist.; Adair. **Ore:** Copper-gold. **Remarks:** Annual labor only.

LEWIS & CLARK MINING CO.
Office: Wallace. **Officers:** William Grismer, Pres., Coeur d'Alene; J. R. Bean, Sec., Wallace. **Inc.:** Apr. 18, 1907. **Capital:** 1,250,000 shares; par value $1; 430,000 shares issued. **Property:** 2 patented, 5 unpatented claims, Hunter dist.; Mullan. **Remarks:** Failed to file the reports required by law since 1929.

LEXINGTON MINING CO.
Office: Kellogg. **Officers:** J. E. Jones, Pres.; Lester S. Harrison, Sec., both of Kellogg. **Inc.:** Feb. 27, 1930. **Capital:** 2,000,000 shares; par value 5c; 500,000 shares issued. **Property:** 6 unpatented claims, Yreka dist.; Kellogg. **Development:** By 1 short tunnel. **Ore:** Lead-silver. **Remarks:** Failed to file the reports required by law.

LIBERAL KING MINING CO.
Office: Kellogg. **Officers:** Magnus Cheyne, Pres.; J. B. Cox., Sec., both of Kellogg. **Inc.:** June 12, 1928. **Capital:** 1,500,000 shares; par value 10c; 1,099,579 shares issued. **Property:** Liberal King group; 10 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 4 tunnels, the principal one of which is 1600 ft. long. **Plant:** Electrically driven 12x12 I-R compressor; complete mining equipment. **Ore:** Lead-zinc-silver. **Men employed:** Average, 6. **Remarks:** A projected 2300-ft. crosscut was started in January and advanced 1600 ft. during the year.

LINCOLN MINING CO.
Office: Wallace. **Officers:** Theodore Wellman, Pres.; Franklin Pfirman, Sec., both of Wallace. **Inc.:** July 9, 1923. **Capital:** 1,500,000 shares; par value 10c. Increased May 7, 1928, to 2,000,000 shares common, par value 10c; 30,000 shares preferred, par value $10; 1,313,391 shares common, 3039 shares preferred issued. **Property:** Silverado group; 44 unpatented claims, Evolution dist.; Osburn. **Development:** Principally by 1 tunnel 6600 ft. long, and an inclined shaft 570 ft. long, giving a vertical depth of 550 ft. with 4 intermediate levels. **Plant:** MINE: 500 cu. ft. electrically driven compressor; complete mining equipment. MILL: 50-ton concentrator, including flotation. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of 1c was levied on June 5.

LINFOR COPPER CO.
Office: 745 Peyton Bldg., Spokane, Wash. **Officers:** W. A. Beaudry, Pres.; R. P. Woodworth, Sec., both of Spokane. **Inc.:** July 28, 1919. **Capital:** 1,500,000 shares; par value 10c; 500,000 shares issued. **Property:** 2 patented, 3 unpatented claims, unorganized dist.; Enaville. **Ore:** Copper-silver. **Remarks:** Annual labor only.

LITTLE BUTTE MINING CO.
Office: Wallace. **Officers:** Herman J. Rossi, Sec., Wallace. **Inc.:** Sept. 14, 1906. **Capital:** 1,500,000 shares; par value $1; 980,000 shares issued. **Property:** Little Butte group: 28 unpatented claims, Lelande dist.; Burke. **Ore:** Lead-silver. **Remarks:** Annual labor only.

LITTLE SUNSHINE MINING CO.

Office: 902 Second Ave., Seattle, Wash. **Officers:** John R. Moore, Pres.; H. S. Brown, Sec., both of Seattle, Wash.; C. A. Fay, Mgr., Wallace. **Inc.:** Nov. 3, 1906, as Elk Mining Co.; name changed Oct. 5, 1927. **Capital:** 1,000,000 shares, par value $1; increased on Oct. 5, 1927, to 1,750,000 shares; increased on Oct. 31, 1928, to 2,750,000 shares; shares issued, unknown. **Property:** Owns Elk group; 3 patented claims, Hunter dist.; Mullan. Lease and option on Palmer group; 14 unpatented claims, Big Creek, Yreka dist.; Kellogg. **Development:** On Palmer group: 4500-ft. crosscut, in which is a 300-ft. vertical shaft with two levels. **Plant:** On both groups, electrically driven compressors and complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 8. **Remarks:** Active development on Elk group throughout the year. A stock assessment of 1c was levied on Mar. 20. Late in the year this company and the Lookout Mountain Mining & Milling Co. were merged with the United Mines & Metals Corporation.

LOG CABIN MINING & MILLING CO., LTD.

Office: Wallace. **Officers:** O. H. Linn, Pres., Portland, Ore.; Otto A. Olson, Sec., both of Wallace. **Inc.:** Nov. 21, 1906. **Capital:** 1,000,000 shares; par value $1; 500,000 shares issued. **Property:** Log Cabin group; 4 unpatented claims, Placer Center dist.; Wallace. **Development:** By 2 tunnels: No. 1, 200 ft. long; No. 2, 80 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

LOMBARDY MINING & MILLING CO.

Office: Kellogg. **Officers:** Peter Albinola, Pres., Kellogg; Herman J. Rossi, Sec., Wallace. **Inc.:** Mar. 17, 1899. **Capital:** 1,500,000 shares; par value 10c; all shares issued. **Property:** Lombardy group; 15 patented claims, Yreka dist.; Kellogg. **Development:** By 3 tunnels and 1 shaft. **Plant:** Hoist, compressor, and mining equipment. **Ore:** Lead-silver.

LON CHANEY MINING & MILLING CO.

Office: Kellogg. **Officers:** Lon Chaney, Pres.-Mgr.; A. E. Cowles, Sec., both of Kellogg. **Inc.:** March 8, 1930. **Capital:** 2,000,000 shares; par value 10c; 638,000 shares issued. **Property:** Lon Chaney group; 18 unpatented claims, Yreka dist.; Kellogg. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

LOOKOUT MOUNTAIN MINING & MILLING CO.

Office: Kellogg. **Officers:** C. W. Simmons, Pres.; S. A. Germo, Sec., both of Kellogg; C. A. Fay, Mgr., Wallace. **Inc.:** June 2, 1916. **Capital:** 2,000,000 shares; par value 25c. Increased Sept. 25, 1928, to 3,000,000 shares; par value 25c; 2,520,000 shares issued. **Property:** Lookout Mountain group; 40 unpatented claims, Yreka dist.; Kellogg; part of which are held under lease and option. **Development:** Principally by 3 tunnels: No. 1, 100 ft. long; No. 2, 2500 ft. long; No. 3, 5000 ft. long; a vertical shaft in No. 3 tunnel 200 ft. deep; and a 500-ft. raise connecting No. 2 and No. 3 tunnels. **Plant:** 2 electrically-driven Gardner compressors; complete mining equipment and camp. **Ore:** Lead-silver. **Remarks:** Failed to file the reports required by law. The report of the United Mines & Metals Corporation stated that it was a merger of the Little Sunshine Mining Co. and the Lookout Mountain Mining & Milling Co. A stock assessment of 5 mills was levied on Mar. 28.

LOUISE SILVER LEAD MINING CO.

Officers: M. L. Savage, Kellogg. **Inc.:** Apr. 3, 1931. **Capital:** 1,000,000 shares; par value 5c; shares issued, unknown. **Remarks:** Company organized to develop a property in the Eagle district, near Delta. Failed to file the reports required by law.

LUCKY BOY MINES CORPORATION

Office: Kellogg. **Officers:** Henry Giguere, Pres.-Mgr.; R. W. Skeman, Sec., both of Kellogg. **Inc.:** March 10, 1930. **Capital:** 2,000,000 shares; par value 5c; 1,440,000 shares issued. **Property:** 5 unpatented claims, Yreka dist.; Kellogg. **Development:** By 2 short tunnels. **Ore:** Lead-silver-copper. **Men employed:** Average, 2. **Remarks:** Annual labor only. A stock assessment of 1 mill was levied on July 8.

LUCKY BOY MINING & CONCENTRATING CO., LTD.

Office: Mullan. **Officers:** M. D. Needham, Pres.-Mgr.; Agnes Needham, Sec., both of Mullan. **Inc.:** Jan. 12, 1907. **Capital:** 1,000,000 shares; par value $1; 388,680 shares issued. **Property:** Lucky Boy group; 31 unpatented claims, Hunter dist.; Mullan. **Development:** By 8 tunnels, the principal of which is 2600 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

MCGREGOR MINING CO.

Officers: L. L. Ruthruff, Sec., Kellogg. **Inc.:** Aug. 31, 1925. **Capital:** 700,000 shares; par value 50c. **Remarks:** Failed to file the reports required by law.

MACEDONIA MINING CO.

Office: Wallace. **Officers:** A. M. Mundell, Pres.-Mgr., Wallace; W. S. Leland, Sec., Prichard. **Inc.:** Oct. 8, 1921. **Capital:** 1,500,000 shares; par value 10c; 11,000 shares issued. **Property:** Macedonia group; 11 unpatented claims, at the head of West Fork of Slate Creek; St. Joe dist.; Wallace. **Remarks:** Active development work throughout the summer months by the president.

MAINE-STANDARD MINING CO., LTD.

Office: Wallace. **Officers:** Carlton Fox, Pres.; Otto A. Olsson, Sec.-Mgr., both of Wallace. **Inc.:** March 4, 1907. **Capital:** 1,500,000 shares; par value $1; 598,373 shares issued. **Property:** Maine-Standard group; 5 unpatented claims, Moon Creek, Yreka dist.; Kellogg. **Development:** By 1 tunnel, 1200 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

MAJESTIC MINING CO., LTD.

Office: Wallace. **Officers:** James Dunne, Pres.-Mgr., Burke; Therrett Towles, Sec., Wallace. **Inc.:** Aug. 23, 1904. **Capital:** 1,500,000 shares; par value 25c; 995,306 shares issued. **Property:** Majestic group; 13 patented claims, Lelande and Summit dists.; Burke. **Development:** Principally by 1 tunnel 2000 ft. long. **Ore:** Lead-silver. **Remarks:** Idle.

MARSH MINES CONSOLIDATED

Office: Wallace. **Officers:** Edward Pohlman, Pres.; F. Wallace Rothrock, Sec., both of Spokane, Wash. **Inc.:** Filed in Idaho: Aug. 17, 1916. **Capital:** 2,000,000 shares, increased on Oct. 14, 1930, to 4,000,000 shares; par value 25c; all shares issued. **Property:** Marsh group; 13 patented, 1 unpatented claim, Lelande dist.; Burke. **Development:** By 2 tunnels: No. 1, 300 ft. long; No. 2, 2000 ft. long; a vertical shaft 900 ft. deep with 5 intermediate levels; and an inclined shaft 400 ft. long. Total development, approximately 9900 ft. **Plant:** MINE: 1 I-R 1150 cu. ft. compressor and 1 690 cu. ft. Franklin compressor, both electrically driven; complete mining equipment. MILL: 200-ton concentrator, including flotation. **Ore:** Lead-silver. **Remarks:** Idle.

MERGER MINES CORPORATION

Office: Wallace. **Officers:** Walter H. Hanson, Wallace. **Inc.:** Filed in Idaho: Mar. 3, 1931. **Capital:** 3,000,000 shares; par value $1; shares issued, unknown. **Remarks:** Has never filed the reports required by law, although many times requested to do so. A stock assessment of 5 mills, which was levied on Jan. 19, 1931, gave the name of L. A. White, Wallace, as secretary. A letter from the president of the Aetna Mines Corporation, addressed to the inspector of mines, stated that this company was a consolidation with the Aetna Mines Corporation and the Bear Top Lead Mines, and that the Aetna Mines Corporation was bringing suit to withdraw from the contract agreement. The records in the secretary of state's office show that a Bear Top Lead Mines was incorporated Aug. 28, 1928, and that its charter was forfeited on Dec. 1, 1930. Bear Top Lead Mines has never filed reports with the inspector of mines as required by law, consequently it is unknown to the inspector. The reason why the Merger Mines Corporation has consistently refused to file the reports required by law, yet has actively engaged in the sale of stock and the levying of stock assessments is unknown to the inspector, and it is not known whether any of the stockholders have questioned the legality of the assessments or not.

MERRY WIDOW MINING CO.
Office: Wallace. **Officers:** Howard Hazeltine, Pres.-Mgr.; A. L. Strope, Sec., both of Wallace. **Inc.:** Nov. 5, 1924. **Capital:** 1,500,000 shares; par value 10c; 1,150,000 shares issued. **Property:** Merry Widow group; 2 unpatented claims, Placer Center dist.; Wallace. **Development:** By 2 tunnels: No. 1, 60 ft. long; No. 2, 400 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

METROPOLITAN MINES CORPORATION, LTD.
Office: Wallace. **Officers:** R. L. Brainard, Pres., Wardner; Roy H. Kingsbury, Sec., Wallace; Matt Baumgartner, Mgr., Spokane, Wash. **Inc.:** Nov. 21, 1929. **Capital:** 1,000,000 nonassessable common shares, par value 10c; 2,000,000 assessable common shares, par value 10c; all nonassessable shares and 1,318,335 assessable issued. **Property:** Sterling Silver group; 29 unpatented claims, Big Creek, Evolution dist.; Kellogg. **Development:** Principally by 1 tunnel 1450 ft. long. **Plant:** 12x12 G-D electrically driven compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 5. **Remarks:** Principal tunnel extended without interruption throughout the year. Stock assessments were levied as follows: Jan. 5, 3 mills; Apr. 4, 3 mills; June 3, 3 mills; Aug. 3, 3 mills; Oct. 3, 3 mills; Dec. 5, 3 mills.

MILITARY MINING & MILLING CO., LTD.
Office: R. F. D. 4, Spokane, Wash. **Officers:** P. A. Renkert, Pres.; George K. Renkert, Sec.-Mgr., both of Spokane, Wash. **Inc.:** Apr. 30, 1907. **Capital:** 1,000,000 shares; par value $1; 567,000 shares issued. **Property:** 2 patented claims, Lelande dist.; Burke. **Development:** 2 tunnels: No. 1, 150 ft. long; No. 2, 100 ft. long. **Ore:** Copper.

MINERAL FARM MINING CO., LTD.
Office: Mullan. **Officers:** C. J. Carlson, Mgr., 1215 Gem Ave., Spokane, Wash.; C. D. Miller, Sec., Mullan. **Inc.:** Aug. 28, 1903. **Capital:** 1,500,000 shares; par value $1; 751,704 shares issued. **Property:** Mineral Farm group; 8 patented claims, Hunter dist.; Mullan. **Development:** Principally by 1 tunnel 1200 ft. long. **Ore:** Lead-silver.

MINERAL POINT MINING CO.
Office: Wallace. **Officers:** H. E. Worstell, Pres.; Paul Leuschel, Sec., both of Wallace. **Inc.:** July 7, 1904. **Capital:** 1,200,000 shares; par value $1; 544,390 shares issued. **Property:** 1 patented, 7 unpatented claims, Evolution dist.; Osburn. **Ore:** Lead-silver. **Remarks:** Property under lease and option to Coeur d'Alene Mines Corporation.

MISSOULA COPPER MINING CO.
Office: Wallace. **Officers:** J. R. Bean, Sec., Wallace. **Inc.:** Nov. 4, 1901. **Capital:** 1,500,000 shares; par value $1. **Remarks:** Has not filed the reports required by law since 1927.

MOE MINING CO., LTD.
Office: Wallace. **Officers:** W. K. Moe, Pres.-Mgr.; G. W. Dougherty, Sec., both of Wallace. **Inc.:** Apr. 8, 1922. **Capital:** 1,000,000 shares; par value 10c; 718,527 shares issued. **Property:** Gold Creek group; 16 unpatented claims, Hunter dist.; Mullan. **Development:** 3 tunnels: No. 1, 500 ft. long; No. 2, 1100 ft. long; No. 3, 2400 ft. long. **Ore:** Lead-silver-copper. **Remarks:** Under lease and option to Inspiration Lead Co., Inc.

MOHAWK MINING CO.
Office: Kellogg. **Officers:** James G. Ferbrache, Pres.-Mgr.; M. A. Miller, Sec., both of Kellogg. **Inc.:** Sept. 8, 1927. **Capital:** 1,000,000 shares; par value 5c; 623,249 shares issued. **Property:** 5 unpatented claims, Yreka dist.; Kellogg. **Development:** By 3 tunnels: No. 1, 70 ft.; No. 2, 200 ft.; No. 3, 50 ft. **Plant:** Small water-driven compressor; complete mining equipment. **Ore:** Lead-silver. **Remarks:** Annual labor only.

MOONLIGHT MINING CO.
Office: Wallace. **Officers:** John F. Murphy, Pres., Wallace. **Inc.:** Apr. 27, 1903. **Capital:** 1,500,000 shares; par value $1; 1,184,297 shares issued. **Property:** Moonlight group; 9 patented claims, Lelande dist.; Burke. **Development:** By 3 tunnels: No. 1, 640 ft.; No. 2, 2270 ft.; No. 3, or Trade Dollar, 3900 ft. **Ore:** Lead-silver. **Remarks:** Idle.

MOUNTAIN CON MINING CO., INC.
Office: Wallace. **Officers:** W. H. Keating, Pres.-Mgr.; P. J. Conley, Sec., both of Wallace. **Inc.:** July 27, 1929. **Capital:** 1,500,000 shares; par value 50c; all shares issued. **Property:** 3 unpatented claims and 82 acres patented homestead land, Placer Center dist.; Wallace. **Development:** By 1 tunnel 220 ft. long. **Remarks:** Failed to file the reports required by law.

MOUNTAIN QUEEN MINING CO.
Office: Murray. **Officers:** William Wylie, Pres.; Joe Lavergne, Sec., both of Murray. **Inc.:** Sept. 9, 1907. **Capital:** 1,000,000 shares; par value $1; 469,400 shares issued. **Property:** Mountain Queen group; 10 unpatented claims, Eagle dist.; Murray. **Development:** By 1 tunnel 300 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

MULLAN MINING CO.
Office: Wallace. **Officers:** L. L. Leighty, Sec., Wallace. **Inc.:** Nov. 10, 1899. **Capital:** 1,000,000 shares; par value 5c; 404,620 shares issued. **Property:** Mullan group; 2 patented, 1 unpatented claim, Hunter dist.; Mullan. **Development:** Approximately 2000 ft. of underground workings. **Ore:** Lead-silver. **Remarks:** Annual labor only.

MURRAY HILL MINING CO.
Office: Jamieson Blk., Spokane, Wash. **Officers:** C. E. Mallette, Pres.; A. Brownlow, Sec., both of Spokane, Wash. **Inc.:** Nov. 20, 1914. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Black Horse group; 8 unpatented claims, Summit dist.; Murray. **Remarks:** Property under option to Paragon Mining Co.

MUTUAL MINES DEVELOPMENT CO.
Office: 312 Old Nat'l Bank Bldg., Spokane, Wash. **Officers:** Harley Little, Pres.-Mgr.; Ben L. Collins, Sec., both of Spokane, Wash. **Inc.:** May 20, 1925. **Capital:** 2,000,000 shares; par value 10c; 1,893,799 shares issued. **Property:** 24 patented, 30 unpatented claims, of which 20 are owned, the remainder are held under lease and option from the Formosa Lead Mining Co., Ltd., Deep Wonder Mining Co., Western Pacific Mining Co., United Metals Co., and Messrs. Gus Kallman and Ed. Johnson; Hunter and Lelande dists.; Wallace. **Development:** Principally by 1 tunnel 3000 ft. long, in which is a vertical shaft 100 ft. deep. **Plant:** MINE: 2 electrically driven compressors and complete mining equipment. MILL: 100-ton flotation concentrator. **Ore:** Lead-silver. **Remarks:** Construction of a new 100-ton flotation concentrator, which was started in 1930, was completed, and milling operations were commenced in May. The mill was operated intermittently, and a small tonnage of lead-silver concentrate was produced and marketed. Stock assessments were levied as follows: June 3, 1c; Sept. 17, 1c.

NABOB SILVER LEAD CO.
Office: 409 Empire State Bldg., Spokane, Wash. **Officers:** S. H. Tweedell, Pres.; J. Sutherland, Sec., both of Spokane, Wash. **Inc.:** June 29, 1923. **Capital:** 3,500,000 shares; par value 25c; 2,428,998 shares issued. **Property:** Nabob group; 3 patented, 24 unpatented claims, Yreka dist.; Kellogg. **Development:** By 4 tunnels: No. 1, 400 ft. long; No. 2, 700 ft. long; No. 3, 1500 ft. long; No. 4, 4700 ft. long; and a vertical shaft 300 ft. deep. **Plant:** 2 electrically driven compressors; electrically driven hoist; complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

NATIONAL LEAD MINING CO.
Office: Wallace. **Officers:** Stanly A. Easton, Pres., Kellogg; Leo J. Hoban, Sec., Wallace. **Inc.:** Sept. 21, 1910. **Capital:** 1,000,000 shares; par value $1; 520,000 shares issued. **Property:** 7 patented claims, Hunter dist.; Mullan.

NEVADA STEWART MINING CO.

Office: Kellogg. **Officers:** Alfred Page, Pres., Spokane, Wash.; M. J. Sinclair, Sec.-Mgr., Kellogg. **Inc.:** Nov. 22, 1915. **Capital:** 1,500,000 shares; par value 10c; 920,522 shares issued. **Property:** Nevada Stewart group; 9 unpatented claims, Pine Creek, Yreka dist.; Masonia. **Development:** Principally by 1 tunnel 1100 ft. long. **Plant:** Electrically-driven 2-drill Sullivan compressor; complete mining equipment. **Ore:** Zinc-lead-silver. **Men employed:** Average, 2. **Remarks:** A small amount of work during the summer. A stock assessment of 1 mill was levied on Apr. 30.

NEW HOPE MINING CO., LTD.

Office: Wallace. **Officers:** Otto A. Olsson, Sec., Wallace. **Inc.:** July 6, 1900. **Capital:** 1,000,000 shares; par value 5c; 515,775 shares issued. **Property:** New Hope group; 13 unpatented claims, Evolution dist.; Osburn. **Development:** By 3 tunnels: No. 1, 500 ft. long; No. 2, 1100 ft. long; No. 3, 800 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 1. **Remarks:** A stock assessment of 2 mills was levied on Jan. 14. Annual labor only.

NEW JERSEY CONSOLIDATED MINES CO.

Office: Wallace. **Officers:** L. K. Stratton, Pres.; Wm. J. Stratton, Sec., both of Wallace. **Inc.:** June 20, 1928. **Capital:** 5,000,000 shares; par value 10c; 1,476,473 shares issued. Stock assessments were levied as follows: Jan. 6, 5 mills; Nov. 24, 5 mills.

KING OF PINE CREEK GROUP

Property: King of Pine Creek group; 9 unpatented claims and 160 acres patented land, held under lease and option from King of Pine Creek Mining Co., Yreka dist.; Kellogg. **Development:** By 2 tunnels: No. 1, 380 ft. long; No. 2, 350 ft. long; and a vertical shaft 300 ft. deep. **Plant:** Hoist and 2 I-R compressors, all electrically driven; complete mining equipment. **Ore:** Lead-zinc-silver. **Remarks:** Idle other than pumping to keep the mine unwatered.

NEW JERSEY GROUP

Property: New Jersey group; 6 patented claims held under lease and option from Dubois Mining Co., Big Creek, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel 1500 ft. long. **Remarks:** Idle.

NEW ROAD MINING CO.

Office: Mullan. **Officers:** Gust Lindroos, Pres.-Mgr.; D. R. Scott, Sec., both of Mullan. **Inc.:** May 1, 1922; charter forfeited Dec. 1, 1922. **Capital:** 1,000,000 shares; par value 10c; 499,000 shares issued. **Property:** New Road group; 2 unpatented claims, Hunter dist.; Mullan. **Ore:** Lead-silver. **Remarks:** Annual labor only.

NIAGARA PLACER MINING CO.

Office: 2617 N. Magnolia Ave., Spokane, Wash. **Officers:** Geo. W. Hammond, Pres.; C. L. Beeman, Sec., both of Spokane, Wash. **Inc.:** Mar. 26, 1930. **Capital:** 100,000 shares; par value $1; 29,300 shares issued. **Property:** 14 unpatented placer claims, 2 unpatented lode claims, St. Joe dist.; Superior, Mont. **Ore:** Placer gold. **Remarks:** Annual labor only. A stock assessment of 7c was levied on Feb. 3.

NINE MILE MINING CO.

Office: Wallace. **Officers:** S. H. Linn, Pres., Kingston; Otto A. Olsson, Sec., Wallace. **Inc.:** Oct. 6, 1899. **Capital:** 2,000,000 shares; par value 10c; 1,639,851 shares issued. **Property:** Nine Mile group; 6 patented, 16 unpatented claims, Placer Center dist.; Wallace. **Development:** Approximately 5500 ft. of underground workings, the principal of which is No. 3 tunnel, 2000 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** No. 3 tunnel extended 100 ft. during the year. A stock assessment of 4 mills was levied on Oct. 3.

NONPAREIL COPPER MINING CO.

Office: Wallace. **Officers:** Harry C. McAllister, Pres.-Mgr.; Herman J. Rossi, Sec., both of Wallace. **Inc.:** Nov. 1, 1906. **Capital:** 1,500,000 shares; par value $1; 1,200,000 shares issued. **Property:** Nonpareil; 3 patented claims, Hunter dist.; Mullan. **Development:** 2 tunnels: No. 1, 380 ft. long; No. 2, 100 ft. long. **Ore:** Lead-silver. **Remarks:** Idle since 1916.

NORTH AMERICAN MINING & MILLING CO., LTD.
Office: Wallace. **Officers:** J. Clarence Presley, Sec.-Mgr., Wallace. **Inc.:** June 8, 1903. **Capital:** 1,500,000 shares; par value $1, 1,034,000 shares issued. **Property:** North American group; 23 patented, 3 unpatented claims, Big Creek, Yreka dist.; Kellogg. **Development:** 1 tunnel 2100 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor.

NORTH BUNKER HILL MINING CO., LTD.
Office: Kellogg, Box 457. **Officers:** Elmer Brown, Pres.; N. T. Hardy, Sec.-Mgr., both of Kellogg. **Inc.:** Feb. 16, 1907. **Capital:** 1,250,000 shares; par value $1; 1,115,222 shares issued. **Property:** 4 patented claims, Yreka dist.; Wardner. **Development:** Over 10,000 ft. of underground workings. **Plant:** Electrically driven I-R compressor; air-driven hoist and complete mining equipment. **Ore:** Lead-silver. **Remarks:** Idle.

NORTH FORK DEVELOPMENT CO.
Office: Wallace. **Officers:** Thure Olson, Pres.-Mgr., Prichard; Catharine Semenza, Sec., Wallace. **Inc.:** May 8, 1922. **Capital:** 1,000,000 shares; par value 10c; all shares issued. **Property:** 13 unpatented claims, Yreka dist.; Enaville. **Development:** Principally by 1 tunnel 3000 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

NORTH IDAHO MINING CO.
Office: Wallace. **Officers:** George Champagne, Mgr., Saltese, Mont.; G. W. Dougherty, Sec., Wallace. **Inc.:** March 14, 1900. **Capital:** 1,500,000 shares; par value $1; 1,049,048 shares issued. **Property:** 3 patented claims, Beaver dist.; Wallace. **Development:** By 2 tunnels: No. 1, 700 ft. long; No. 2, 50 ft. long. **Ore:** Lead-silver.

NORTH STAR MINING CO.
Office: Wallace. **Officers:** John H. Hansen, Pres.; Chester A. Hansen, Sec., both of Wallace. **Inc.:** Mar. 16, 1899. **Capital:** 1,000,000 shares; par value $1; 199,080 shares issued. **Property:** North Star; 1 patented claim; St. Joe dist.; Falcon. **Development:** 2 tunnels: No. 1, 1500 ft. long; No. 2, 200 ft. long. **Ore:** Copper-gold-silver.

NORTH STAR MINING & DEVELOPMENT CO.
Office: Wallace. **Officers:** Bill Mullan, Pres.; G. W. Dougherty, Sec.-Mgr., both of Wallace. **Inc.:** Apr. 20, 1920. **Capital:** 1,250,000 shares; par value $1; 994,901 shares issued. **Property:** 5 unpatented claims, Placer Center dist.; Wallace. **Development:** Principally by 1 tunnel 2000 ft. long. **Ore:** Lead-silver. **Remarks:** Tunnel extended 500 ft. by a lessee. A stock assessment of ¾ mill was levied on Mar. 2.

NORTHERN LIGHT MINING & MILLING CO.
Office: 401 Court House, St. Paul, Minn. **Officers:** B. E. Harmon, Sec., St. Paul, Minn. **Inc.:** Feb. 26, 1915. **Capital:** 1,500,000 shares; par value 5c; 1,418,919 shares issued. **Property:** Northern Light; 1 patented claim, Pine Creek, Yreka dist.; Kellogg. **Remarks:** Idle since 1917.

NORTHWEST MINING & MILLING CO.
Office: Wallace. **Officers:** H. J. Rossi, Sec., Wallace. **Inc.:** Apr. 6, 1917. **Capital:** 1,000,000 shares; par value 5c; 791,000 shares issued. **Property:** 3 patented claims, Placer Center dist.; Wallace. **Development:** Principally by 1 tunnel 500 ft. long, and an inclined shaft 150 ft. deep. **Ore:** Lead-silver.

OASIS MINING CO.
Office: Kellogg. **Officers:** W. A. Smith, Pres., Wallace; Lester S. Harrison, Sec.-Mgr., Kellogg. **Inc.:** Aug. 15, 1925. **Capital:** 100,000 shares; par value $1; all shares issued. **Property:** Oasis group; 2 unpatented claims, Yreka dist.; Kellogg. **Ore:** River tailings: Lead-zinc-silver. **Remarks:** Idle.

OOM PAUL CONSOLIDATED MINING CO.
Office: Wallace. **Officers:** James F. McCarthy, Pres.-Mgr.; L. E. Hanley, Sec., both of Wallace. **Inc.:** April 29, 1907. **Capital:** 1,600,000 shares; par value $1; 1,349,598 shares issued. **Property:** Oom Paul group; 10 patented claims, Lelande dist.; Burke. **Development:** Over 5000 ft. of workings. **Plant:** Compressor and complete mining equipment. **Ore:** Lead-silver. **Remarks:** Idle throughout the year.

PACIFIC MINING AND MILLING CO.

Office: Wallace. **Officers:** A. H. Featherstone, Sec., Wallace. **Inc.:** April 13, 1898. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** 3 patented claims, Lelande dist.; Gem. **Ore:** Lead-silver. **Remarks:** Idle.

PAPUREL & GRAHAM MOUNTAIN MINING CO.

Office: Wallace. **Officers:** Antone Papurel, Pres.-Mgr., Kellogg; Jos. Whelan, Sec., Wallace. **Inc.:** Sept. 2, 1924. **Capital:** 1,500,000 shares; par value 10c; 225,000 shares issued. **Property:** 18 unpatented claims, Yreka dist.; Kellogg. **Development:** By 1 tunnel 1200 ft. long. **Ore:** Lead-zinc-silver. **Men employed:** Average, 2. **Remarks:** Annual labor only.

PARADISE MINES ASSOCIATION

Office: Wallace. **Officers:** Thomas Sheppard, Pres., Wallace. **Inc.:** A common-law trust. **Capital:** 10,000 shares; par value $10; 8,000 shares issued. **Property:** Paradise group; 5 unpatented claims, Placer Center dist.; Wallace. **Development:** By 2 tunnels: No. 1, 941 ft. long; No. 2, 900 ft. long. **Plant:** Gas-driven compressor and complete mining equipment. **Ore:** Lead-silver. **Remarks:** Annual labor only.

PARAGON MINING CO.

Office: Commerce Bldg., St. Paul, Minn. **Officers:** George S. Monson, Pres.; F. O. Hammer, Sec., both of St. Paul, Minn.; Mrs. Theo. Furst, Mgr., Murray. **Inc.:** Sept. 20, 1901. **Capital:** 150,000 shares; par value $10; 130,125 shares issued. **Property:** Paragon group; 19 patented, 34 unpatented claims, Summit dist.; Murray. **Development:** Total development, approximately 19,000 ft. **Plant:** MINE: Electrically-driven compressor; air-driven hoist; complete mining equipment and camp. MILL: 100-ton concentrator. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

PARAMOUNT MINES CORPORATION

Office: 808 Sherwood Bldg., Spokane, Wash. **Officers:** Geo. W. Sommer, Sec., Spokane, Wash. **Inc.:** Sept. 24, 1929. **Capital:** 5,000,000 shares; par value 10c; all shares issued. **Property:** High Grade group; 5 patented, 5 unpatented claims, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel 1200 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only. This company is either a reorganization of or absorbed the properties of the High Grade Mining Co. and the Kellogg Galena Mining Co.

PARK COPPER & GOLD MINING CO., LTD.

Office: Wallace. **Officers:** O. W. Lewis, Pres.-Mgr.; N. J. Stockbridge, Sec., both of Wallace. **Inc.:** Aug. 25, 1899. **Capital:** 1,500,000 shares; par value 10c; 1,373,316 shares issued. **Property:** 6 patented claims; Stevens Peak, Hunter dist.; Mullan. **Ore:** Copper.

PASCO MINING CO., LTD., INC.

Office: Pasco, Wash. **Officers:** C. F. Diemond, Pres.-Mgr.; F. C. Brown, Sec., both of Pasco, Wash. **Inc.:** June 3, 1931. **Capital:** 250,000 shares; par value 10c; 30,300 shares issued. **Property:** Eldorado group; 1 patented, 3 unpatented claims, held under lease and option from Eldorado Mining & Smelting Co., Ltd., Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel 700 ft. long. **Remarks:** A small amount of work during the summer.

PATUXENT MINING CO.

Office: Wallace. **Officers:** Donald A. Callahan, Wallace. **Inc.:** May 11, 1915. **Capital:** 1,500,000 shares; par value 5c. **Remarks:** Has failed to file the reports required by law since 1921.

PEARSON MINING CO.

Office: Wallace. **Officers:** Harry P. Pearson, Pres-Mgr.; Martin Nicholson, Sec., both of Wallace. **Inc.:** Apr. 26, 1920. **Capital:** 500,000 shares; par value $1; 337,627 shares issued. **Property:** 4 patented, 70 unpatented claims, St. Joe dist.; Falcon. **Development:** Principally by 3 tunnels: No. 1, 500 ft. long; No. 2, 4000 ft. long; and No. 3, 4300 ft. long. **Plant:** Water-driven Sullivan compressor; complete mining equipment and camp. **Ore:** Copper-gold. **Men employed:** Average, 3. **Remarks:** Mining operations, which consisted of extending No. 3 tunnel, were conducted without interruption throughout the year.

PINE CREEK CONSOLIDATED MINING CO.

Office: 706 Old Nat. Bank Bldg., Spokane, Wash. **Officers:** T. E. Coleman, Pres.-Mgr.; R. W. Sutliff, Sec., both of Spokane, Wash. **Inc.:** June 4, 1929. **Capital:** 3,500,000 shares common, par value 5c; 30,000 shares preferred, par value $1; 2,318,106 shares issued. **Property:** Amy-Matchless and Olympic groups; 5 patented, 41 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 3 tunnels: No. 1, 3500 ft.; No. 2, 650 ft.; No. 3, 275 ft.; and 2 inclined shafts 400 ft. long. **Plant:** 2 electrically driven compressors; 1 electrically driven and 1 air-driven hoist; complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Remarks:** This company is a consolidation of the Amy Matchless Mining & Milling Co. and Olympic Mines. Failed to file the reports required by law. Newspaper reports were to the effect that the company's property was sold under execution.

PINE CREEK LEAD-ZINC MINING CO.

Office: Pioneer Bldg., Seattle, Wash. **Officers:** Peter David, Pres.; A. F. Ebken, Sec., both of Seattle, Wash. **Inc.:** Nov. 8, 1929. **Capital:** 1,000,000 shares; par value 10c; 600,000 shares issued. **Property:** Little Pittsburg group; 5 patented, 2 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 3 tunnels: No. 1, 220 ft. long; No. 2, 480 ft. long; No. 3, 1600 ft. long. **Plant:** MINE: Electrically driven 10-drill I-R compressor; complete mining equipment and camp. MILL: 200-ton fine-grinding flotation concentrator. **Ore:** Lead-zinc-silver. **Remarks:** Idle, pending the return of normal metal prices.

PIONEER GOLD MINING & DEVELOPMENT CO.

Office: Wallace. **Officers:** Chalmers E. Smith, Pres.-Mgr.; Frank Griffin, Sec., both of Wallace. **Inc.:** Sept. 8, 1931. **Capital:** 1,000,000 shares; par value 25c; 650,000 shares issued. **Property:** 2 unpatented claims, Summit dist.; Murray. **Development:** By 3 tunnels: No. 1, 400 ft. long; No. 2, 60 ft. long; No. 3, 300 ft. long. **Ore:** Lead-silver. **Remarks:** Idle. A stock assessment of 1 mill was levied on Nov. 19.

PIONEER MINING CO., LTD.

Office: Wallace. **Officers:** Herman Marquardt, Sec., Wallace; S. H. Linn, Mgr., Kingston. **Inc.:** Nov. 22, 1916. **Capital:** 1,500,000 shares; par value 25c; all shares issued. **Property:** Pioneer group; 12 unpatented claims, Beaver dist.; Wallace. **Ore:** Lead-silver. **Remarks:** Annual labor only.

PLAINVIEW MINING CO., INC.

Office: Wardner. **Officers:** A. H. Moe, Pres., Coeur d'Alene; S. S. Gundlach, Sec., Wallace. **Inc.:** Jan. 29, 1927. **Capital:** 655,000 nonassessable shares, 845,000 assessable shares, par value 10c; all nonassessable, 64,750 assessable shares issued. **Property:** Plainview group; 6 unpatented claims held under lease and option, Evolution dist.; Osburn. **Development:** By 1 tunnel 820 ft. long. **Remarks:** Annual labor only.

POLARIS DEVELOPMENT & MINING CO.

Office: Wallace. **Officers:** James F. McCarthy, Pres.-Mgr.; Leo J. Hoban, Sec., both of Wallace. **Inc.:** Dec. 10, 1915. **Capital:** 1,000,000 shares, par value 5c; increased Nov. 22, 1917, to 1,500,000 shares, par value 5c; increased May 4, 1925, to 1,500,000 shares, par value $1; increased July 28, 1930, to 2,000,000, par value $1; decreased Aug. 30, 1930, to 2,000,000, par value 25c; 1,066,499 shares issued. **Property:** Polaris group; 3 patented claims, Big Creek, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel 2500 ft. long. **Plant:** Electrically driven compressor and complete mining equipment. **Ore:** Lead-silver. **Remarks:** Idle.

PONTIAC MINING CO.

Office: Insurance Bldg., Wallace. **Officers:** Arthur J. Schanck, Pres., Metamora, Mich.; Herman J. Rossi, Sec., Wallace. **Inc.:** June 21, 1929. **Capital:** 1,500,000 shares; par value $1; 1,112,000 shares issued. **Property:** 1 patented, 35 unpatented claims, Summit and Eagle dists.; Murray. **Development:** By 5 tunnels, the principal one being 1500 ft. long. **Plant:** Electrically driven I-R compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 4. **Remarks:** Work started on driving a new lower tunnel.

PROGRESS GOLD MINING CO.
Office: Murray. **Officers:** H. W. Merritt, Pres., Rosalia, Wash.; T. E. Damrell, Sec., Spokane, Wash.; D. M. Stairs, Mgr., Murray. **Inc.:** Aug. 17, 1920. **Capital:** 1,000,000 shares; par value 10c; 503,004 shares issued. **Property:** Progress group; 17 unpatented claims, Summit dist.; Prichard. **Development:** By 6 short tunnels. **Ore:** Lead-silver. **Remarks:** Annual labor only.

PURITAN MINING CO., LTD.
Office: Wallace. **Officers:** Jerome J. Day, Pres.; P. J. Maggy, Sec., both of Wallace. **Inc.:** Sept. 30, 1905. **Capital:** 1,500,000 shares; par value $1; 1,389,292 shares issued. **Property:** Puritan group; 7 patented claims, Placer Center dist.; Wallace. **Development:** Approximately 4400 ft. of crosscuts and drifts. **Remarks:** Idle throughout the year.

RAINBOW MINING & MILLING CO., LTD.
Office: 303 Mohawk Bldg., Spokane, Wash. **Officers:** Geo. Austin, Pres.-Mgr., Spokane, Wash.; T. W. Schmidt, Sec., Coeur d'Alene. **Inc.:** June 20, 1907. **Capital:** 2,000,000 shares, par value 25c; increased Jan. 16, 1931, to 1,108,998 shares preferred, 991,002 shares common, par value 25c; changed Feb. 21, 1931, to 1,618,771 shares common, par value 25c, 381,229 shares preferred, par value $1; 891,002 shares common issued. **Property:** 22 patented claims, Little North Fork dist., Kootenai County; and Evolution dist.; Osburn; and 15 unpatented claims, Medimont dist.; Benewah County. **Development:** 1350-ft. crosscut on property in Shoshone County. **Plant:** Gas-driven I-R compressor, and complete mining equipment. **Ore:** Lead-silver. **Remarks:** See Benewah County.

RAMONA MINING CO.
Office: Kellogg. **Officers:** R. A. Brockman, Pres.-Mgr.; R. J. Coats, Sec., both of Kellogg. **Inc.:** Nov. 24, 1924. **Capital:** 1,000,000 shares; par value 25c; 783,216 shares issued. **Property:** Ramona group; 12 unpatented claims, Evolution dist.; Osburn. **Ore:** Lead-silver. **Remarks:** Annual labor only.

RAVEN MINING CO., LTD.
Office: Wallace. **Officers:** T. B. Gilmore, Pres., Spokane, Wash.; Art Partch, Sec., Pasco, Wash. **Inc.:** Nov. 13, 1907. **Capital:** 1,500,000 shares; par value $1; 642,765 shares issued. **Property:** 5 unpatented claims, Summit dist.; Murray. **Development:** Principally by 1 tunnel 1280 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

RAY JEFFERSON MINING CO.
Office: Wallace. **Officers:** D. C. Smith, Pres., Missoula, Mont.; P. J. Maggy, Sec., Wallace. **Inc.:** Mar. 31, 1910. **Capital:** 2,000,000 shares; par value 25c; all shares issued. **Property:** Ray Jefferson group; 32 patented, 9 unpatented claims, Beaver dist.; Wallace. **Developments:** Total development, 13,000 ft., consisting principally of a 3100-ft. crosscut. **Ore:** Lead-zinc-silver. **Men employed:** 1 watchman. **Remarks:** Annual labor only on unpatented claims. A stock assessment of 2 mills was levied on May 18.

RED CLOUD MINING CO.
Office: Wallace. **Officers:** A. L. Honeker, Pres.; H. J. Rossi, Sec., both of Wallace. **Inc.:** Sept. 1, 1896. **Capital:** 500,000 shares; par value $1; 263,396 shares issued. **Property:** 1 patented claim, Yreka dist.; Kellogg.

REINDEER-QUEEN MINING CO.
Office: Wallace. **Officers:** Harry P. Pearson, Pres.; Julius P. Hall, Mgr., both of Wallace. **Inc.:** Sept. 27, 1913. **Capital:** 2,000,000 shares; par value 10c; 316,000 shares issued. **Property:** Reindeer-Queen group; 3 patented, 12 unpatented claims, Hunter dist.; Mullan. **Development:** Principally by 5 tunnels: No. 1, 3100 ft. long; No. 5, 7700 ft. long. **Plant:** Water-driven compressor and complete mining equipment. **Ore:** Copper-lead-silver. **Remarks:** Annual labor only.

REVETT MINING CO.
Office: 602 Rookery Bldg., Spokane, Wash. **Officers:** W. W. Russell, Pres.; J. F. Arnold, Sec.-Mgr., both of Spokane, Wash. **Inc.:** Feb. 7, 1925. **Capital:** 2,500,000 shares; par value 20c; 1,115,000 shares issued. **Property:** Great Western group; 7 patented claims, Lelande dist.; Burke. **Development:** By 1 tunnel 2000 ft. long. **Ore:** Lead-silver. **Remarks:** Idle. Property formerly owned by Great Western Mining Co., Ltd.

RHODE ISLAND MINING CO., LTD.
Office: Wallace. **Officers:** Chas. Bollinger, Pres.; C. E. Clarke, Sec., both of Wallace. **Inc.:** July 13, 1900. **Capital:** 1,000,000 shares; par value 5c; 759,183 shares issued. **Property:** Rhode Island group; 4 unpatented claims, Evolution dist.; Wallace. **Development:** Approximately 900 ft. of workings. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

RICHMOND CONSOLIDATED MINING CO.
Office: 824 Old National Bank Bldg., Spokane. **Officers:** John B. White, Pres.; E. E. Alverson, Sec., both of Spokane. **Inc.:** June 29, 1923. **Capital:** 2,500,000 shares; par value 10c; all shares issued. **Property:** Richmond group; 7 patented claims, St. Joe dist.; Adair. **Development:** Approximately 8000 ft. of underground workings. **Ore:** Copper-gold. **Remarks:** During 1926, mine plant was dismantled and all operations were suspended.

ROANOKE MINING CO., LTD.
Office: Wallace. **Officers:** Henry L. Day, Pres., Wallace. **Inc.:** Jan. 2, 1907. **Capital:** 1,500,000 shares; par value $1; 1,125,000 shares issued. **Property:** Roanoke group; 7 patented claims, Big Creek, Yreka dist.; Kellogg. **Development:** By 3 tunnels; No. 3, 650 ft. long; and an inclined shaft 340 ft. long, in which are 3 intermediate levels. **Plant:** Electrically driven hoist. **Ore:** Lead-silver. **Remarks:** Idle.

ROB ROY MINING CO.
Office: Wallace. **Officers:** John A. McLeod, Pres., Mullan; G. W. Dougherty, Sec., Wallace. **Inc.:** Feb. 16, 1907. **Capital:** 1,500,000 shares; par value $1; 873,743 shares issued. **Property:** 9 unpatented claims, Beaver dist.; Sunset. **Development:** By 1 tunnel 900 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of ½ mill was levied on May 10.

ROCKFORD MINING CO., LTD.
Officers: W. H. Hanson, Wallace. **Inc.:** Sept. 9, 1907. **Capital:** 1,500,000 shares; par value 25c. **Remarks:** Has failed to file the reports required by law since 1922.

RUTH CONSOLIDATED MINING & MILLING CO.
Office: 605 Realty Bldg., Spokane, Wash. **Officers:** C. M. Crego, Pres.; G. D. Crego, Sec., both of Spokane, Wash. **Inc.:** Sept. 15, 1906. **Capital:** 1,500,000 shares; par value $1, decreased May 8, 1930, to 10c; 861,043 shares issued. **Property:** Ruth group; 7 patented claims, Placer Center dist.; Wallace. **Development:** By 2 tunnels: No. 1, 1440 ft. long; No. 2, 1915 ft. long. **Plant:** Electrically driven Laidlaw-Dunn-Gordon compressor; complete mining equipment. **Ore:** Lead-silver. **Remarks:** Idle.

SABINA MINES CO.
Office: Wallace. **Officers:** James A. Wayne, Sec., Wallace. **Inc.:** July 14, 1920. **Capital:** 1,000,000 shares; par value 10c. **Remarks:** Has never filed the reports required by law.

ST. JOE LEAD & SILVER MINES CO.
Office: Wallace. **Officers:** Charles Oster, Pres.-Mgr.; Therrett Towles, Sec., both of Wallace. **Inc.:** July 6, 1928. **Capital:** 1,000,000 shares; par value 25c; 740,000 shares issued. **Property:** St. Joe group; 9 unpatented claims, Evolution dist.; Osburn. **Development:** By 4 tunnels: No. 1, 800 ft.; No. 2, 900 ft.; No. 3, 700 ft.; No. 4, 1091 ft. **Ore:** Lead-silver. **Remarks:** Annual labor only.

SAINT LOUIS & IDAHO MINING & MILLING CO.

Office: Wallace. **Officers:** Russell F. Collins, Pres.-Mgr.; S. B. Collins, Sec., both of Wallace. **Inc.:** June 24, 1903. **Capital:** 1,000,000 shares; par value $1; 840,251 shares issued. **Property:** Saint Louis & Idaho group; 3 unpatented claims, Lelande dist.; Burke. **Development:** By 2 tunnels: No. 1, 1000 ft. long; No. 2, 2000 ft. long. **Ore:** Lead-silver.

SAMSON MINING & DEVELOPMENT CO., LTD.

Office: Wardner. **Officers:** D. W. Raines, Pres., Spokane; R. L. Brainard, Sec., Wardner. **Inc.:** Aug. 15, 1904. **Capital:** 1,000,000 shares; par value $1; 900,000 shares issued. **Property:** Samson group; 8 unpatented claims, Eagle dist.; Prichard. **Development:** Principally by 1 tunnel 1000 ft. long. **Ore:** Lead-silver. **Remarks:** Mine plant rehabilitated and work commenced on sinking a new shaft. A stock assessment of 2 mills was levied on June 25.

SAVAGE MINING CO.

Office: Wallace. **Officers:** M. L. Savage, Pres.-Mgr., Kellogg; Herman J. Rossi, Sec., Wallace. **Inc.:** Jan. 12, 1929. **Capital:** 1,500,000 shares; par value 25c; no shares issued. **Property:** Savage group; 23 unpatented claims, Nine Mile Creek, Placer Center and Beaver dists.: Wallace. **Development:** By 3 tunnels, the principal one being 1560 ft. long. **Plant:** Electrically driven 5-drill compressor and complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 4. **Remarks:** Annual labor only.

SHERMAN LEAD CO.

Office: Wallace. **Officers:** Jerome J. Day, Pres.; P. J. Maggy, Sec.; Henry L. Day, Mgr., all of Wallace. **Inc.:** Nov. 4, 1918. **Capital:** 3,500,000 shares; par value 25c. Increased Aug. 27, 1928, to 3,675,000 shares; par value 25c; all shares issued. **Property:** Sherman and Oreano groups; 9 patented claims, Lelande dist.; Burke. **Development:** Total development, over 31,000 ft., consisting principally of Sherman No. 5 tunnel, 5943 ft. long; Sherman No. 6 tunnel, 2000 ft. long; Oreano No. 2 tunnel, 7400 ft. long; and two 1070-ft. inclined raises connecting Sherman No. 6 tunnel and Oreano No. 2 tunnel, in which are 8 intermediate levels. **Plant:** 2 electrically driven hoists; trolley locomotive haulage and all mining equipment, furnished by Hercules Mining Co. **Ore:** Lead-silver. **Men employed:** Average, 100. **Remarks:** One of the principal mines in the Coeur d'Alene district to be placed on a profitably operating basis in 1929 and the only addition to the list of dividend paying mines in the State during 1930. Production and development continued until May, when the low price of metals caused a suspension of all operations. During the early part of the year, a large amount of development work was done, and the additional ore exposed greatly increased the known resources of the mine. This company's mine is connected with the No. 5 tunnel of the Hercules Mining Co., through which it is operated, and the ore is sold to the Hercules custom mill at Wallace. Control of the company is held by the Tamarack & Custer Consolidated Mining Co.

SHRINE MINING CO.

Office: Kellogg. **Officers:** A. C. Beal, Pres., Spokane, Wash.; Lester S. Harrison, Sec., Kellogg. **Inc.:** May 29, 1926. **Capital:** 2,000,000 shares; par value 5c; all shares issued. **Property:** 6 unpatented claims on Pine Creek, Yreka dist.; Masonia. **Development:** Principally by 2 tunnels: No. 3, 1350 ft. long; No. 4, 1500 ft. long. **Ore:** Lead-silver-antimony. **Remarks:** The property is under lease and option to the Commercial Traveler Mining Co.

SIDNEY LEASING CO.

Office: Kellogg. **Officers:** J. B. Cox, Pres.; W. T. Simons, Sec., both of Kellogg. **Inc.:** Feb. 27, 1925. **Capital:** 25,000 shares; par value $1; 7215 shares issued. **Property:** Lease on property of the Sidney Mining Co. **Plant:** 4½-mile aerial tramway; a 538-cu.-ft. I-R and an 1170-cu.-ft. I-R electrically-driven compressor; electrically-driven hoist; Waugh drill sharpener; complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Men employed:** Average, 53. **Remarks:** Idle throughout the first half of

the year. During this period the tramway was rebuilt, and development work was conducted on the 800-ft. level. On August 1, production was resumed, on a basis of 100 tons per day, and continued throughout the remainder of the year. The development work on the 800-ft. level greatly increased the ore reserves of the mine, as well as being one of the principal new disclosures to be made in the Coeur d'Alene district during the year. The increase of the ore reserves of this mine, as additional depth is being gained, has been an important factor in stimulating interest in the Pine Creek section.

SIDNEY MINING CO.

Office: Kellogg. **Officers:** H. M. Ross, Pres., Seattle, Wash.; W. T. Simons, Sec., Kellogg. **Inc.:** June 20, 1910. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Sidney group; 7 patented, 11 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 6 tunnels; No. 1, 550 ft.; No. 3, 775 ft.; No. 5, 875 ft.; No. 6, 1000 ft.; and an inclined shaft 445 ft. deep. **Ore:** Lead-zinc-silver. **Remarks:** Under lease to Sidney Leasing Co., which see.

SIERRA NEVADA CONSOLIDATED MINING CO.

Office: Kellogg. **Officers:** Stanly A. Easton, Pres.-Mgr.; C. W. Simmons, Sec., both of Kellogg. **Inc.:** May 21, 1887. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Sierra Nevada group; 5 patented claims, Yreka dist.; Kellogg. **Development:** Principally by 4 tunnels: No. 1, 4550 ft. long; No. 2, 275 ft. long; No. 3, 700 ft. long; No. 4, 625 ft. long. Total development, approximately 10,000 ft. **Ore:** Lead-silver. **Remarks:** Property under operation throughout the year by lessees, who produced and marketed a small tonnage of ore.

SILVER BASIN CONSOLIDATED MINING CO.

Office: 648 Peyton Bldg., Spokane, Wash. **Officers:** L. O. Tollefson, Pres.; E. L. Perkins, Sec.-Mgr., both of Spokane, Wash. **Inc.:** As Silver Cable Consolidated Mining Co. on Sept. 27, 1927; name changed March 18, 1930. **Capital:** 1,500,000 nonassessable shares, 3,500,000 assessable shares; par value 25c; all shares issued. **Property:** 30 unpatented claims, held under lease and option, Evolution dist.; Osburn. **Development:** 1 tunnel 3000 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of 2 mills was levied on May 12.

SILVER CLIFF GOLD & COPPER MINING CO., LTD.

Office: Wallace. **Officers:** Sidney L. Shonts, Pres.; Ed. C. Young, Sec.-Mgr., both of Wallace. **Inc.:** Oct. 6, 1900. **Capital:** 1,500,000 shares; par value $1; 719,218 shares issued. **Property:** Silver Cliff group; 13 unpatented claims, Hunter dist.; Mullan. **Development:** Over 2 miles of underground workings. **Plant:** An old water-driven compressor. **Ore:** Copper-silver. **Remarks:** Failed to file the reports required by law. A stock assessment of 1 mill was levied on May 25.

SILVER CRESCENT MINING CO.

Office: Wallace. **Officers:** James Mohr, Pres.-Mgr.; D. M. Faires, Sec., both of Wallace. **Inc.:** Oct. 19, 1911, as Placer Creek Silver-Lead Mining & Milling Co.; name changed Aug. 31, 1922. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Silver Crescent group; 9 unpatented claims, on Moon Creek, Yreka dist.; Kellogg. **Development:** By 5 tunnels, the principal one of which is 1000 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

SILVER DALE & BIG HILL MINING CO.

Office: Kellogg. **Officers:** E. G. Johnson, Pres.; W. A. Tuson, Sec., both of Kellogg. **Inc.:** Sept. 10, 1917. **Capital:** 1,000,000 shares; par value 1c; increased Oct. 25, 1927, to 25c; 552,757 shares issued. **Property:** 25 unpatented claims, Big Creek, Yreka dist.; Kellogg. **Plant:** Water-driven compressor; complete mining equipment. **Development:** Principally by 1 tunnel 2760 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Principal tunnel extended without interruption throughout the year. Stock assessments were levied as follows: Mar. 2, 5 mills; Dec. 7, 1 mill.

SILVER EAGLE MINING CO., LTD.
Office: Wallace. **Officers:** John J. Hogus, Pres.; C. W. Betts, Sec., both of Wallace. **Inc.:** Nov. 12, 1906. **Capital:** 1,000,000 shares; par value $1; 656,110 shares issued. **Property:** Silver Eagle group; 11 patented claims, Placer Center dist.; Wallace. **Development:** 3 tunnels; No. 1, 300 ft. long; No. 2, 400 ft. long; No. 3, 1100 ft. long. **Ore:** Lead-silver. **Remarks:** Idle.

SILVER MOON MINING CO., LTD.
Office: Palmerston Hotel, Spokane, Wash. **Officers:** H. C. Lambach, Pres.; Gus Ehrenberg, Sec., both of Spokane, Wash. **Inc.:** Aug. 31, 1906. **Capital:** 1,500,000 shares; par value $1; 708,394 shares issued. **Property:** Silver Moon group; 9 unpatented claims, Leland dist.; Gem. **Development:** Principally by 1 tunnel 2850 ft. long. **Plant:** Electrically-driven 200-cu.-ft. compressor; complete mining equipment. **Ore:** Lead-silver. **Remarks:** Annual labor only. Under lease and option to West Mammoth Mining Co.

SILVER REEF MINING CO.
Officers: W. J. Buhler, Pres., Port Townsend, Wash.; H. C. Buhler, Sec., Mullan. **Inc.:** April 6, 1920. **Capital:** 1,500,000 shares; par value 10c; 1,200,000 shares issued. **Property:** 1 patented, 4 unpatented claims, Hunter dist.; Mullan. **Development:** By 2 tunnels: No. 1, 1500 ft. long; No. 2, 2000 ft. long. **Plant:** Electrically driven compressor; complete mining equipment. **Ore:** Lead-silver. **Remarks:** Failed to file the reports required by law.

SILVER STANDARD MINING CO.
Office: E. 604 Heroy Ave., Spokane, Wash. **Officers:** S. L. Shaw, Pres.; Mrs. C. M. Shaw, Sec., both of Spokane. **Inc.:** Unknown; never filed in Idaho. **Capital:** 2,000,000 shares; par value 25c; 308,300 shares issued. **Property:** 11 unpatented claims, Evolution dist.; Osburn. **Development:** By 2 tunnels: No. 1, 411 ft. long; No. 2, 560 ft. long. **Plant:** Water-driven Sullivan compressor. **Ore:** Lead-silver. **Remarks:** Annual labor only.

SILVER SUMMIT MINING CO.
Office: Wallace. **Officers:** Harry P. Pearson, Pres.-Mgr., Wallace. **Inc.:** Mar. 7, 1927. **Capital:** 1,500,000 shares; par value $1; shares issued, unknown. **Property:** Coeur d'Alene-Jumbo group; 31 unpatented claims, Evolution dist.; Osburn. **Remarks:** Under option to Stratton Silver Summit, Inc., which see.

SISTER MINING & MILLING CO., LTD.
Office: 1160 Winston Ave., San Marino, Calif. **Officers:** Frank P. Markwell, Pres., Los Angeles, Calif.; Isabel M. Pattison, Acting Sec., San Marino, Calif. **Inc.:** Dec. 12, 1899. **Capital:** 1,500,000 shares; par value 10c; 783,993 shares issued. **Property:** Sister group; 7 patented claims, Placer Center dist.; Wallace. **Development:** By 4 tunnels: No. 1, 108 ft.; No. 2, 1069 ft.; No. 3, 2500 ft.; No. 4, 209 ft.; a 210-ft. raise, and a 264-ft. vertical shaft. **Ore:** Lead-zinc-silver. **Remarks:** Idle.

SLAVONIAN MINING CO.
Remarks: Property sold to Altura Mining Co.

SMUGGLER CONSOLIDATED MINING CO.
Office: 8 Germond Bldg., Spokane, Wash. **Officers:** J. A. Reubens, Sec.; Frank Murphy, Mgr., both of Spokane. **Inc.:** June 29, 1927. **Capital:** 1,000,000 shares; par value 10c; 338,500 shares issued. **Property:** Smuggler group; 5 patented claims, Lelande dist.; Burke. **Ore:** Lead-silver. **Remarks:** Idle.

SNOWSHOE MINING CO.
Office: Wallace. **Officers:** Walter H. Hanson, Pres.; Herman Marquardt, Sec., both of Wallace. **Inc.:** Sept. 30, 1903. **Capital:** 2,000,000 shares; par value $1; 260,000 shares issued. **Property:** Snowshoe; 8 patented claims, Hunter dist.; Mullan. **Development:** Approximately 4000 ft. of workings, the principal of which are No. 2 tunnel, 3000 ft. long, and No. 1 tunnel, 900 ft. long. **Plant:** Electrically-driven 3-drill compressor. **Ore:** Copper-silver. **Remarks:** Idle.

SNOWSTORM SILVER LEAD CO.
Office: 417 Peyton Bldg., Spokane, Wash. **Officers:** Leo Greenough, Pres.; E. J. Armstrong, Sec., both of Spokane, Wash. **Inc.:** Nov. 15, 1922. **Capital:** 2,000,000 shares; par value $1; all shares issued. **Property:** Snowstorm group; 18 patented, 17 unpatented claims, Hunter dist.; Mullan. **Remarks:** Idle.

SONORA MINING & MILLING CO.
Office: Wallace. **Officers:** Otto Dubach, Pres., Gem; G. L. Richardson, Sec.-Mgr., Wallace. **Inc.:** Nov. 5, 1897. **Capital:** 1,000,000 shares; par value $1; 768,329 shares issued. **Property:** Sonora group; 11 patented, 4 unpatented claims, Lelande dist.; Burke. **Development:** Principally by 1 tunnel 5270 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** The principal tunnel was extended 150 ft. during the year.

SPOKANE TUNNEL MINING CO.
Office: Wallace. **Officers:** A. B. Livingston, Pres.-Mgr.; Otto A. Olsson, Sec., both of Wallace. **Inc.:** Oct. 29, 1906. **Capital:** 1,500,000 shares; par value $1; 1,419,120 shares issued. **Property:** 3 unpatented claims, Placer Center dist.; Wallace. **Development:** Approximately 1350 ft. of workings. **Ore:** Lead-silver. **Remarks:** Annual labor only.

SQUARE DEAL MINING & MILLING CO., LTD.
Office: Wallace. **Officers:** A. H. Featherstone, Pres.; M. K. Howes, Sec., both of Wallace. **Inc.:** Oct. 29, 1906. **Capital:** 1,000,000 shares; par value $1; increased July 14, 1930, to 2,000,000, par value $1; 1,000,000 shares issued. **Property:** Square Deal group; 11 patented claims, Hunter dist.; Wallace. **Development:** By 3 tunnels: No. 1, 150 ft.; No. 2, 900 ft.; No. 3, 100 ft. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Under option to Golconda Lead Mines.

STANLEY MINING CO.
Office: Wallace. **Officers:** John H. Wourms, Pres., Wallace. **Inc.:** Apr. 16, 1926. **Capital:** 1,500,000 shares; par value 10c; 1,262,727 shares issued. **Property:** Stanley group; 13 patented, 2 unpatented claims, Lelande dist.; Burke. **Development:** By 3 tunnels: No. 1, 290 ft. long; No. 2, 950 ft. long; No. 3, 1630 ft. long. **Ore:** Antimony-gold. **Remarks:** A reorganization of the Stanley Consolidated Mining & Milling Co. Annual labor on unpatented claims.

STERLING MINING CO., LTD.
Office: Wallace. **Officers:** Mrs. Winnefred Presley, Pres.; J. Clarence Presley, Sec.-Mgr., both of Wallace. **Inc.:** Feb. 21, 1903. **Capital:** 1,500,000 shares; par value $1; 970,000 shares issued. **Property:** 13 unpatented claims, Evolution dist.; Wallace. **Development:** 1 tunnel, 600 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

STRATTON SILVER SUMMIT, INC.
Office: Wallace. **Officers:** L. K. Stratton, Pres.; Wm. J. Stratton, Sec., both of Wallace. **Inc.:** Feb. 6, 1929. **Capital:** 10,000,000 shares; par value 10c; 8,481,936 shares issued. **Property:** Jumbo group, Silver Summit Mining Co.; held under lease and option. **Development:** Principally by 1 tunnel 4716 ft. long. **Plant:** 530 cu. ft. I-R electrically driven compressor; steel sharpener; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 7. **Remarks:** One of the principal development enterprises in the Coeur d'Alene district to maintain development work throughout the year. A new compressor, steel sharpener, and additional mining equipment were installed, and more than 3000 ft. of crosscuts and drifts were driven during the year. The disclosures made by this work greatly enhanced the possibilities of this enterprise. Stock assessments were levied as follows: Mar. 17, 5 mills; Sept. 8, 5 mills.

SUCCESS MINING CO., LTD.
Office: Wallace. **Officers:** Dan P. Mahoney, Pres., Perma, Mont.; H. H. Miller, Sec., Wallace. **Inc.:** April 7, 1905. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Success group; 8 patented claims, Placer Center dist.; Wallace. **Development:** Principally by 3 tunnels: No.

1, 1320 ft. long; No. 2, 4585 ft. long; No. 3, 3360 ft. long; and a vertical shaft 1070 ft. deep, with 8 intermediate levels; total development, approximately 25,700 ft. **Plant:** MINE: Electrically-driven double-drum hoist; 2 electrically-driven compressors; complete mining equipment. MILL: 300-ton concentrator, including flotation and magnetic separation. **Ore:** Lead-zinc-silver. **Remarks:** In July, 1926, all operations were suspended, underground equipment was removed, and part of the mining and milling equipment was disposed of. A small tonnage was produced and marketed during 1931 by lessees.

SULLIVAN MINING CO.

Office: Kellogg. **Officers:** Stanly A. Easton, Pres., Kellogg; C. W. Simmons, Sec., Kellogg. **Inc.:** May 22, 1917. **Capital:** 500,000 shares; par value $3; 37,448 shares issued. **Property:** Star group; 23 patented claims, Hunter and Lelande dists.; Burke. **Development:** By a crosscut, known as the "Star crosscut," which is on the 2000-ft. level of the Hecla mine and is 8900 ft. long; and by one 2300-ft. vertical raise and one 2850-ft. vertical raise. **Plant:** MINE: All mine equipment furnished by Hecla Mining Co. MILL: All ore is milled by Bunker Hill & Sullivan M. & C. Co. in its South mill at Kellogg. ELECTROLYTIC PLANTS: See Twenty-ninth Ann. Rept. of Mining Industry of Idaho, Engineering & Mining Journal of Dec. 1, 1928, and Mining Congress Journal of January, 1929, and November, 1931, for complete illustrated descriptions of zinc plant, and page 43 of Thirty-second Ann. Rept. of Mining Industry of Idaho for a complete description of cadmium plant. **Ore:** Lead-zinc-silver. **Men employed:** Average, 16 at mine and 84 at zinc plant.



ZINC PLANT: SULLIVAN MINING CO.

REMARKS

In 1916 the Bunker Hill & Sullivan M. & C. Co. secured an option on the Star mine from the Star Mining Co.; as the most feasible method of opening this mine was through the Hecla mine, the Hecla Mining Co. was offered and accepted a 50 per cent interest in the option.

The Sullivan Mining Co. was then formed to take over the Star option and to operate the mine. After litigation to perfect title to the Star vein system was settled in favor of the Star Mining Co., the Star crosscut was started and continued without interruption, excepting the time lost from July 13, 1923, to March 1, 1924, as a result of the Burke fire.



CADMIUM PLANT: SULLIVAN MINING CO.

On November 13, 1925, the Star ore body was encountered at a point 1650 ft. west of the east end-line, and at a depth of 4000 ft. below the apex of the vein. After encountering the ore body development work continued, and during 1925 it was opened the entire distance of 1650 ft. and a connection was made with the 2250 level of the Morning mine of the Federal Mining & Smelting Co. On account of the great depth of the Star crosscut, a large amount of development work was necessary to open the mine for the extraction of ore. Two operating raises were projected and work started on them. This work continued without interruption. By 1930 both had been extended a distance of 2300 ft., and during 1931 one was continued to the Star tunnel (2850-ft. level), a distance of 2850 ft. In addition to advancing this raise a large amount of development work was done on the 2850-ft. level. This work opened one of the most important disclosures of new ore which has been made in the district for many years. The Morning and Star veins are conceded to be the same. The ore in the Morning has been opened to the 3650-ft. level, or 1400 ft. deeper than the Star crosscut. As the new ore in the Star tunnel is 2850 ft. above the Star crosscut, it is evident that the Star mine contains an ore body of tremendous size and that it is a mine of magnitude. Output at the electrolytic cadmium plant was suspended early in the year, but the electrolytic zinc plant was operated at approximately 50 per cent capacity throughout the entire year. The zinc and cadmium produced by this company are exceedingly high in grade and find a ready market; the zinc selling at an increase in price over that of any other zinc metal. These plants constitute one of the most important enterprises in the Pacific Northwest, one which greatly insures the permanence of the mining industry in Shoshone County. The uninterrupted operation of the zinc plant greatly assisted business conditions in the county.

SUNRISE MINES CO.

Office: 215 Waverly Place, Spokane, Wash. **Officers:** C. Fred Kratzer, Sec., Spokane, Wash. **Inc.:** Sept. 17, 1928. **Capital:** 1,500,000 shares; par value 10c; 1,200,000 shares issued. **Property:** 17 patented, 9 unpatented claims, Summit dist.; Wallace. **Development:** By 3 tunnels, the longest being 1900 ft. **Ore:** Lead-zinc-silver. **Men employed:** Average, 3. **Remarks:** A small amount of work during the year.

SUNSET MINING CO.

Office: 781 Corbett St., Portland, Ore. **Officers:** A. H. Ruedy, Pres., Oakland, Calif.; E. G. Ruedy, Sec., Portland, Ore. **Inc.:** Filed in Idaho: Mar. 3, 1926. **Capital:** 500,000 shares; par value $1; 355,278 shares issued. **Property:** 9 patented, 2 unpatented claims, Placer Center and Beaver dists.; Wallace. **Development:** By 2 tunnels: No. 1, 810 ft. long; No. 2, 220 ft. long. **Plant:** 10x10 electrically driven compressor. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

SUNSHINE EXTENSION MINES CO.

Officers: Walter H. Hanson, Pres.; J. R. Bean, Sec., both of Wallace. **Inc.:** Nov. 23, 1931. **Capital:** 1,000,000 shares; par value $1. **Remarks:** Failed to file the reports required by law.

SUNSHINE MINING CO.

Office: Yakima, Wash. **Officers:** A. E. Larson, Pres.; R. B. Kenyon, Sec., both of Yakima, Wash.; C. C. Samuels, Mgr., Kellogg. **Inc.:** Jan. 3, 1921. **Capital:** 1,500,000 shares; par value 10c; 1,488,822 shares issued. **Property:** Yankee group; 15 patented claims, Big Creek, Yreka dist.; Kellogg. **Development:** Principal development by 5 tunnels: No. 1, 100 ft. long; No. 2, 170 ft. long; No. 3, 800 ft. long; No. 4, 1000 ft. long; No. 5, 3000 ft. long, in which is a vertical shaft 500 ft deep, and an inclined shaft connecting No. 5 tunnel level and the 1700-ft. level. **Plant:** MINE: 2 I-R compressors, 1 Worthington compressor, 2 hoists, all electrically driven; complete mining equipment, buildings, and camp. MILL: 500-ton concentrator, including fine grinding and flotation. **Ore:** Lead-silver. **Men employed:** Average, 246.

REMARKS

This company is the largest silver producer in the State and the second largest in the United States, and was one of the two companies which maintained capacity production throughout the year. Its mine and mill plants were greatly improved, and a large amount of development work was done in the mine; the principal part of which was drifting on the 1700-ft. level, where the ore bodies were proved to be of greater extent and richer in metal content than in any of the upper levels. In addition to this, a large amount of drifting was done on the upper levels; and a 400-ft. raise, to connect with the 1300-ft. level, was started on the 1700-ft. level. The total amount of new work exceeded 4000 ft. The low price of silver greatly reduced operating profits, and but one dividend was paid.

SUNSHINE MINING CO., LTD.

Office: Wallace. **Officers:** D. C. Smith, Pres., Missoula, Mont.; H. J. Hull, Sec., Wallace. **Inc.:** Jan. 5, 1907. **Capital:** 2,700,000 shares; par value $1; 1,327,309 shares issued. **Property:** Sunshine group; 4 patented, 10 unpatented claims, Beaver dist.; Wallace. **Development:** Over 6000 ft. of underground workings. **Plant:** Electrically-driven I-R 5-drill compressor; complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

SYNDICATE MINING & EXPLORATION CO., LTD.

Office: Kellogg. **Officers:** Ed. Lagerstrom, Pres.; J. L. Moore, Sec., both of Kellogg. **Inc.:** June 24, 1907. **Capital:** 1,500,000 shares; par value 25c; 612,000 shares issued. **Property:** 7 unpatented claims, Yreka dist.; Kellogg. **Development:** Principally by 1 tunnel, 1700 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of 1 mill was levied on Apr. 15.

TAMARACK & CUSTER CONSOLIDATED MINING CO.

Office: Wallace. **Officers:** Jerome J. Day, Pres.-Mgr.; Harry L. Day, Sec., both of Wallace. **Inc.:** Aug. 6, 1912. **Capital:** 5,000,000 shares; par value $1; all shares issued. **Property:** Tamarack & Custer; 60 patented, 2 unpatented claims, Lelande and Placer Center dists.; Gem. **Development:** The three principal tunnels are: No. 5, 12,300 ft. long; No. 6 (400-ft. level), 8900 ft. long; and No. 7 (1200-ft. level), 11,300 ft. long. The principal shaft is a 3-compartment, vertical shaft, 600 ft. deep; a 3-compartment raise 800 ft. long connecting No. 6 and No. 7 tunnels; and a 150-ft. vertical winze (1350-ft. level) from No. 7 tunnel. Total development, approximately 14 miles. **Plant:** MINE: 100-h. p. electrically driven hoist; three 1300 cu. ft. electrically driven compressors; storage-battery haulage on intermediate levels and trolley locomotive haulage on main levels; complete mining equipment; modern and complete machine shop; modern hotel, change houses, and camp. **Ore:** Lead-silver-zinc. **Men employed:** Average, 5. **Remarks:** Output and an extensive development campaign until May, when production and all work on company account were entirely suspended and various parts of the mine were turned over to lessees. It was reported that the new work which was done during the early part of year greatly increased the known ore reserves of the mine. This company's ore is sold to the Hercules custom mill at Wallace.

TEDDY MINING & MILLING CO., LTD.

Office: Kellogg. **Officers:** T. R. Mason, Pres.; F. Wm. Voigtlander, Sec., both of Kellogg. **Inc.:** Dec. 1, 1904. **Capital:** 1,000,000 shares; par value $1; increased on Apr. 26, 1930, to 1,500,000 shares; 922,247 shares issued. **Property:** Teddy group; 7 unpatented claims, Yreka dist.; Kellogg. **Development:** Over 1800 ft. of tunnels, the principal one of which is approximately 1400 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

TIBERIUS MINING CO.

Office: Moscow. **Officers:** S. H. Knepper, Pres.; Samuel Owings, Treas., both of Moscow. **Inc.:** Mar. 9, 1916. **Capital:** 1,000,000 shares; par value 10c; 611,450 shares issued. **Property:** 40 acres of patented land on Pine Creek, Yreka dist.; Kellogg. **Ore:** Lead-zinc-silver.

TRADE DOLLAR MINING CO., LTD.

Office: 1160 Winston Ave., San Marino, Calif. **Officers:** Isabel M. Pattison, Acting Sec., San Marino, Calif. **Inc.:** Oct. 18, 1901. **Capital:** 1,000,000 shares; par value 10c; 605,097 shares issued. **Property:** Trade Dollar group; 6 patented claims, Lelande dist.; Burke.

TRAPPER MINING & SMELTING CO., LTD.

Office: Insurance Bldg., Wallace. **Officers:** Herman J. Rossi, Pres.-Mgr.; R. C. Russell, Sec., both of Wallace. **Inc.:** Dec. 14, 1906. **Capital:** 1,500,000 shares; par value $1; 861,047 shares issued. **Property:** 7 patented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 1 tunnel 700 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** Failed to file the reports required by law.

TREASURE VAULT MINING CO., LTD.

Office: Wallace. **Officers:** P. J. Maggy, Pres.; W. A. Devan, Sec., both of Wallace. **Inc.:** Oct. 29, 1906. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** Treasure Vault group; 4 patented claims, Placer Center dist.; Sunset. **Ore:** Lead-silver. **Remarks:** Idle.

TUCKER MINING & MILLING CO.

Office: Wallace. **Officers:** Peter Bahn, Pres.-Mgr.; W. R. Turner, Sec., both of Wallace. **Inc.:** Mar. 30, 1907. **Capital:** 1,000,000 shares; par value $1; 600,000 shares issued. **Property:** Tucker group; 6 unpatented claims, Hunter dist.; Mullan. **Development:** Principally by 1 tunnel which is 1400 ft. long. **Ore:** Copper. **Remarks:** Annual labor only.

TUSCUMBIA MINING CO., LTD.

Office: Wallace. **Officers:** D. A. Callahan, Pres., Wallace. **Inc.:** Aug. 14, 1911. **Capital:** 1,500,000 shares; par value 50c. **Remarks:** Has failed to file the reports required by law since 1926.

UNITED AMERICAN MINES CO., LTD.
Office: 1160 Winston Ave., San Marino, Calif. **Officers:** Mrs. Isabel M. Pattison, Sec.-Mgr., San Marino, Calif. **Inc.:** Jan. 24, 1908. **Capital:** 3,000,000 shares; par value $1; all shares issued. **Remarks:** Company holds stock in Trade Dollar Mining Co., Ltd., and in Sister Mining & Milling Co.

UNITED METALS CO.
Office: Wallace. **Officers:** John J. Hamlyn, Pres., San Francisco, Calif.; A. G. Kennedy, Sec., Wallace. **Inc.:** Sept. 2, 1924. **Capital:** 1,000,000 shares common, no par value; 100,000 shares preferred, par value $5; 746,950 shares common issued. **Property:** 62.7% of stock of Black Bear Mines Co.; property of Western Pacific Mining Co. and Goodenough Mining Co., held under 50-yr. lease: 28 patented, 11 unpatented claims, Lelande and Hunter dists.; Wallace. **Development:** Principally by 2 tunnels: No. 1, 800 ft. long; No. 2, or Black Bear, 4000 ft. long. **Plant:** Electrically driven 3-drill compressor; complete mining equipment. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

UNITED MINES & METALS CORPORATION
Office: 902 Second Ave., Seattle, Wash. **Officers:** O. W. Jackson, Pres., Seattle, Wash.; James A. Wayne, Sec., Wallace. **Inc.:** Sept. 28, 1931. **Capital:** 5,000,000 assessable common shares; par value 10c; 93,728 shares issued. **Remarks:** This company reported it controls the properties of the Little Sunshine Mining Co. and the Lookout Mountain Mining & Milling Co.

UNITED STATES SILVER LEAD MINES CO.
Office: W. 2011 Sinto Ave., Spokane, Wash. **Officers:** N. J. Jacobs, Pres., Ellensburg, Wash.; R. J. Toner, Sec., Spokane, Wash. **Inc.:** Sept. 24, 1917. **Capital:** 1,000,000 shares; par value 10c; shares issued, unknown. **Property:** 21 unpatented claims, held under lease and option, Eagle dist.; Prichard. **Remarks:** Failed to file the reports required by law since 1929. Press reports were to the effect that development work was maintained throughout the greater part of the year under the direction of Thomas Nicholson of Wallace.

VENDETTA CHIEF MINING CO.
Office: Murray. **Officers:** John Lillie, Pres., Murray; Mrs. H. McPhee, Sec., Wallace. **Inc.:** March 13, 1924. **Capital:** 1,000,000 shares; par value 10c; 700,000 shares issued. **Property:** Vendetta Chief group; 3 unpatented claims, Summit dist.; Murray. **Development:** By 2 tunnels, each 300 ft. long. **Ore:** Lead-silver. **Remarks:** Failed to file the reports required by law.

VICTOR MINING CO.
Office: Wallace. **Officers:** John L. Fitzgerald, Pres.; Therrett Towles, Sec., both of Wallace. **Inc.:** Jan. 9, 1931. **Capital:** 1,000,000 shares; par value 10c; shares issued, unknown. **Property:** Victor group; 10 unpatented claims, Placer Center dist.; Wallace. **Development:** By 4 tunnels: No. 1, 375 ft. long; No. 2, 100 ft. long; No. 3, 500 ft. long; No. 4, 500 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

VIENNA-INTERNATIONAL MINING & MILLING CO., LTD.
Office: Wallace. **Officers:** A. H. Featherstone, Pres.; R. A. Marshall, Sec., both of Wallace. **Inc.:** Sept. 10, 1906. **Capital:** 1,500,000 shares; par value $1; 1,326,408 shares issued. **Property:** Vienna International; 4 patented claims, Placer Center dist.; Wallace. **Development:** Approximately 1300 ft. of tunnels. **Ore:** Lead-silver. **Remarks:** Idle for several years.

VINDICATOR MINING CO.
Office: 2122 Dwight Way, Berkeley, Calif. **Officers:** Kathryn Powers, Pres.; Grace Powers, Sec., both of Berkeley, Calif. **Inc.:** June 9, 1902. **Capital:** 1,000,000 shares; par value 10c; 549,650 shares issued. **Property:** 4 unpatented claims, Hunter dist.; Mullan. **Development:** By 1 tunnel 1200 ft. long. **Remarks:** Annual labor only.

WALLACE IDAHO LEAD MINES, INC.

Office: 411 Second St., Wallace. **Officers:** L. W. Defenbach, Pres.-Mgr.; Paul H. Batzle, Sec., both of Wallace. **Inc.:** July 25, 1929. **Capital:** 2,000,000 shares; par value 25c; 1,400,000 shares issued. **Property:** Eastern Star group; 8 unpatented claims, Evolution dist.; Osburn. **Development:** By 2 tunnels: No. 1, 500 ft.; No. 2, 1300 ft. **Ore:** Lead-silver. **Remarks:** Annual labor only.

WALLACE SILVER-LEAD MINES CO.

Office: Wallace. **Officers:** Walter H. Hanson, Pres.; Chas. Horning, Sec., both of Wallace. **Inc.:** Aug. 17, 1927. **Capital:** 5,000,000 shares; par value 10c. **Remarks:** Has never filed the reports required by law, although many times requested to do so.

WALL STREET MINING CO.

Office: Wallace. **Officers:** Wm. O. Bradley, Pres., Spokane, Wash.; L. R. Loomis, Sec., Wallace. **Inc.:** Apr. 20, 1907. **Capital:** 1,250,000 shares; par value $1; 1,241,263 shares issued. **Property:** 17 unpatented claims, Hunter dist.; Mullan. **Development:** Principally by 3 tunnels, the longest of which is 1400 ft. **Plant:** Electrically-driven compressor; complete mining equipment. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Annual labor only.

WASHINGTON-IDAHO MINING CO.

Office: 707 Hutton Bldg., Spokane, Wash. **Officers:** Dr. James Murray, Pres., Hayden Lake; Dennis P. Woods, Sec., Spokane, Wash.; Thos. Murray, Mgr., Kellogg. **Inc.:** Oct. 21, 1927. **Capital:** 2,500,000 shares; par value 10c; 1,700,000 shares issued. **Property:** Crescent group; 23 unpatented claims, Moon Creek, Yreka dist.; Kellogg. **Development:** By 3 tunnels, the principal one of which is 1200 ft. long, and a vertical shaft 340 ft. deep, in which are 3 levels. **Plant:** Electrically driven I-R compressor and complete mining equipment. **Ore:** Lead-zinc-silver. **Men employed:** Average, 14. **Remarks:** Early in the year additional mining equipment was installed and work started on sinking the shaft from the 125-ft. level to the 300-ft. level, after which a large amount of crosscutting and drifting was done on the 225-ft. and 300-ft. levels. This work resulted in one of the substantial new ore disclosures made in the Coeur d'Alene district during the year. As this company's property is located on Moon Creek, the new disclosures added greatly to the importance of this section of the county.

WASHINGTON MINING CO.

Office: Wallace. **Officers:** Paul Leuschel, Sec., Wallace. **Inc.:** Jan. 14, 1911. **Capital:** 1,500,000 shares; par value $1. **Remarks:** Has failed to file the reports required by law since 1927.

WEIGLE MINING & MILLING CO.

Office: 1211 E. Carlisle St., Spokane, Wash. **Officers:** G. S. Weigle, Pres.-Mgr.; W. N. Jones, Sec., both of Pasco, Wash. **Inc.:** July 15, 1929. **Capital:** 1,250,000 shares; par value 5c; 1,016,825 shares issued. **Property:** Weigle group; 15 unpatented claims, Yreka dist.; Kellogg; 6 of which are held under lease and option from the Northside Mining Co. **Development:** By 4 short tunnels. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.

WEST BELL MINING CO., LTD.

Office: Wallace. **Officers:** J. O. Nordquist, Pres., Spokane, Wash.; Otto A. Olsson, Sec., Wallace. **Inc.:** May 8, 1899. **Capital:** 1,000,000 shares; par value 5c; 585,129 shares issued. **Property:** West Bell group; 5 patented claims, Lelande dist.; Black Bear. **Development:** Principally by 2 tunnels: No. 2, 2300 ft. long; No. 3, 2288 ft. long. **Ore:** Lead-silver. **Remarks:** Idle.

WESTERN PACIFIC MINING CO.
Office: E. 3132 18th Ave., Spokane, Wash. **Officers:** Frank P. Markwell, Pres., Los Angeles, Calif.; J. Fred Markwell, Sec., Spokane, Wash. **Inc.:** Apr. 6, 1922; charter forfeited Nov. 30, 1929. **Capital:** 2,500,000 shares; par value 1c; all shares issued. **Property:** South Side group; 12 unpatented claims, Lelande dist.; Wallace. **Remarks:** Property under lease and option to Mutual Mines Development Co.

WESTERN UNION MINING CO.
Office: Wallace. **Officers:** Harry L. Day, Pres.-Mgr.; W. B. Heitfield, Sec., both of Wallace. **Inc.:** Jan. 27, 1916. **Capital:** 2,000,000 shares; par value 10c; 1,997,656 shares issued. **Property:** Western Union group; 39 patented, 11 unpatented claims, Evolution dist.; Wallace. **Development:** Principally by 4 tunnels: No. 3, 3000 ft. long, and No. 4, 7000 ft. long; and a vertical shaft 477 ft. deep, with 4 intermediate levels. Total development, approximately 18,000 ft. **Plant:** I-R and Gardner-Ricks electrically-driven compressors; air-driven hoist; complete mining equipment and camp. **Ore:** Lead-silver. **Remarks:** Annual labor only.

WEST GEM MINING CO.
Office: E. 3132 18th Ave., Spokane, Wash. **Officers:** Frank P. Markwell, Pres., Los Angeles, Calif.; J. Fred Markwell, Sec., Spokane, Wash. **Inc.:** Feb. 1, 1912; charter forfeited Nov. 30, 1927. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** 14 unpatented claims, Lelande dist.; Wallace. **Remarks:** Failed to file the reports required by law.

WEST HECLA MINING CO.
Office: Spokane, Wash., Box 1620. **Officers:** Dr. T. A. Russell, Pres.; J. V. Pohlman, Sec., both of Spokane, Wash. **Inc.:** Feb. 18, 1907. **Capital:** 1,500,000 shares; par value $1; 1,450,000 shares issued. **Property:** 3 patented claims, Lelande dist.; Burke. **Development:** Principally by 1 tunnel 1650 ft. long. **Ore:** Lead-silver.

WEST HUNTER MINING CO., LTD.
Office: Wallace. **Officers:** Ray Morrison, Pres., Kellogg; Herman Marquardt, Sec., Wallace. **Inc.:** July 29, 1915. **Capital:** 1,500,000 shares; par value 10c; all shares issued. **Property:** 1 patented, 9 unpatented claims, Hunter dist.; Mullan. **Development:** About 2700 ft. of tunnels. **Ore:** Lead-silver. **Remarks:** Annual labor only.

WEST MAMMOTH MINING CO.
Office: 1124 Paulsen Bldg., Spokane, Wash. **Officers:** H. C. Lambach, Pres., Seattle, Wash.; A. A. Booth, Sec., Spokane. **Inc.:** July 30, 1926. **Capital:** 1,500,000 shares; par value 25c; 900,000 shares issued. **Property:** Lease and option on property owned by Headlight Mining Co., Ltd., and Big Divide Mining Co., Ltd. **Development:** By 2 tunnels: Headlight, 1300 ft long; Silvermoon, 2190 ft. long. **Plant:** Electrically-driven compressor; complete mining equipment. **Ore:** Lead-silver. **Remarks:** Annual labor only.

WILLOW CREEK MINING CO.
Office: 303 Hyde Blk., Spokane, Wash. **Officers:** Andrew Hedin, Pres.-Mgr.; John E. Hoppe, Sec., both of Spokane, Wash. **Inc.:** Jan. 25, 1924. **Capital:** 1,500,000 shares; par value 5c; 991,000 shares issued. **Property:** 23 unpatented claims, Hunter dist.; Mullan. **Development:** Principal tunnel 1800 ft. long. **Plant:** A water-driven compressor and complete mining equipment. **Ore:** Silver-lead. **Remarks:** Annual labor only.

WISCONSIN MINING CO.
Office: Kellogg. **Officers:** W. W. Papesh, Pres.-Mgr.; S. A. Germo, Sec., both of Kellogg. **Inc.:** Mar. 13, 1913. **Capital:** 1,500,000 shares; par value $1; 450,000 shares issued. **Property:** Wisconsin group; 5 unpatented claims Yreka dist.; Kellogg. **Development:** 1 tunnel 700 ft. long and a vertical shaft 100 ft. deep. **Plant:** Water-driven compressor; hoist; and complete mining equipment. **Ore:** Lead-silver. **Remarks:** Idle.

WOLVERINE MINING CO., LTD.
Office: 304 Lindelle Bldg., Spokane, Wash. **Officers:** C. C. Harrington, Pres.; Harold M. Gleeson, Sec., both of Spokane, Wash. **Inc.:** Aug. 4, 1909. **Capital:** 1,250,000 shares; par value $1; increased on July 11, 1928, to 2,000,000 shares; 1,598,143 shares issued. **Property:** Wolverine group; 7 unpatented claims, Big Creek, Yreka dist.; Kellogg. **Development:** By 3 tunnels: No. 1, 450 ft. long; No. 2, 315 ft. long; No. 3, 87 ft. long; and an inclined shaft 400 ft. long. **Plant:** Hoist, 1 Sullivan and 1 I-R compressor, all electrically driven; complete mining equipment. **Ore:** Lead-silver. **Remarks:** Annual labor only.

WONDERFUL MINING CO., LTD.
Office: Wallace. **Officers:** H. E. Howes, Vice-Pres.; A. H. Featherstone, Sec., both of Wallace. **Inc.:** Oct. 15, 1906. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Wonderful group; 4 patented claims, St. Joe dist.; Mullan. **Remarks:** Idle for a number of years.

WYOMING MINING & MILLING CO., LTD.
Office: Wallace. **Officers:** H. G. Washburn, Pres.-Mgr.; A. W. Hoover, Sec., both of Wallace. **Inc.:** May 3, 1901. **Capital:** 1,000,000 shares; par value 10c; 935,554 shares issued. **Property:** Wyoming group; 11 patented claims, Yreka dist.; Kellogg. **Development:** Principally by 2 tunnels: Ranger, 2150 ft. long; Wyoming, 500 ft. long. Total development, approximately 5400 ft. **Ore:** Lead-zinc-silver. **Remarks:** Idle.

YAKIMA-SHOSHONE MINING CO.
Office: 526 Miller Bldg., Yakima, Wash. **Officers:** Edward A. Burmister, Pres.; Sydney Livesey, Sec., both of Yakima, Wash. **Inc.:** Oct. 11, 1928. **Capital:** 1,500,000 shares; par value 10c; increased on Apr. 2, 1930, to 2,000,000 shares; 1,379,950 shares issued. **Property:** Owns a fractional interest in the Nellie group, Evolution dist.; Osburn. **Development:** Principally by 1 tunnel 900 ft. long, in which is a vertical shaft 170 ft. deep. **Ore:** Lead-silver. **Remarks:** Idle.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
American Placer	Summit	Joseph Laveigne	Murray
Anchor et al.	Summit	Mike Melley	Murray
Ancient Gravel	Yreka	George H. Heller	Kellogg
Birthday Group	St. Joe	Wes. J. Horsky	Falcon
Bismark Lode	Eagle	Robt. T. Horn Est.	Murray
Blackhawk Group	Hunter	Chas. M. Baillie	Mullan
Black Hill	Beaver	John Thiard	Delta
Blue Eagle Gr.	Yreka	Walter Owens	Kellogg
Blue Grouse	Evolution	C. M. Patterson	Wallace
Bonanza	Eagle	Jas. Boland	Murray
Boulder Placer	Eagle	Clay Giles	Murray
Bull Pine	Evolution	O. J. Holtz	Kellogg
Carney Copper	Hunter	James Carney	Mullan
Carruthers Placer	Eagle	E. N. Harwood	Billings, Mont.
Castle Rock et al.	Placer Center	A. C. Livingston	Wallace
Comstock Group	Lelande	J. H. Smith	Wallace
Corby Group	Yreka	John Steffes	Kellogg
Cornucopia	Eagle	Francis Frohling	Murray
Cougar Gr.	Yreka	Geo. Smith	Kellogg
Creighton Gr.	Hunter	Mrs. S. P. Domer	Spokane, Wash.
Daddy Mining Co.		Robert T. Horn	Murray
Eagle Placer	Eagle	Archie Smith	Murray
Eldorado Gr.	Eagle	James Leary et al.	Wallace
Eldorado	Summit	R. B. Lundy	Wallace
Eleventh Hour	Evolution	Victor Langley	Wallace
Empress	Beaver	Hugh Mabin	Wallace
Enterprise Group	Yreka	Fred G. Donaldson	Kellogg
Fahey Gr.	Evolution	John Fahey	Spokane, Wash.
Fay et al.	Yreka	Fred G. Donaldson	Kellogg

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Ferguson Gr.	Summit	C. B. Ferguson	Murray
Florence Group	Eagle	Frank Rose	Murray
Frances Jeanne	Eagle	W. A. Taylor	Murray
Freeman Gr.	Evolution	Jesse Freeman et al.	Wallace
Friday	Beaver	A. H. Bunnell	Wallace
Galena	Lelande	A. W. McCune	Salt Lake City, U.
Gilbert Placer	Beaver	W. A. Mather	Murray
Gold Back	Eagle	J. D. Stoltman	Murray
Gold Circle	Summit	William Wylie	Murray
Golden Chest	Beaver	Vivian Green	45 W. 34th St., New York City
Golden Gate	St. Joe	E. A. Patrick	Spokane, Wash.
Great Western &	Summit	Dunlap & Smith	Murray
Highland Chief	Yreka	H. T. Gilbert	Kellogg
Homestake Gr.	Lelande	L. J. Oatman et al.	Burke
Horseshoe Pl.	Beaver	Charles H. Wilson	Murray
Indicator	Yreka	Chas. Kaufman	Wallace
Ionia Lode	Summit	Albert Otto	Murray
Iron Clad	Yreka	Henry Lamb	Kellogg
Jewel Gulch	Evolution	Jasper Allamno	Osburn
Joyce Gr.	Beaver	C. B. Ferguson	Murray
Jumbo Gr.	Eagle	Chas. J. Johnson	Murray
Kellida Gr.	Yreka	W. F. Ide	Kellogg
Liberal King Gr.	Yreka	Leslie Lamb	Kellogg
Lion Gr.	Summit	Wm. Wylie	Murray
Little Pittsburgh	Yreka	Gus Smith	Kellogg
Lonesome Pine Gr.	Evolution	H. L. Jaynes	Osburn
Lucky Bill Gr.	Eagle	Chas. T. Johnson	Murray
Lucky Boy	Summit	D. A. Finlayson	Murray
Lucky Strike	Summit	M. E. Lewis	Moscow
McLean Gr.	Placer Center	C. H. McLean	Wallace
Midas Gr.	Placer Center	Henry Lalonde	Wallace
Midnight	Hunter	Forest Clark	Mullan
Midnight Pl.	Beaver	W. A. Mather	Murray
Morning Star	Eagle	Mike Franks	Murray
Mother Lode	Eagle	John F. Murphy	Wallace
Nellie Potter	Eagle	David Goodman	Murray
Ninety Seven	Hunter	H. Thompson	Wallace
Old Timber	Eagle	Louis Feldman	Murray
Olympia	Lelande	A. G. Kerns Est.	Wallace
Olympia Gr.	Yreka	Armond McKinnis	Kellogg
Orofino	Summit	Harry L. Day	Wallace
Omaha Group	Lelande	August Paulsen Est.	Spokane, Wash.
Osakis Gr.	Placer Center	A. L. Fisher	Wallace
Ostrog Gr.	Yreka	N. Petrinovich	Wardner
Panama Gr.	Evolution	Mrs. Mary Crowley	Wallace
Paradox	Summit	Charles Nordquist	Murray
Paymaster	Yreka	Jas. E. Hoskins	Kellogg
Peerless Gr.	Placer Center	E. M. Burt et al.	Wallace
Peterson Gr.	Hunter	Chris Peterson	Mullan
Petoria	Hunter	John H. Hauser	Wallace
Pilot Group	Eagle	J. D. Stoltman	Murray
Prudent	Summit	P. R. Kimball	Murray
Renown Gr.	Placer Center	A. D. Marshall	Wallace
St. Joe	Evolution	C. M. Patterson	Osburn
Sargent	Evolution	C. Sargeant	Osburn
Senator Gr.	Hunter	Jennie Gribble	Mullan
Seward Camp	Eagle	James R. Wood	Murray
Sherlock Group	St. Joe	Frank M. Rose	Wallace
Shipka	Eagle	Godfrey Kohl	Murray
Silver King	Yreka	Hector McRae	Kellogg

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Silver Reef	Yreka	Herman J. Rossi	Wallace
Silver Star	Beaver	E. R. Oxley	Murray
Slim Show	St. Joe	Nels Dahlberg	Iron Mt., Mont.
Spokane Central	Yreka	Sam Orlandini	Kellogg
Spokane Gr.	Yreka	Robt. F. Schneider	Kellogg
Steve Corcoran Gr.	Yreka	Chas. Gullickson	Wallace
Tam O'Shanter	Evolution	David C. Coates	Spokane, Wash.
Toledo Group	Lelande	M. J. Farrell	Burke
Tommy Hawk	Yreka	Alex Vouchard	Kellogg
Troy Group	Hunter	L. E. Hanley	Wallace
Uncle Sam Gr.	Hunter	Joe Huber et al.	Mullan
Victor	Lelande	A. D. Marshall	Wallace
Vindicator Group	Yreka	Charles Kaufman	Kellogg
Virgo et al.	Evolution	Sigurd Thorkelson	Wallace
Vulcan Gr.	Yreka	J. C. Bennington	Kellogg
Waddell Group	Summit	Frank Hall	Murray
Wallace Group	Evolution	Jos. Peila	Wallace
Wardner Gr.	Yreka	John Bogovich	Wardner
Whipsaw Placer	St. Joe	Frank A. Heller	Bonners Ferry
Wild & Wooley	Beaver	J. A. Prichard	Prichard
Williams Gr.	Evolution	Jesse Freeman	Wallace
Winnie	Eagle	W. M. Smith	Murray
Yankee Group	Evolution	Dennis Blake	Kellogg

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

The Coeur d'Alene silver-lead mines, by J. C. Clayton: Eng. and Min. Jour., vol. 45, pp. 108-109, Feb. 11, **1888.**§

Bitterroot Forest Reserve, by R. U. Goode: Nat. Geog. Mag., vol. 9, pp. 387-400, **1898.**§

Coeur d'Alene mining region by W. C. Clarke: Mines and Minerals, vol. 20, pp. 561-562, July, **1900.***

Survey of the boundary line between Idaho and Montana from the international boundary to the crest of the Bitterroot Mountains, by R. U. Goode: U. S. Geol. Survey Bull. 170, **1900.***

Coeur d'Alene mining region, by Arthur Lakes: Mines and Minerals, vol. 20, pp. 303-304, February, **1900.***

Ore deposits of Yreka district, Idaho, by E. McCormick: Eng. and Min. Jour., vol. 69, p. 404, Apr. 7, **1900.**§

Geology and water resources of Nez Perce County, Idaho, by I. C. Russell: U. S. Geol. Survey Water-Supply Papers 53 and 54, **1901.**‡*

Mining and milling in the Coeur d'Alene, Idaho, by J. R. Finlay: Eng. and Min. Jour., vol. 75, p. 87, Jan. 10, **1903.**§

Mining industry of the Coeur d'Alene, by J. R. Finlay: Am. Inst. Min. Eng. Trans., vol. 33, pp. 235-271, **1903**§; Mines and Minerals, vol. 24, p. 497, May, **1904.***

A geological reconnaissance across the Bitterroot Range and Clearwater Mountains in Montana and Idaho, by Waldemar Lindgren: U. S. Geol. Survey Prof. Paper 27, pp. 108-111, **1904.***

Economic features of northern Idaho and northwestern Montana, by D. F. MacDonald: U. S. Geol. Survey Bull. 285, pp. 41-52, **1905.***

Coeur d'Alene district, by F. L. Ransome: Min. Mag., vol. 12, pp. 26-32, July, **1905.***

Ore deposits of the Coeur d'Alene district, Idaho, by F. L. Ransome: U. S. Geol. Survey Bull. 260, pp. 274-303, **1905.***

Ore deposits in the St. Joe River Basin, Idaho, by A. J. Collier: U. S. Geol. Survey Bull. 285, pp. 129-139, **1905.***

The Coeur d'Alene in 1905, by S. A. Easton: Eng. and Min. Jour., vol. 81, p. 11, Jan. 6, **1906.**§

The Murray gold belt, Idaho, by T. L. Lammers: Min. and Sci. Press, vol. 94, pp. 636-637, May 18, **1907.***

The north side of the Coeur d'Alene district, by H. S. Auerbach: Eng. and Min. Jour., vol. 86, pp. 65-70, July 11, **1908.**§

Tungsten ore deposits of the Coeur d'Alene, by H. S. Auerbach: Eng. and Min. Jour., vol. 86, pp. 1146-1148, Dec. 12, **1908.**§

The relation between certain ore-bearing veins and gangue fissures, by F. L. Ransome: Econ. Geology, vol. 3, pp. 331-337, June-July, **1908.**§

The geology and ore deposits of the Coeur d'Alene district, Idaho, by F. L. Ransome and F. C. Calkins: U. S. Geol. Survey Prof. Paper 62, **1908.***

Coeur d'Alene mining district, by J. P. Rowe: Min. World, vol. 29, pp. 739-740, Nov. 14, **1908**; vol. 29, pp. 777-778, Nov. 21, **1908**; vol. 29, pp. 843-845, Dec. 5, **1908.***

Mining in the Coeur d'Alene district, by J. P. Rowe: Mines and Minerals, vol. 28, pp. 549-551, July, **1908.***

The geology and ore deposits of the Coeur d'Alene district, by F. L. Ransome and F. C. Calkins, reviewed by E. R. Buckley: Econ. Geology, vol. 4, pp. 178-186, **1909.**§

Geology and ore deposits of the Coeur d'Alene, by F. C. Calkins, discussion of review by E. R. Buckley: Econ. Geology, vol. 4, pp. 258-261, April, **1909.**§

Microstructure of a complex ore from Frisco mine, by William Campbell: Eng. and Min. Jour., vol. 87, pp. 260-261, Jan. 30, **1909.**§

A geological reconnaissance in northern Idaho and northwestern Montana, by F. C. Calkins, with notes on the economic geology by D. F. MacDonald: U. S. Geol. Survey Bull. 384, **1909.***

Notes on geology of Snowstorm mine, Idaho, by George Huston: Eng. and Min. Jour., vol. 90, pp. 1109-1110, Dec. 3, **1910.**§

Geology and mineralization of the upper St. Joe River Basin, Idaho, by J. T. Pardee: U. S. Geol. Survey Bull. 470, pp. 39-61, **1910.***

Geology of the St. Joe-Clearwater region, Idaho, by F. C. Calkins and E. L. Jones, Jr.: U. S. Geol. Survey Bull. 530, pp. 75-86, **1911.***

Economic geology of the region around Mullan, Idaho, and Saltese, Montana, by F. C. Calkins and E. L. Jones, Jr.: U. S. Geol. Survey Bull. 540, pp. 167-211, **1912.***

Genesis of the silver-lead ores in the Wardner district, Idaho, by O. H. Hershey: Min. and Sci. Press, vol. 104, June 1, pp. 750-753; June 8, pp. 786-790; June 15, pp. 825-827, **1912.** (Published later as a pamphlet by Min. and Sci. Press.)**

Reply to Hershey's paper on Wardner district, by F. L. Ransome: Min. and Sci. Press, vol. 105, pp. 143-144, Aug. 3, **1912.***

The Coeur d'Alene mining district, by F. R. Ingalsbe: Eng. and Min. Jour., vol. 96, pp. 156-158, July 26, **1913.**§

Secondary enrichment in the Caledonia mine, Coeur d'Alene district, Idaho, by E. V. Shannon: Econ. Geology, vol. 8, pp. 565-570, Sept. **1913.**§

Origin of lead, zinc, and silver in the Coeur d'Alene, by O. H. Hershey: Min. and Sci. Press, vol. 107, Sept. 27 and Oct. 4, **1913.***

New developments in the Coeur d'Alene, by H. I. Ellis: Eng. and Min. Jour., vol. 100, pp. 337-340, Aug. 28, **1915.**§

The application of the apex law at Wardner, Idaho, by F. T. Greene: Am. Inst. Min. Eng. Trans., vol. 52, pp. 555-562, September, **1915.**§

The copper beds of the Coeur d'Alene, by George Huston: Min. and Sci. Press, vol. 110, pp. 145-147, Jan. 23, **1915.***

Metallurgy in the Coeur d'Alene, by H. A. Megraw: Eng. and Min. Jour., vol. 100, pp. 827-830, Nov. 20, **1915.**§

Origin and distribution of ore in the Coeur d'Alene, by O. H. Hershey, published for the author as a pamphlet by the Min. and Sci. Press, 32 pp., **1916.****

Tungsten, Murray, Idaho, by R. R. Goodrich and N. E. Holden: Am. Inst. Min. Eng. Bull. 128, p. 1173, **1917**: Am. Inst. Min. Eng. Trans., vol. 58, p. 224, **1917.**§

Genesis of the Success zinc-lead deposit, Coeur d'Alene district, Idaho, by J. B. Umpleby: Econ. Geology, vol. 12, pp. 138-153, Feb.-March, **1917.**§

Flotation in the Coeur d'Alene, by C. T. Rice: Eng. and Min. Jour., vol. 105, pp. 707-716, April 20, **1918.**§

Differential flotation of lead and zinc, by W. L. Ziegler: Eng. and Min. Jour., vol. 105, pp. 741-742, April 20, **1918.**§

Recovering caved stopes in narrow veins, by C. T. Rice: Eng. and Min. Jour., vol. 105, pp. 1069-1075, June 15; vol. 106, pp. 1-7, July 6; vol. 106, pp. 243-248, Aug. 10, **1918.** (Hecla mine.)§

Differential flotation at Wallace, by C. T. Rice: Eng. and Min. Jour., vol. 106, p. 482, Sept. 14, **1918.**§

Driving and timbering transfer chutes, by C. T. Rice: Eng. and Min. Jour., vol. 106, pp. 881-993, Dec. 7, **1918.** (Hecla mine.)§

The mining districts of northern Idaho, by E. K. Soper: Min. and Sci. Press, vol. 116, pp. 122-124, **1918.***

Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****

A reconnaissance of the Pine Creek district, Idaho, by E. L. Jones, Jr.: U. S. Geol. Survey Bull. 710, pp. 1-36, **1919.**‡

Linarite and leadhillite from Idaho, by E. V. Shannon: Am. Mineralogist, vol. 4, No. 8, pp. 93-94, August, **1919.**§

A preliminary report on the clays of Idaho, by F. H. Skeels: Idaho Bureau of Mines and Geology Bull. 2, **1920.***

The Bunker Hill Enterprise, by T. A. Rickard: Min. and Sci. Press, vol. 120, Jan. 3, Jan. 10, Jan. 24, Feb. 7, Feb. 21, March 6, April 3, April 10, May 15, and May 29, **1920**; vol. 121, Aug. 14, Sept. 4, Sept. 18, **1920.** Also issued in pamphlet form.*

Petrography of some lamprophyric dike rocks of the Coeur d'Alene mining district, Idaho, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 57, pp. 475-495, Sept. 2, **1920.**‡

The Bunker Hill Smelter, by T. A. Rickard: Min. and Sci. Press, vol. 122, Jan. 8, **1921.***

Coeur d'Alene Lake, Idaho, and the overflow lands, by R. W. Davenport: U. S. Geol. Survey Water-Supply Paper 500, **1921.***

Mining methods of Hecla Mining Co., by J. F. McCarthy and C. H. Foreman: Mining and Metallurgy, vol. 4, No. 195, March, **1923**; Am. Inst. Min. Eng. Trans., vol. 72, pp. 319-340, **1925.**§

Mining methods at Bunker Hill & Sullivan mines, by H. M. Childs and S. A. Easton: Mining and Metallurgy, vol. 4, No. 195, March, **1923**; Am. Inst. Min. Eng. Trans., vol. 72, pp. 305-318, **1925.**§

Geology and ore deposits of Shoshone County, Idaho, by J. B. Umpleby and E. L. Jones, Jr.: U. S. Geol. Survey Bull. 732, **1923.***

Summary of Hecla reconstruction, by E. L. Wood: Mining and Metallurgy, vol. 5, No. 210, June, **1924.**§

Reconstruction methods at the Hecla mine, by A. C. Stevenson: Mining and Metallurgy, vol. 5, No. 210, June, **1924.**§

History of the Hecla mine, Burke, Idaho, by J. F. McCarthy: Mining and Metallurgy, vol. 5, No. 210, June, **1924.**§

Hindered settling classification in relation to table concentration of Idaho lead-zinc ores, by A. W. Fahrenwald: U. S. Bureau of Mines, R. I. No. 2618, June, **1924.****

The Osburn fault, Idaho, by J. B. Umpleby: Jour. Geology, vol. 32, No. 7, October-November, **1924.**§

The Bunker Hill smelter, by F. M. Smith: Mining Truth, vol. 9, pp. 2-4, Dec. 1, **1924.**§

Notes on western lead smelters, by A. B. Parsons: Eng. and Min. Jour., vol. 119, pp. 876-883, May 30, **1925.** (Bunker Hill smelter.)§

Deformation in ores, Coeur d'Alene district, Idaho, by W. A. Waldschmidt: Econ. Geology, vol. 20, pp. 573-586, September-October, **1925.**§

Big silver-lead producer in Idaho (Hecla mine), by W. E. Carr: Compressed Air Mag., vol. 30, pp. 1375-1379, September, **1925.**§

Mining methods of the Morning mines, by Frederick Burbidge: Am. Inst. Min. Eng. Trans., vol. 72, pp. 341-344, **1925.**§
Bunker Hill & Sullivan M. & C. Co.'s South mill, by R. S. Handy: Idaho Twenty-seventh Ann. Rept. Min. Industry, **1925.****
Hecla Mining Company's mill, by W. L. Zeigler: Idaho Twenty-seventh Ann. Rept. Min. Industry, **1925.****
Tamarack & Custer Cons. Min. Co.'s mill: Idaho Twenty-seventh Ann. Rept. Min. Industry, **1925.****
Gold Hunter Mines, Inc., mill, by J. E. Quinlan: Idaho Twenty-seventh Ann. Rept. Min. Industry, **1925.****
Federal Mining & Smelting Co., Morning mill: Idaho Twenty-seventh Ann. Rept. Min. Industry, **1925.****
Constitution M. & M. Co.'s mill, by W. P. White: Idaho Twenty-seventh Ann. Rept. Min. Industry, **1925.****
Federal Mining & Smelting Co., Page mill, by H. G. Washburn: Idaho Twenty-eighth Ann. Rept. Min. Industry, **1926.***
Callahan Zinc-Lead Co., Galena mill: Idaho Twenty-eighth Ann. Rept. Min. Industry, **1926.***
Concentrating lead-silver ore at Hecla mine, by W. L. Zeigler: Eng. and Min. Jour., vol. 122, pp. 444-450, Sept. 18, **1926.**§
The conduct and value of mine rescue stations, by K. T. Sparks: Min. Con. Jour., vol. 12, No. 6, pp. 452-456, June, **1926.**§
Solving a problem in silver-lead ore concentration (Wardner), by E. W. Ellis: Eng. and Min. Jour., vol. 122, pp. 815-816, Nov. 20, **1926.**§
Some Coeur d'Alene geology, by J. E. Berg: Mining and Metallurgy, vol. 8, July, **1927.**§
Operating methods at the Morning mine, by C. E. Wethered and S. H. Fairweather: Mining and Metallurgy, vol. 8, July, **1927.**§
Milling practice at Morning mill, by M. P. Dalton and G. S. Price: Mining and Metallurgy, vol. 8, July, **1927.**§
The Hecla flotation plant, by W. L. Ziegler: Mining and Metallurgy, vol. 8, August, **1927.**§
Concreting the Morning shaft, by J. H. Johnson: Eng. and Min. Jour., vol. 124, pp. 285-288, Aug. 20, **1927.**§
The Federal Mining and Smelting Company Page mill, by H. G. Washburn: Min. Con. Journal, vol. 13, pp. 729-730, September, **1927.**§
Galena flotation concentrator, Lake Gulch, Idaho, by W. L. Ziegler: Am. Inst. Min. Eng. Technical Publication No. 8-B. 7, August, **1927**; Flotation practice, Am. Inst. Min. Eng., pp. 182-184, **1928.**§
Flotation practice in the Coeur d'Alene district, Idaho, by A. W. Fahrenwald: Am. Inst. Min. Eng. Technical Publication No. 1-B. 1, July, **1927**; Min. Con. Jour., vol. 13, pp. 699-704, September, **1927**; Flotation practice, Am. Inst. Min. Eng., pp. 107-132, **1928.**§
Concentration of lead-silver ore at Hecla mine, Gem, Idaho, by W. L. Ziegler: Am. Inst. Min. Eng. Technical Publication No. 7-B. 6, August, **1927**; Min. Con. Jour., vol. 13, pp. 683-684, **1927**; Flotation practice, Am. Inst. Min. Eng., pp. 175-181, **1928.**§
The Sullivan electrolytic zinc plant of Sullivan Mining Co., by U. C. Tainton: Idaho Twenty-ninth Ann. Rept. Min. Industry, **1927.***
Safety first at the Bunker Hill mine, by H. M. Childs: Min. Con. Journal, vol. 14, pp. 51-56, January, **1928.**§
Mining methods of the Hecla mine, by C. H. Foreman: Min. Con. Journal, vol. 14, pp. 381-383, June, **1928.**§
History of the Hecla mine; pt. 1, by J. F. McCarthy, Compressed Air Mag., vol. 33, pp. 2447-2449, June, **1928**; pt. 2, by E. L. Wood, Compressed Air Mag., vol. 33, pp. 2473-2475, July, **1928**; pt. 3, by A. C. Stevenson, Compressed Air Mag., vol. 33, pp. 2507-2509, August, **1928.**§
The Sullivan electrolytic zinc plant, by U. C. Tainton: Eng. and Min. Jour., vol. 126, pp. 856-860, Dec. 1, **1928.**§
New electrolytic zinc plant of Sullivan Mining Company, by R. M. Miller: Min. Con. Journal, vol. 15, pp. 70-74, January, **1929.**§

Mining practice at Bunker Hill & Sullivan, by U. E. Brown: Min. Con. Journal, vol. 16, pp. 21-24, January, **1930.**§
Milling practice at the Morning mill, by M. P. Dalton and G. S. Price: Min. Con. Journal, vol. 16, pp. 25-26, January, **1930.**§
Mining methods and costs at the Hecla and Star mines, Burke, Idaho, by C. H. Foreman: U. S. Bureau of Mines I. C. 6232, February, **1930.****
Mining methods at the Morning mine of the Federal Mining and Smelting Company, Mullan, Idaho, by C. E. Wethered and L. J. Coady: U. S. Bureau of Mines I. C. 6238, February, **1930.****
Sequence of ore deposition in north Idaho, by A. L. Anderson: Econ. Geology, vol. 25, pp. 160-175, March-April, **1930.****
Vertical transportation in the Coeur d'Alenes, by A. C. Stevenson: Mining and Metallurgy, vol. 11, pp. 243-246, May, **1930.****
Timbering at the Hecla mine, by A. S. Corsun: Mining and Metallurgy, vol. 11, pp. 382-384, August, **1930.****
Milling methods and costs at the northern Idaho mills of the Bunker Hill and Sullivan Mining and Concentrating Co., by R. S. Handy: U. S. Bureau of Mines I. C. 6314, August, **1930.****
Mining methods at the Page mine of the Federal Mining and Smelting Co., Page, Idaho, by J. E. Berg: U. S. Bureau of Mines I. C. 6372, November, **1930.****
Mine ventilation in the Coeur d'Alene mining district, by G. E. McElroy: U. S. Bureau of Mines I. C. 6382, January, **1931.****
Mining methods of the Bunker Hill and Sullivan Mining and Concentrating Co., Kellogg, Idaho, by U. E. Brown: U. S. Bureau of Mines I. C. 6407, January, **1931.****
The Bunker Hill & Sullivan Mining and Concentrating Co., by J. W. Gwinn: Min. Con. Journal, vol. 17, pp. 600-602, November, **1931.****
Mining methods at the Bunker Hill, by J. W. Gwinn and U. E. Brown: Min. Con. Journal, vol. 17, pp. 603-608, November, **1931.****
Milling practice at the Bunker Hill & Sullivan, by J. W. Gwinn and R. S. Handy: Min. Con. Journal, vol. 17, pp. 609-617, November, **1931.****
The Bunker Hill smelter, by H. F. Beasley et al.: Min. Con. Journal, vol. 17, pp. 618-623, November, **1931.****
Electrolytic zinc plant of the Sullivan Mining Co., by W. G. Woolf and R. M. Miller: Min. Con. Journal, vol. 17, pp. 624-627, November, **1931.****
Industrial welfare, by J. W. Gwinn: Min. Con. Journal, vol. 17, pp. 630-632, November, **1931.****
Workmen's compensation, by H. R. McBride: Min. Con. Journal, vol. 17, p. 632, November, **1931.****
The Jack Waite mine, by J. R. Turner: Min. Con. Journal, vol. 17, pp. 671-673, December, **1931.****

TETON COUNTY

Teton is one of the southeastern counties, being bounded on the east by the State of Wyoming, on the south by Bonneville County, on the west by Madison County, and on the north by Fremont County. Containing an area of but 463 square miles, it is the second smallest county in the State. The 1930 census accredited it with a population of 3,573 or 7.7 persons to the square mile, the larger part of which is located in the Teton River valley. Practically all the county is farming land, and the principal industries are wheat, potato and stockraising.

The county is served by the Teton State highway, good county roads, and the Ashton-Victor branch of the O. S. L. Railroad. Driggs is the largest town and county seat.

The principal mineral resources of Teton County are coal, phosphate rock, natural gas, limestone, and asbestos; and there are excellent possibilities for the discovery of petroleum. This county is one of the few in the State in which coal occurs in commercial quantity. Compared with the coal

produced at Rock Springs, Wyoming, it is equal in quality and similar in appearance. As well as being of excellent quality for domestic and industrial purposes, it is especially adaptable for powdered coal.

The principal coal-bearing area is the Horseshoe district, seven miles west of Driggs. This district has never been sufficiently developed to prove the number or extent of the coal beds. Those which have been proved vary from one to eleven feet in thickness and repose at an angle of approximately 45 degrees. The Horseshoe district has been examined by the U. S. Geological Survey and by the U. S. Bureau of Mines in cooperation with the Idaho Bureau of Mines and Geology. The reports issued by these organizations are listed in the bibliographies, to which the reader is referred for complete descriptions, analyses, and tonnage estimates.

1931 Activities

The Grand Teton Oil Co., which is one of the principal companies in the State engaged in developing the oil and gas resources, was active throughout a large part of the year. Its Blevins No. 1 well was extended approximately 750 feet; the well was then underreamed and casing set to a depth of 3,100 feet; its Bevan No. 1 well was extended 350 feet. In addition to the foregoing a well was drilled for water and pumping equipment installed. This company's drilling machinery is steam-driven, the power being derived from coal obtained from a near-by mine.

The Gem State Coal Mining Co., a new organization which obtained the property formerly owned by the Teton Coal Co., late in the year commenced rehabilitating the main operating tunnel. Press reports were to the effect that the mine was to be operated on a community basis.

Lessees at the property of the Idaho Coal Mining Co. produced and sold a small tonnage of coal, which was delivered from a surface bin directly to the trucks and wagons of the purchaser. The Superior Coal Mining Co. employed a few men on development work during the summer.

GEM STATE COAL MINING CO.

Office: Idaho Falls. **Officers:** H. Anderson, Pres.; A. H. Wilkie, Sec., both of Idaho Falls. **Inc.:** Oct. 6, 1931. **Capital:** 1,000,000 shares; par value $1; 475,000 shares issued. **Property:** Brown Bear group; 1240 acres of patented land, Horseshoe dist.; Sam. **Development:** By an inclined shaft 650 ft. long and a 5400-ft. crosscut. **Plant:** Steam-driven hoist; 2 steam-driven compressors; tipple capable of handling 1000 tons in 24 hours. **Mineral sought:** Coal. **Remarks:** A new organization on the property formerly owned by the Teton Coal Co. Late in the year work was started in rehabilitating the main operating tunnel. Press reports were to the effect that the mine was being operated on a community basis.

GRAND TETON OIL CO.

Office: Earl Bldg., Idaho Falls. **Officers:** Geo. W. Edgington, Pres., Idaho Falls; Leo F. Smith, Sec., Seattle, Wash. **Inc.:** Aug. 9, 1928. **Capital:** 250,000 shares; par value $1; April 12, 1930, increased to 1,000,000 shares; 786,000 shares issued. **Property:** Oil and gas lease on 13,000 acres patented and government land lying 11 miles west of Driggs. **Development:** Blevins No. 1 well, 3100 ft. deep; Bevan No. 1 well, 1815 ft. deep. **Plant:** 2 complete well-drilling rigs and equipment. **Mineral sought:** Oil and gas. **Men employed:** Average, 11. **Remarks:** This organization, in 1929, acquired the holdings of the Tieton Land & Leasing Co. and its equipment and a large additional acreage, installed additional well-drilling equipment, and started sinking two wells known as Blevins No. 1 and Bevan No. 1. During 1931 Blevins No. 1 was extended 750 ft. and Bevan No. 1, 350 ft. In addition to the foregoing, a well was drilled for water and pumping equipment was installed. The company's drilling machinery is steam-driven, the power being derived from coal obtained from a near-by mine.

IDAHO COAL MINING CO.

Office: Driggs. **Officers:** Peter Mickelsen, Pres., Rexburg; J. F. Miller, Sec., Rigby. **Inc.:** Aug. 13, 1926. **Capital:** 100,000 shares; par value $1. **Remarks:** Failed to file the reports required by law, although three times requested to do so. Lessees produced and sold a small tonnage of coal, which was delivered from a surface bin directly to the trucks and wagons of the purchaser.

SUPERIOR COAL MINING CO.

Office: Pocatello. **Officers:** Roy L. Black, Pres.; S. Hansen, Sec., both of Pocatello. **Inc.:** Dec. 24, 1924. **Capital:** 1,000,000 shares; par value $1; 150,000 shares issued. **Property:** Assignment of prospecting permits and applications for lease on 2400 acres; Horseshoe dist.; Sam. **Development:** By 8 short tunnels, the longest being 520 ft., all of which are drifts on coal veins; and an inclined shaft 158 ft. long. **Plant:** Steam-driven hoist. **Mineral sought:** Coal. **Men employed:** Average, 3. **Remarks:** Principal tunnel extended 200 ft. during the year.

TIETON VALLEY LAND & LEASING CO.

Office: Astoria, Ore. **Officers:** Fred Thiel, Pres.; Charles Anet, Sec., both of Astoria, Ore. **Inc.:** Aug. 11, 1923. **Capital:** 100,000 shares; par value $1; 95,428 shares issued. **Property:** Oil and gas lease on 6000 acres of patented land lying west of Driggs. **Development:** 1325-ft. well. **Plant:** No. 26 Star drilling rig and complete drilling equipment. **Mineral sought:** Oil and gas. **Remarks:** Equipment used and property developed on a royalty basis throughout the year by the Grand Teton Oil Co.

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

A reconnaissance of the phosphate deposits in western Wyoming, by Eliot Blackwelder: U. S. Geol. Survey Bull. 470, pp. 452-481, **1910.***

The Horseshoe Creek district of the Teton Basin coal field, by E. G. Woodruff: U. S. Geol. Survey Bull. 541, pp. 379-388, **1912.***

A geological reconnaissance for phosphate and coal in southeastern Idaho and western Wyoming, by A. R. Schultz: U. S. Geol. Survey Bull. 680, **1918.**‡

A preliminary report on the mining districts of Idaho, by Thomas Varley and others: U. S. Bureau of Mines Bull. 166, pp. 90-103, **1919.***

Oil shale in western Montana, southeastern Idaho, and adjacent parts of Wyoming and Utah, by D. D. Condit: U. S. Geol. Survey Bull. 711, pp. 15-40, **1920.***

Coal in eastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 716, **1920.**‡

Petroleum possibilities of certain anticlines in southeastern Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Bull. 4, **1922.***

The Horseshoe Basin area of the Teton coal field in southeastern Idaho, by G. W. Evans: Idaho Bureau of Mines and Geology Pamphlet 10, **1924.***

VALLEY COUNTY

Valley County occupies the geographical center of the State. It is bounded on the north by Idaho, on the east by Lemhi and Custer, on the south by Boise, and on the west by Gem and Adams counties. It contains an area of 3,779 square miles, and was accredited with a population of 3,488 in the 1930 census, or 0.9 persons to the square mile. The principal industries are farming, stockraising, lumbering and mining. Cascade is the county seat.

The State highway, Payette, extending from Boise to Cascade, McCall, and New Meadows, is the principal highway; the Forest Service highways from Cascade to Landmark and Yellow Pine, and from Landmark into Deadwood Basin and Bear Valley, connecting with the Sawtooth Park and Payette highways, are practically completed and opened to travel. The Nampa-McCall branch of the O. S. L. Railroad is the only railroad in the county.

Isolation and lack of transportation have prevented mineral developme and compelled many valuable properties to lie idle, but the system of fore roads which has been designated and partly constructed, is making many the various sections accessible to travel, and is stimulating mining. Wh these roads are completed the largest undeveloped mineralized area in t State will become available to profitable development and exploitation. T fact that this county had the largest increase (38.2 per cent) in populatio of any county in the State during the interim from the 1920 to the 19 census verifies this prediction.

The principal mineral resources of Valley County are gold (placer an lode), lead, silver, zinc, antimony, mercury, copper, tungsten, molybdenum, and monazite. Many mines containing these minerals are undeveloped but justify the finances to prove their possibilities, and many others warrant investigation. These properties and the possibilities in undiscovered veins present many opportunities to the investor, prospector, and development company.

1931 Activities

Early in the year the Yellow Pine Co. decided that sufficient ore had been developed to warrant the construction of a 150-ton pilot mill. In order that operations in advancing the Monday tunnel would not be interrupted, and as there was a large tonnage available above the level of Meadow Creek tunnel, this camp was selected as the location for the mill. Plans were then made for the year, and a large sum was appropriated to carry them out. By the close of the year the expenditures in new mine work and construction had exceeded those of any other company in the State. The work was carried on by approximately 200 men, divided into 10 crews, under the supervision of Geo. W. Worthington, mine superintendent. Besides directing all of the work successfully and expeditiously, he established a new tunnel-driving record for the United States, by advancing the Monday tunnel 663.6 feet during the month of August. Construction of the mill was started in June; the building was erected, equipment completely installed, and the mill was ready to start at the close of the year. In addition to the mill building, a new cook house, bunk house, and store building were constructed, and the company assisted the employees in building 13 residences. The mine work was divided into four separate operations: crosscutting and drifting on the 200 and 400 foot levels in the shaft in Meadow Creek tunnel; advancing Monday tunnel, Cinnabar tunnel, and Antimony tunnel. The other principal activities included: moving the South Meadow Creek power plant into the mill building, reconstructing the pipe line and constructing a 40-foot earth-filled dam at the intake; covering the 11,000-foot redwood pipe of Meadow Creek power plant to prevent freezing, 4,000 feet being buried and 7,000 feet being boxed, then filled with sawdust and covered; logging and sawing of more than 1,000,000 feet of lumber and cutting and delivering to the yards 80,000 feet of mine timber. The company assisted in constructing 4 miles of road down the river from Yellow Pine for the development of the proposed site of a large hydroelectric power plant and in establishing a public school, which is conducted in the original Meadow Creek camp building.

The Bunker Hill & Sullivan M. & C. Co., at the Hall Interstate-Lost Pilgrim mine, carried on normal operations and production until May, when the mine was closed and a small crew for maintenance purposes only was kept at work. Lead-silver and zinc concentrates were shipped to the company's plant at Kellogg.

New camp buildings were erected and work started on building and installing a 5-stamp mill at the Wordenhoff mine of the Keystone Gold Mines, Inc., in the Edwardsburg district. This company was active throughout the year, and, in addition to the new construction, did a substantial amount of mine development work.

The Mary Jane Mining Co., a new organization, whose property is located near the Merry Blue mine, in the Deadwood district, reported active operations during the summer months and that the construction of a 10-ton mill had been commenced.

The Amalgamated Red Metals Mines Co. was active for three months. The Copper Camp Mining Co. reported the construction of a new camp building.

In the Thunder Mountain district, McRae and Davis maintained work at the Sunnyside mine throughout the summer and operated their mill intermittently. This district, as well as the Big Creek and Edwardsburg districts, received a large amount of attention and examination by those seeking gold-mining enterprises. In selecting districts deemed favorable for the discovery of new gold deposits, in which to conduct geological surveys, the Idaho Bureau of Mines and Geology, in cooperation with the United States Geological Survey, chose these districts and commenced work on a new geological survey.

AMALGAMATED RED METALS MINES CO.

Office: 750 Peyton Bldg., Spokane, Wash. **Officers:** E. D. Hamacher, Pres.-Mgr.; Nan G. Bush, Sec., both of Spokane, Wash. **Inc.:** Filed in Idaho: Apr. 4, 1929. **Capital:** 1,500,000 shares; par value $1; 889,000 shares issued. **Property:** Red Metals group; 8 unpatented claims, Profile Gap, Yellow Pine dist.; Yellow Pine. **Development:** By 4 short tunnels. **Plant:** MINE: Small water-driven compressor; complete mining equipment and camp. MILL: 25-ton concentrator. **Ore:** Silver. **Men employed:** Average, 4. **Remarks:** A small amount of work during the early part of the year.

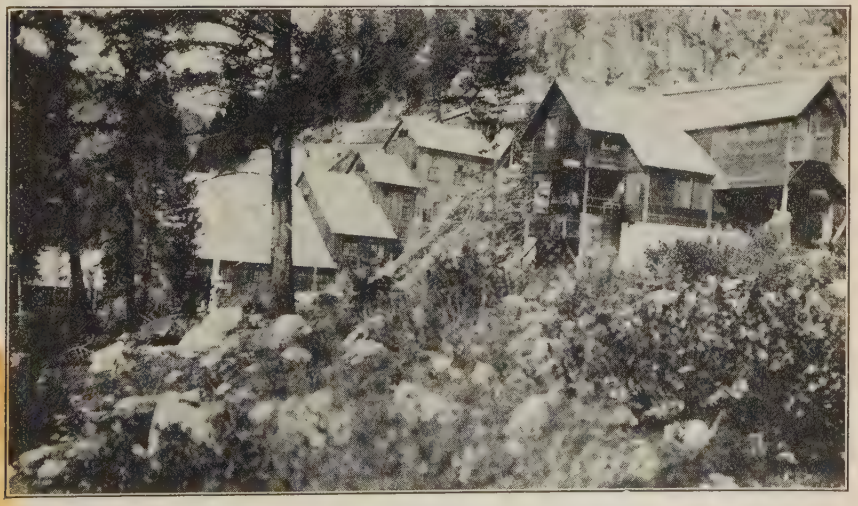
BIG CREEK GOLD MINES, INC.

Office: 618 Idaho Bldg., Boise. **Officers:** C. B. Faraday, Pres., Mountain Home; C. E. Winstead, Sec.; B. F. Goldman, Mgr., both of Boise. **Inc.:** June 9, 1928. **Capital:** 3,000,000 shares; no par value; 2,000,000 shares issued. **Property:** 10 unpatented claims held under lease and option, Edwardsburg dist.; Warren. **Remarks:** Failed to file the reports required by law.

BUNKER HILL & SULLIVAN MINING & CONCENTRATING CO.

(See Shoshone County.)

Officers: F. W. Bradley, Pres., 1022 Crocker Bldg., San Francisco, Calif.; Stanly A. Easton, Mgr., Kellogg; C. Y. Garber, Local Mgr., Bernard, Via Cascade. **Property:** Lease and option on mines owned by Hall Interstate Mining Co. and Lost Pilgrim Mining Co., Deadwood dist.; Cascade, 52 miles; Bernard. **Development:** Principally by the Independence tunnel 7000 ft. long, in which is a 700-ft., 3-compartment raise with 4 intermediate levels; total development, over 13,000 ft. on both groups. **Plant:** MINE: 160-kw. hydroelectric power plant operating under a 520-ft.



MILL AND OFFICE: BUNKER HILL & SULLIVAN M. & C. CO.

head; 375-kw. hydroelectric power plant operating under a 180-ft. head; 385 cu. ft. I-R compressor; storage-battery locomotive haulage; sawmills; complete mining equipment and camp. MILL: 100-ton flotation concentrator. **Ore:** Lead-silver-zinc. **Men employed:** Average, 45. **Remarks:** Normal operations and production were carried on until May, when the mine was closed and a small crew for maintenance purposes only was kept at work. The lead-silver and zinc concentrates were shipped to the company's plant at Kellogg. This enterprise is fully described, with illustrations, in the Thirty-second Ann. Rept. of the Mining Industry of Idaho, for the Year 1930, pages 32 to 40.

CASCADE VALLEY CORPORATION

Office: Fulton Nat'l Bank Bldg., Atlanta, Ga. **Officers:** N. S. Turner, Pres., Covington, Ga.; Ronald Ransom, Sec., Atlanta, Ga. **Inc.:** Apr. 27, 1925. **Capital:** 600 shares; par value $100; all shares issued. **Property:** Sunday group; 7 patented claims, Edwardsburg dist.; Warren.

COPPER CAMP MINING CO.

Office: Warren. **Officers:** W. H. Brittain, Pres., La Grange, Ga.; Mrs. Annie Edwards, Sec.; Wm. A. Edwards, Mgr., both of Warren. **Inc.:** Oct. 19, 1928. **Capital:** 2,500,000 shares; par value $1; 1,456,000 shares issued. **Property:** Copper Camp group; 18 unpatented claims, Edwardsburg dist.; Warren. **Development:** By 5 tunnels, the principal one of which is 545 ft. long. **Ore:** Copper-gold. **Remarks:** Annual labor only, part of which consisted of the construction of a new camp building.

COPPER CLIFFS MINING CO.

Office: 1652 Chautauqua Blvd., Portland, Ore. **Officers:** J. F. Rilance, Pres.; G. H. Weber, Sec., both of Portland, Ore. **Inc.:** Aug. 17, 1931. **Capital:** 25,000 shares; par value $1; no shares issued. **Property:** Copper Cliffs group; 11 unpatented claims, held under lease and option from Profile Tamarack Mines Co., Yellow Pine dist.; Yellow Pine. **Development:** By 1 tunnel 450 ft. long. **Ore:** Copper-gold. **Remarks:** Annual labor only.

DEADWOOD MINING CO., LTD.

Office: Boise. **Officers:** Fred E. Baker, Pres.; Chas W. Mack, Sec., both of Boise. **Inc.:** June 10, 1921. **Capital:** 1,000,000 shares; par value 10c; 306,634 shares issued. **Property:** Deadwood group; 8 unpatented claims, Deadwood dist.; Knox. **Development:** Principally by 1 tunnel 600 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

GOLD FORK MINING CO.

Office: 609 Idaho Bldg., Boise. **Officers:** W. E. Pierce, Pres.; W. Clyde Cox, Sec., both of Boise. **Inc.:** Jan. 18, 1916. **Capital:** 2000 shares; par value $100; all shares issued. **Property:** 1520 acres patented placer ground, Gold Fork dist.; Roseberry. **Ore:** Placer gold. **Remarks:** Idle throughout the year.

GREAT NORTHERN MINES CO.

Officers: Albert Hennessy, Pres., Yellow Pine. **Inc.:** Feb. 7, 1924. **Capital:** 100,000 shares; par value $1; all shares issued. **Property:** 13 quartz and 2 placer claims, unpatented, Yellow Pine dist.; Stibnite. **Development:** By 2 tunnels. **Ore:** Gold. **Remarks:** Property under option to and operated by Yellow Pine Co.

HALL INTERSTATE MINING CO.

Office: Boise. **Officers:** Chas. W. Mack, Sec., Boise. **Inc.:** Oct. 30, 1915. **Capital:** 1,000,000 shares; par value 25c; 155,500 shares issued. **Property:** Hall group; 5 unpatented claims, Deadwood dist.; Knox. **Development:** By 2 tunnels: Independence, 7000 ft. long; Anderson, 3000 ft. long. **Ore:** Lead-silver. **Remarks:** Under lease and option to Bunker Hill & Sullivan M. & C. Co.

HOLCOMB CO., LTD.

Office: Boise. **Officers:** Ario Pardee, Sec., 1600 Walnut St., Philadelphia; Chas. W. Mack, Mgr., Boise. **Inc.:** Apr. 20, 1908. **Capital:** 500,000 shares; par value $1; 169,280 shares issued. **Property:** 16 patented claims, Thunder Mountain dist.; Yellow Pine. **Ore:** Gold.

HURLEY CREEK MINING & MILLING CO.

Office: Cascade. **Officers:** A. W. Nelson, Pres.; J. M. Maloney, Mgr., both of Cabarton; Forest E. Robb, Sec., Cascade. **Inc.:** Aug. 21, 1923. **Capital:** 1,000,000 shares; par value 10c; 761,628 shares issued. **Property:** Maloney group; 10 unpatented claims, unorganized dist.; Cabarton. **Development:** By 3 tunnels: No. 1, 825 ft. long; No. 2, 450 ft. long; No. 3, 200 ft. long. **Ore:** Silver-gold-copper. **Men employed:** Average, 2. **Remarks:** Active throughout the year.

IDAHO CENTRAL MINES CO.

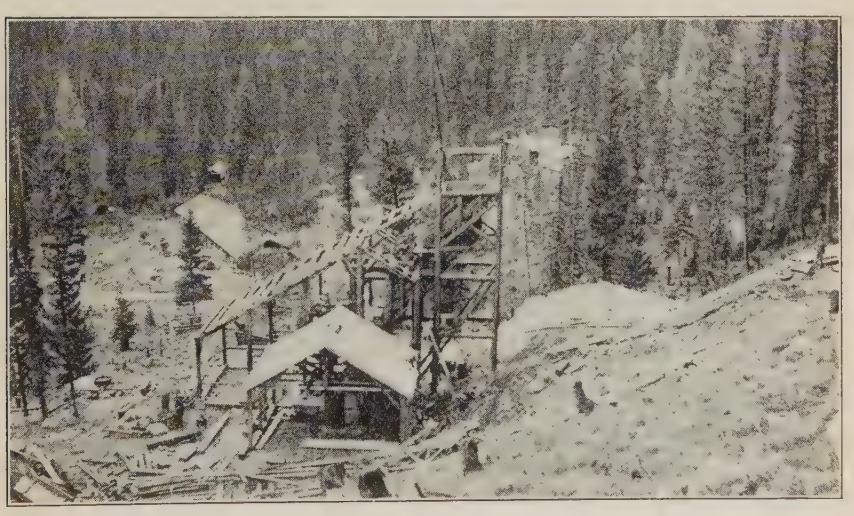
Office: Mabton, Wash. **Officers:** A. L. Livingston, Pres.; W. T. Livingston, Sec, both of Mabton, Wash. **Inc.:** May 12, 1927. **Capital:** 3,000,000 shares; par value $1; 1,645,500 shares issued. **Property:** Idaho Central group; 22 unpatented claims, Thunder Mountain dist.; Warren. **Development:** By 6 short tunnels. **Ore:** Copper-gold.

INDEPENDENCE MINES & POWER CO.

Office: Topeka, Kan. **Officers:** W. H. Davis, Pres.; L. Biscoe, Sec., both of Topeka, Kan. **Inc.:** Apr. 27, 1906. **Capital:** 500,000 shares; par value 5c; 250,000 shares issued. **Property:** 10 patented claims, Big Creek dist.; Yellow Pine. **Development:** By 1 tunnel 500 ft. long. **Ore:** Copper-silver-gold. **Remarks:** Idle for many years.

KEYSTONE GOLD MINES, INC.

Office: 415 Mutual Life Bldg., Seattle, Wash. **Officers:** J. B. Mason, Pres.-Mgr.; George Delius, Sec., both of Seattle, Wash. **Inc.:** Feb. 25, 1929. **Capital:** 2,000,000 shares; par value $1; 1,303,193 shares issued. **Property:** Wordenhoff group; 21 unpatented claims, Edwardsburg dist.; Warren; held under lease and option. **Development:** By 7 tunnels, the principal one of which is over 900 ft. long. **Ore:** Gold. **Men employed:** Average, 10. **Remarks:** New camp buildings were erected and work was started on building and installing a 5-stamp mill. A substantial amount of mine development work was also done.



MILL AND CAMP OF KEYSTONE GOLD MINES, INC.

LOST PILGRIM MINING CO.

Office: Boise. **Officers:** Chas. W. Mack, Sec., Boise. **Inc.:** Nov. 22, 1921. **Capital:** 600,000 shares; par value $1; 355,144 shares issued. **Property:** Lost Pilgrim group; 8 unpatented claims, Deadwood dist.; Knox. **Development:** By 2 tunnels: No. 1, 400 ft. long; No. 2, 300 ft. long; and 1 ver-

tical shaft 40 ft. deep, at the bottom of which is a 70-ft. drift; also by Independence tunnel. Total development, approximately 2500 ft. **Ore:** Silver-lead-zinc. **Remarks:** Under lease and option to Bunker Hill & Sullivan M. & C. Co.

MARY JANE MINING CO., LTD.

Office: New Plymouth. **Officers:** A. B. Moss, Pres., Payette; A. V. Strauss, Sec.; George A. Relyea, Mgr., both of New Plymouth. **Inc.:** Not filed in Idaho. **Capital:** Unknown. **Property:** Mary Jane group; 5 unpatented claims, Deadwood dist.; Cascade. **Development:** By 1 tunnel 385 ft. long. **Ore:** Gold-silver. **Men employed:** Average, 5. **Remarks:** Company reported active operations during the summer and that construction of a 10-ton mill had been commenced.

MERRY BLUE MINES CORPORATION

Office: 411 State Tower Bldg., Syracuse, N. Y. **Officers:** Cornelius Dorr, Jr., Pres.; Daniel Denison, Sec., both of Syracuse, N. Y.; Lee Bunch, Mgr., Boise. **Inc.:** Nov. 14, 1930. **Capital:** 250,000 shares; par value $1; all shares issued. **Remarks:** Failed to file the reports required by law.

PROFILÆ-TAMARACK MINES CO.

Office: Yellow Pine. **Officers:** Geo. Weber, Pres.; Emil P. Slovarp, Sec., both of 1214 Porter Bldg., Portland, Ore.; H. T. Abstein, Mgr., Yellow Pine. **Inc.:** June 18, 1926. **Capital:** 20,000 shares, no par value; increased Apr. 23, 1930, to 5,000,000 shares, par value 25c; 888,932 shares issued. **Property:** 36 unpatented claims, Missouri and Profile creeks, Yellow Pine dist.; Yellow Pine. **Development:** By 7 tunnels, the longest of which is 450 ft. **Ore:** Lead-silver, copper-gold. **Men employed:** Average, 3. **Remarks:** Annual labor only.

PROSPECTORS MINING & DEVELOPING CO., LTD.

Office: 710 Main St., Boise. **Officers:** John R. Clark, Pres., Escalon, Calif.; Oliver G. Clark, Sec.-Treas.; Asaph D. Clark, Mgr., both of Boise. **Inc.:** Apr. 12, 1906. **Capital:** 50,000 shares; par value $1; 26,725 shares issued. **Property:** Golden Ibex group; on Wilson Creek, Thunder Mountain dist.; Meyers Cove. **Development:** Approximately 525 ft. of workings, the principal one of which is a tunnel 150 ft. long. **Ore:** Gold. **Men employed:** Average, 1. **Remarks:** Annual labor only.

RAPID CREEK MINING CO., LTD.

Office: Cascade. **Officers:** F. M. Kerby, Pres., Cascade; E. J. Geelan, Sec., McCall. **Inc.:** Nov. 1, 1928. **Capital:** 1,000,000 shares; par value 10c; 500,000 shares issued. **Property:** Rapid Creek group; 34 unpatented claims; McCall. **Development:** By 2 short tunnels. **Ore:** Gold-silver. **Men employed:** Average, 7. **Remarks:** Active during the summer.

SMITH CREEK HYDRAULIC MINING CO., INC.

Office: P. O. Box 421, Boise. **Officers:** C. W. Arbogast, Pres.; H. M. Nelson, Sec., both of Boise. **Inc.:** Sept. 11, 1928. A reorganization of the Smith Creek Hydraulic Mining Co. **Capital:** 750,000 shares; no par value; 413,867 shares issued. **Property:** Smith Creek group; 18 unpatented placer claims, held under lease and option, Edwardsburg dist.; Warren. **Ore:** Placer gold. **Men employed:** Average, 2. **Remarks:** A small amount of work during the summer.

SOUTH SALMON PLACER MINING CO.

Office: Nampa. **Officers:** C. G. Halliday, Pres.; Windsor J. Lloyd, Sec., both of Nampa. **Inc.:** Jan. 4, 1929. **Capital:** 100,000 shares; par value $1; 65,157 shares issued. **Property:** 190 acres of patented farm land. **Remarks:** Failed to file the reports required by law.

UNITED MERCURY MINES CO.

Office: 605 Eastman Bldg., Boise. **Officers:** J. J. Oberbillig, Pres.-Mgr.; J. F. Koelsch, Sec., both of Boise. **Inc.:** Jan. 20, 1921. **Capital:** 5,000,000 shares; par value 10c; 4,500,000 shares issued. **Property:** 11 patented, 426 unpatented claims, consisting of 3 groups: Hermes, principal ore, cinnabar; Meadow Creek, principal ore, gold; Babbitt Metal, principal ore, antimony; Yellow Pine dist.; Yellow Pine. **Remarks:** All properties under option to Yellow Pine Co., which see.

WARM SPRINGS LODE MINING CORPORATION

Office: Boise. **Officers:** Richard D. Heller, Pres.; H. S. MacMartin, Sec., both of Boise. **Inc.:** Aug. 17, 1931. **Capital:** 100,000 shares; par value $1; 67,500 shares issued. **Property:** 1 unpatented claim, held under lease and option, unorganized dist.; Garden Valley. **Ore:** Lead-silver-zinc. **Men employed:** Average, 2. **Remarks:** A small amount of work late in the year.

YELLOW PINE CO.

Office: 1022 Crocker Bldg., San Francisco, Calif. **Officers:** Fred W. Bradley, Pres.; E. A. Griffen, Sec., both of San Francisco; Geo. W. Worthington, Supt., Stibnite. **Inc.:** Filed in Idaho: May 25, 1928. **Capital:** 200,000 shares; par value $1; 62,605 shares issued. **Property:** Antimony group, 80 claims; Meadow Creek group, 160 claims; Cinnabar group, 240 claims; Yellow Pine Country placer group, 30 claims; 9 of which are patented; held under lease and option from United Mercury Mines Co.; Yellow Pine dist.; Stibnite and Yellow Pine. **Development:** Meadow Creek group: Meadow Creek tunnel, more than 3000 ft. long, 2 inclined raises in which are 3 intermediate levels, and a vertical shaft 400 ft. deep, total development, more than 6000 ft.; Monday tunnel, 6000 ft. long. Cinnabar group: Cinnabar tunnel 2000 ft. long; Antimony tunnel 300 ft. long. **Plants:** MINE: Meadow Creek Camp: 12x10 I-R compressor and Ottumwa hoist, both electrically driven; steel sharpener; oil furnaces; sawmill; complete mining equipment and camp. Monday Camp: One 300 cu. ft. 12x10 I-R compressor; one 620 cu. ft. Imperial type I-R compressor, Roots positive blower, all electrically driven; steel sharpeners; oil furnaces; storage-battery locomotive haulage; complete mining equipment and machine shop; complete and modern mine and camp buildings. MILL: 150-ton fine-grinding flotation followed by cyanidation. POWER: South Meadow Creek hydroelectric plant, 75-kw., driven by Pelton water wheel under a 422-ft. head; Meadow Creek hydroelectric plant, 525-kw., driven by Pelton water wheel under a 520-ft. head, water delivered through an 11,000-ft. 28-inch redwood pipe and a 1620-ft. 24-inch steel penstock; 5 miles of transmission lines. **Ore:** Mercury, gold-silver-antimony. **Men employed:** Average, 200. **Remarks:** This company's expenditures in new mine work and construction exceeded those of any other company in the State. The work was carried on by approximately 200 men, divided into 10 crews, under the supervision of Geo. W. Worthington, mine superintendent. Besides directing all of the work successfully and expeditiously, he established a new tunnel-driving record for the United States, by advancing the Monday tunnel 663.6 ft. during the month of August. Construction of the mill was started in June; the building was erected, equipment completely installed, and the mill was ready to start at the close of the year. In addition to the mill building, a new cook house, bunk house, and store building were constructed, and the company assisted the employees in building 13 residences. The mine work was divided into four separate operations: crosscutting and drifting on the 200 and 400-ft. levels in the shaft in Meadow Creek tunnel; advancing Monday tunnel, Cinnabar tunnel, and Antimony tunnel. The other principal activities included: moving the South Meadow Creek power plant into the mill building, reconstructing the pipe line and constructing a 40-ft. earth-filled dam at the intake; covering the 11,000-ft. redwood pipe of Meadow Creek power plant to prevent freezing, 4000 ft. being buried and 7000 ft. being boxed, then filled with sawdust and covered; logging and sawing of more than 1,000,000 ft. of lumber and cutting and delivering to the yards of 80,000 ft. of mine timber. The company assisted in constructing 4 miles of road down the river from Yellow Pine for the development of the proposed site of a large hydroelectric power plant and in establishing a public school, which is conducted in the original Meadow Creek camp building. For a complete description of this enterprise see pages 32 to 40.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Baker Pl.	Deadwood	Wm. Baker	Cascade
Boyle Gr.	Yellow Pine	Cy Boyle	Yellow Pine
Buckeye et al.	Edwardsburg	Wm. Mitchell	Meyers Cove
Call Gr.	Yellow Pine	Ray Call	Yellow Pine
Cascade	Yellow Pine	Mike Popovich	Yellow Pine
Copper King	Yellow Pine	Crosby Brewer	Warren
Crater Lake	Yellow Pine	Wm. Lockpitch	Yellow Pine
Dewey	Thunder Mt.	R. A. Davis, Jr.	Nampa
Ellis Gr.	Deadwood	Jas. Ellis	Knox
Gold Fork Meadows Gr.	Unknown	W. H. Shane	Emmett
Gold Reef	Deadwood	Edw. Moran	Knox
Gold Ridge et al.	Yellow Pine	H. B. Abstein	Yellow Pine
Golden Gate Gr.	Yellow Pine	Mark Campbell	Yellow Pine
Golden Way Gr.	Big Creek	Geo. W. Laufer	Yellow Pine
Gum Boot et al.	Edwardsburg	E. M. Hussey et al.	Cascade
Hard Rock Gr.	Deadwood	Clay Kalfus	Knox
Hill Top et al.	Unorganized	Nick Randa	Donnelly
Homestake	Yellow Pine	Albert Hennessy	Cascade
Independence	Edwardsburg	J. B. Eldridge	Boise
Jansen Gr.	Edwardsburg	Jansen Bros.	Warren
Keystone Gr.	Deadwood	Mitchell Jeannott	Pioneerville
Lake City Pl.	Lake City	Jacob Storer	McCall
Link	Deadwood	Bedan Davis	Cascade
Lucky Strike	Hurdy Cr.	D. J. Cain	Cascade
Ludwig Gr.	Edwardsburg	Anthony Ludwig	Warren
Maxwelton	Yellow Pine	Boyle & Holum	Yellow Pine
Merry Blue Gr.	Deadwood	J. Goecke	Cascade
Muck Flats et al.	Unorganized	J. H. Schlehuber	Cambridge
Pathfinder Gr.	Profile	Crosby Brewer	Warren
Pioneer	Yellow Pine	A. C. Behne	Yellow Pine
Profile Gap Gr.	Profile	Sam Wilson	Yellow Pine
Ramey Ridge	Edwardsburg	James Hand	Warren
Red Metal	Profile	Chas. Ellison Est.	Yellow Pine
Rubarbe Pl.	Yellow Pine	Vernon White	Yellow Pine
Ruby Hill	Lake City	L. L. Alsager	Emmett
Silver Blossom Gr.	Unknown	E. T. Horine	Cascade
Silver Shield	Hurdy Cr.	Charles Hardin	Cabarton
Smith Cr. Gr.	Edwardsburg	John Routsen	Warren
Snow Shoe	Big Creek	Jacob Jansen	Warren
Sparkling Spgs. Gr.	Unorganized	O. D. Bradbury	Yellow Pine
Stadium	Yellow Pine	Kennedy and Elliott	Yellow Pine
Sunday et al.	Edwardsburg	Wm. A. Edwards	Yellow Pine
Sunnyside	Thunder Mt.	Dan McRae	McCall
Taylor Ramby 1, 2, 3	Deadwood	Harold Taylor	Cascade
Thomson et al.	Edwardsburg	W. G. Thomson	Vale, Ore.
Union Gr.	Unorganized	J. L. Tyson et al.	Cabarton
Valley Gr.	Deadwood	Lee Bunch et al.	Boise
Warm Spring	Unorganized	E. H. Heller	Cascade

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey Twentieth Ann. Rept., pt. 3, pp. 75-256, **1900.***

Thunder Mountain and Mackay, Idaho, by R. N. Bell: Min. and Sci. Press, vol. 84, p. 62, Feb. 1, **1902.***

Geology of Thunder Mountain and central Idaho, by R. N. Bell: Eng. and Min. Jour., vol. 73, pp. 791-793, June 7, **1902.**§

Facts about Thunder Mountain, by R. N. Bell: Eng. and Min. Jour., vol. 74, pp. 273-275, Aug. 30, **1902.**§

Thunder Mountain, by W. E. L'Hame: Mines and Minerals, vol. 21, p. 558, July, **1901**; and vol. 24, pp. 207-209, December, **1903.***

Central Idaho gold district, by S. P. Jellum: Northwest Min. News, vol. 3, pp. 83-91, 107-114, 134-139, **1908**; vol. 4, pp. 2-6, 31-37, 66-73, **1909.***

Big Creek gold district, Idaho, by R. N. Bell: Eng. and Min. Jour., vol. 94, pp. 891-892, Nov. 9, **1912.**§

Quicksilver and antimony discoveries in central Idaho, by R. N. Bell: Idaho Mining Dept. Bull. 1, **1918.***

Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****

Geology of the Yellow Pine cinnabar mining district, Idaho, by E. S. Larsen and D. C. Livingston: U. S. Geol. Survey Bull. 715, **1920.***

A reconnaissance in south-central Idaho embracing Thunder Mountain, Big Creek, Stanley Basin, Sheep Mountain, and Seafoam districts, by J. B. Umpleby and D. C. Livingston: Idaho Bureau of Mines and Geology Bull. 3, pp. 3-12, **1920.****

Antimony and quicksilver deposits in the Yellow Pine district, Idaho, by F. C. Schrader and C. P. Ross: U. S. Geol. Survey Bull. 780, pp. 137-167, **1926.**‡

Ore deposits in Tertiary lava in the Salmon River Mountains, Idaho, by C. P. Ross: Idaho Bureau of Mines and Geology Pamphlet 25, **1927.***

WASHINGTON COUNTY

Washington is one of the southwestern counties, adjoining and lying north of Payette and Gem counties, east of Gem, and east and south of Adams County. The Snake River, which flows north, forms the entire western boundary. The county contains an area of 1,479 square miles, and was accredited with a population of 7,962 in the 1930 census. It is primarily an agricultural and stockraising community; that part which occupies the Snake River Valley is intensively cultivated, and is the location of the larger part of the population. Weiser is the county seat.

The North and South highway extends from the southern to the northern boundary and is situated about in the geographical center. Branch roads leading to all the settlements are maintained by the county; these are kept in good repair and open to travel the larger part of the year. The county is served by three railroads, the Pacific and Idaho Northern, which extends from Weiser to New Meadows; the main line of the O. S. L. Railroad, and the Huntington-Robinette, Oregon, branch of the same road.

The principal mineral resources are silver, copper, gold, lead, zinc, manganese, diatomaceous earth, pyrites, gypsum, clay, and garnet, practically all of which occur in the three mining districts—Washington, Cuddy Mountain, and Heath—the principal of which is the Washington, or Mineral, district; and natural gas near Weiser. At one time the Mineral district was a large producer of silver; two blast furnaces were in operation, and the camp of Mineral was a goodsized town; but it has been deserted for many years, the smelters have been dismantled, and the district has almost reverted to its primitive condition. Nearly all the deposits are high-grade silver-copper ores, rather complex, and in some mines partly oxidized, but amenable to modern flotation methods. Many of the deposits in this district are extensive, a large tonnage of ore is available, and there appears to be no reason why the district should not be receiving more attention than it has during the past few years, as there are many properties that are worthy of investigation and development. Large deposits of pyrites and disseminated copper ore also occur in this district.

1931 Activities

The wide publicity given to the encountering of natural gas by the Crystal Dome Oil & Gas Co. in 1930 and the operations of the Ohio Oil Co. at the Crystal Dome property during 1931 attracted a large amount of attention to this county and resulted in the organization of many new companies, although none of them commenced drilling operations.

The gold resources of the Cuddy Mountain district received a small amount of attention during the summer, but the Mineral district, the principal product of which is silver, was idle throughout the year.

CRYSTAL DOME OIL & GAS CO.

Office: First Security Bank Bldg., Boise. **Officers:** B. P. Kramlich, Pres.; Charles F. Reddoch, Sec., both of Boise. **Inc.:** Aug. 8, 1929. **Capital:** 6000 shares; par value $25; 3953 shares issued. **Property:** Oil and gas leases on 23,000 acres near Weiser. **Development:** By a 12-in. well 1865 ft. deep. **Mineral sought:** Oil and gas. **Remarks:** Property held by Mountain States Oil & Gas Co. See Payette County.

CUDDY MOUNTAIN GOLD MINING CO.

Office: 103 Park Ave., New York City. **Officers:** J. N. Bishop, Pres.; W. S. Gordon, Sec., both of New York City; W. E. Freehafer, Mgr., Council. **Inc.:** Mar. 27, 1926. **Capital:** 225,000 nonassessable common shares, 75,000 preferred shares, par value of each $1; no shares issued. **Property:** Cuddy Mountain group; 20 unpatented claims, Cuddy Mountain dist.; Council. **Development:** By 2 tunnels: No. 1, 800 ft. long; No. 2, 250 ft. long. **Plant:** Sawmill; small steam-driven amalgamation mill; complete mining equipment and camp. **Ore:** Gold. **Men employed:** Average, 3. **Remarks:** Active throughout the summer.

GOLD BOND DEVELOPMENT CO.

Office: Weiser. **Officers:** J. M. DeLay, Pres.; Clarence O. Starcher, Sec., both of Weiser. **Inc.:** Oct. 10, 1931. **Capital:** 5000 shares; par value $100; 3500 shares issued. **Property:** Oro Hondo group; 4 unpatented claims, unorganized dist.; Weiser. **Development:** By 1 tunnel 445 ft. long. **Ore:** Gold.

IDAHO MINERAL MINING CO.

Office: Goldfield, Nev. **Officers:** A. I. D'Arcy, Pres.-Mgr.; H. G. McMahon, Sec., both of Goldfield, Nev. **Inc.:** Nov. 22, 1929. **Capital:** 1,000,000 shares; par value 10c; 5000 shares issued. **Property:** Darris, Silver Still, and Enterprise groups; 2 patented, 21 unpatented claims held under lease and option, Mineral dist.; Home, Ore. **Development:** Darris group: Principally by 1 tunnel 350 ft. long. **Plant:** Gas-driven compressor; complete mining equipment. **Ore:** Silver. **Remarks:** This company is a subsidiary of the Goldfield Deep Mines Co. of Nevada. Idle.

IDAHO-OREGON COAL MINING CO.

Office: 1018 Idaho St., Boise. **Officers:** A. E. Price, Pres.-Mgr.; A. Affleck, Sec., both of Boise. **Inc.:** Nov. 5, 1920. **Capital:** 100,000 shares; par value $1; 68,000 shares issued. **Property:** Government prospecting permit on 1282 acres near Cobb Siding, Weiser. **Development:** By 1 tunnel 500 ft. long. **Mineral sought:** Coal.

INDIAN HEAD CALCITE CO.

Office: Ontario, Ore. **Officers:** W. J. Weese, Pres.; Ontario, Ore.; M. A. Biggs, Sec.; M. P. Tonning, Mgr., all of Ontario, Ore. **Inc.:** May 3, 1930. **Capital:** 200,000 shares; par value $1; no shares issued. **Property:** 3 unpatented claims, unorganized dist.; Cobb. **Plant:** An oil-driven compressor and complete mining equipment. **Mineral sought:** Calcite. **Remarks:** Failed to file the reports required by law.

MIDVALE OIL & GAS CO.

Office: Weiser. **Officers:** C. J. Whittaker, Pres., Midvale; E. R. Coulter, Sec., Weiser. **Inc.:** Feb. 24, 1931. **Capital:** 50,000 shares; par value $1; 5 shares issued. **Remarks:** This company holds oil and gas leases on 8000 acres of land near Midvale.

MOUNTAIN STATES OIL & GAS CO.

Office: Weiser. **Officers:** Willard Scowcroft, Pres., Ogden, Utah; John T. Shepard, Sec., Weiser. **Inc.:** Oct. 14, 1930. **Capital:** 2,000,000 shares; par value $1; 1,528,687 shares issued. **Property:** Oil and gas leases in Payette and Washington counties and an operating agreement with the Crystal Dome Oil & Gas Co. **Remarks:** See Payette County.

SILVER STILL MINING CO.

Office: Weiser. **Officers:** John G. Still, Pres., Huntington, Ore.; E. R. Coulter, Sec., Weiser. **Inc.:** Aug. 21, 1924. **Capital:** 10,000 shares; par value $1; all shares issued. **Property:** 10 unpatented claims, Mineral dist.; Home, Ore. **Development:** 6 short tunnels, 1 shaft. **Ore:** Silver-copper. **Remarks:** Under option to Idaho Mineral Mining Co.

WEISER GAS & PETROLEUM CO.

Office: Weiser. **Officer:** Ed. R. Coulter, Weiser. **Inc.:** Jan. 17, 1928. **Capital:** 5000 shares; par value $1; 2265 shares issued. **Property:** Oil and gas leases on 6000 acres of land.

NAME OF MINE	MINING DIST.	OWNER	P. O. ADDRESS
Alcorn Gr.	Cuddy Mt.	J. I. Burden	Council
Bay Horse et al.	Washington	U. S. Metals Co.	Huntington, Ore.
Copper Bell Gr.	Washington	J. R. Weaver	Home, Ore.
Copper King Ext.	Heath	H. H. Mack	Baker, Ore.
Cuddy Mt. Gr.	Cuddy Mt.	W. E. Freehafer	Council
Darius Gr.	Washington	Mrs. J. G. Burnham	Home, Ore.
Eagle Gr.	Washington	John G. Still	Huntington, Ore.
Edna May	Heath	Roy Howland	Homestead, Ore.
Egan Gr.	Washington	Emil Melzer Est.	Baker, Ore.
Enterprise Gr.	Washington	Shane & McCorkle	Home, Ore.
Fernwood	Heath	Wm. Ulrich	Huntington, Ore.
Iron Mt. Gr.	Washington	John Seigwein	Weiser
Jonsail	Heath	E. C. Jones	Huntington, Ore.
Keystone	Cuddy Mt.	G. T. Hamill	Fruitvale
Last Chance Gr.	Cuddy Mt.	Frank Peck	Council
L. T. Claim	Cuddy Mt.	L. J. Thibault	Council
Magdalene Gr.	Washington	J. R. Weaver	Home, Ore.
No Business Canon	Cuddy Mt.	Howland & Levander	Fruitvale
Pin Money Gr.	Mineral	F. J. Kennedy	Council
Porcupine Gr.	Cuddy Mt.	J. T. Morris	Council
Raymond	Heath	Paul Raymond, Sr.	Heath
Rinehart Gr.	Cuddy Mt.	Rinehart & Bloomfield	Council
River Bank Gr.	Cuddy Mt.	Earl Kerr	Council
S. & R. Gr.	Cuddy Mt.	Summercamp & Riley	Payette
Sunshine Idaho Gr.	Cuddy Mt.	H. A. Arnold	Council
View of the Valley	Heath	J. H. Schlehuber	Cambridge

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

The gold and silver veins of Silver City, De Lamar, and other mining districts in Idaho, by Waldemar Lindgren: U. S. Geol. Survey Twentieth Ann. Rept., pt. 3, **1900.***

The gold belt of the Blue Mountains of Oregon, by Waldemar Lindgren: U. S. Geol. Survey Twenty-second Ann. Rept., pt. 2, pp. 562, 568, 579, 585, 592, 626, 629, 638, 641 and 752-756, **1901.***

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Oil and gas prospects near Vale, Oregon, and Payette, Idaho, by C. W. Washburne: U. S. Geol. Survey Bull. 431, pp. 26-55, **1909.***

The I. X. L. copper prospect, by R. N. Bell: Eng. and Min. Jour., vol. 108, p. 400, Sept. 6, 1919.§
Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, 1919.**
A preliminary report on the clays of Idaho, by F. H. Skeels: Idaho Bureau of Mines and Geology Bull. 2, 1920.*
The copper deposits of the Seven Devils and adjacent districts, by D. C. Livingston and F. B. Laney: Idaho Bureau of Mines and Geology Bull. 1, 1920.*
Gypsum deposits of the United States, by R. W. Stone and others: U. S. Geol. Survey Bull. 697, pp. 99-100, 1920.*
Oil and gas possibilities of eastern Oregon, by J. P. Buwalda: Oregon Bureau of Mines and Geology, vol. 3, No. 2, 1921.*
A preliminary reconnaissance of the gas and oil possibilities of southwestern and south-central Idaho, by J. P. Buwalda: Idaho Bureau of Mines and Geology Pamphlet 5, 1923.*
A geologic reconnaissance of the Mineral and Cuddy Mountain mining district, Washington and Adams counties, Idaho, by D. C. Livingston: Idaho Bureau of Mines and Geology Pamphlet 13, 1925.**

UNKNOWN MINING AND OIL COMPANIES

Companies whose corporate charters are in good standing, for which information is entirely lacking, and which are not mentioned elsewhere in this report, because they failed to file with the inspector of mines the reports required by law:

COMPANY NAME	OFFICER	P. O. ADDRESS
Black Hawk Mining Co., Inc.	O. A. Giles	Freewater, Ore.
Golden Separation Mining Co., Inc.	Geo. R. Colvin	1203 N. 13th St., Boise
Key Placers Corporation	D. W. Henderson	502 Columbia Bldg., Spokane, Wash.
Mineral Products Corporation	Geo. R. Parks	Boise

GENERAL BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

For production statistics, discussions on geology, description of mines and mining districts (location and production), see all volumes of: U. S. Geol. Survey Mineral Resources, U. S. Bureau of Mines Mineral Resources, Reports of Idaho Inspector of Mines, and the Annual Reports of the Director of the United States Mint.

GENERAL REFERENCES

Contributions to economic geology, by S. F. Emmons and E. C. Eckel: U. S. Geol. Survey Bull. 285, 1906.*
Retracement of the boundary line between Idaho and Washington from the junction of Snake and Clearwater rivers northward to the international boundary, by R. B. Marshall: U. S. Geol. Survey Bull. 466, 1911.‡
An old erosion surface in Idaho, by J. B. Umpleby: Jour. Geology, vol. 20, pp. 139-147, 1912.§
The mining districts of the western United States, by J. M. Hill, with a geological introduction, by Waldemar Lindgren: U. S. Geol. Survey Bull. 507, 1912.*

Useful minerals of the United States, by Samuel Sanford and R. W. Stone: U. S. Geol. Survey Bull. 585, pp. 63-68, **1914.***

Useful minerals of the United States, by F. C. Schrader et al.: U. S. Geol. Survey Bull. 624, pp. 115-121, **1917.***

Gold dredging in the United States, by Charles Janin: U. S. Bureau of Mines Bull. 127, **1918.***

An old erosion surface in Idaho: Is it Eocene? by J. L. Rich: Econ. Geology, vol. 13, pp. 120-136, March, **1918.**§

The Idaho peneplain, by Waldemar Lindgren (Discussion): Econ. Geology, vol. 13, pp. 486-488, September, **1918.**§

An old erosion surface in Idaho, by D. C. Livingston (Discussion of Mr. Rich's article): Econ. Geology, vol. 13, pp. 488-492, September, **1918.**§

A preliminary report on the mining districts of Idaho, by Thomas Varley et al.: U. S. Bureau of Mines (in cooperation with the Univ. of Idaho) Bull. 166, **1919.***

Types of Rocky Mountain structure in southeastern Idaho (abstract with discussion by G. W. Stose): Geol. Soc. America Bull., vol. 31, No. 1, pp. 126-127, Mar. 31, **1920.**§

Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon, No. 2398: U. S. Nat. Museum Proc., vol. 60, art. 3, pp. 1-133, **1921.**‡

Igneous geology of southeastern Idaho, by G. R. Mansfield: Geol. Soc. America Bull., vol. 32, pp. 249-266, **1921.**§

Boundaries, areas, geographic centers and altitudes of the United States and the several states, by E. M. Douglas: U. S. Geol. Survey Bull. 689, **1923.** (Idaho, p. 210.)‡

Power resources of Snake River between Huntington, Oregon, and Lewiston, Idaho, by W. G. Hoyt: U. S. Geol. Survey Water-Supply Paper 520C, pp. 27-51, **1924.**‡

Zonal distribution of gold, silver, lead, and copper ores in Idaho, by F. A. Thomson and Fritz McGonigle: Eng. and Min. Jour., vol. 120, pp. 216-218, Aug. 8, **1925.**§

The future of Idaho as a mineral producer, by F. A. Thomson: Min. Con. Journal, vol. 11, pp. 536-538, November, **1925.**§

The minerals of Idaho, by E. V. Shannon: U. S. Nat. Mus. Bull. 131, **1926.**‡

Geological setting of Idaho batholith, by R. H. Beckwith: Pan-Am. Geologist, vol. 45, no. 5, pp. 359-376, June, **1926.**§

Salient features of the geology of south-central Idaho, by C. P. Ross: Washington Acad. Sci. Jour., vol. 18, p. 268, **1928.**§

Mesozoic and Tertiary granitic rock in Idaho, by C. P. Ross: Jour. Geology, vol. 36, No. 8, November-December, **1928.****

The lead industry of Idaho, by S. A. Easton: Min. Con. Journal. vol. 15, p. 842, November, **1929.**§

The mining industry of Idaho, by Stewart Campbell: Min. Con. Journal, vol. 15, pp. 947-949, December, **1929.**§

Cretaceous and Tertiary planation in northern Idaho, by A. L. Anderson: Jour. Geology, vol. 37, November-December, **1929.**§

Old erosion surfaces in southwestern Idaho, by V. R. D. Kirkham: Jour. Geology, vol. 38, No. 7, October-November, **1930.****

Boundaries, areas, geographic centers, and altitudes of the United States and the several states, by E. M. Douglas: U. S. Geol. Survey Bull. 817, **1930.**** (Idaho, p. 237.)

A graphic history of metal mining in Idaho, by C. P. Ross: U. S. Geol. Survey Bull. 821-A, **1930.****

Revision of the Payette and Idaho formations, by V. R. D. Kirkham: Jour. Geology, vol. 39, No. 3, pp. 193-239, April-May, **1931.****

Snake River downwarp, by V. R. D. Kirkham: Jour. Geology, vol. 39, No. 5, pp. 456-482, July-August, **1931.****

Igneous geology of southwestern Idaho, by V. R. D. Kirkham: Jour. Geology, vol. 39, No. 6, pp. 564-591, August-September, **1931.****

A classification of the lode deposits of south-central Idaho, by C. P. Ross: Econ. Geology, vol. 26, No. 2, pp. 169-185, March-April, **1931.****

CINNABAR

U. S. Geol. Survey Mineral Resources, **1917**, pt. 1, pp. 414-415.*

Quicksilver and antimony discoveries in Central Idaho, by R. N. Bell: Idaho Mining Department Bull. 1, **1918.***

Tungsten, cinnabar, manganese, molybdenum, and tin deposits of Idaho, by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, **1919.****

Geology of the Yellow Pine cinnabar mining district, Idaho, by E. S. Larsen and D. C. Livingston: U. S. Geol. Survey Bull. 715, **1920.***

COAL

Description of the Boise quadrangle, by Waldemar Lindgren: U. S. Geol. Survey Geol. Atlas, Folio No. 45, **1898.** (Boise and Gem counties.)*

A geological reconnaissance across the Bitterroot Range and Clearwater Mountains, in Montana and Idaho, by Waldemar Lindgren: U. S. Geol. Survey Prof. Paper 27, pp. 111-113, **1904.** (Clearwater County.)*

Lignite in the Goose Creek district, Cassia County, Idaho, by C. F. Bowen: U. S. Geol. Survey Bull. 531, pp. 252-262, **1911.***

Coal at Horseshoe Bend and Jerusalem Valley, Boise County, Idaho, by C. F. Bowen: U. S. Geol. Survey Bull. 531, pp. 245-251, **1911.***

A geological reconnaissance in southeastern Idaho, by A. R. Schultz and R. W. Richards: U. S. Geol. Survey Bull. 530, p. 281, **1911.** (Bonneville County.)*

The Horseshoe Creek district of the Teton Basin coal field, by E. G. Woodruff: U. S. Geol. Survey Bull. 541, pp. 379-388, **1912.** (Teton County.)*

The Orofino coal field, Clearwater, Lewis, and Idaho counties, Idaho, by C. T. Lupton: U. S. Geol. Survey Bull. 621, pp. 99-108, **1915.***

A geologic reconnaissance for phosphate and coal in southeastern Idaho and western Wyoming, by A. R. Schultz: U. S. Geol. Survey Bull. 680, pp. 64-79, **1918.** (Teton, Bonneville, and Caribou counties.)‡

Preliminary report on the Horseshoe district of the Teton coal basin, southeastern Idaho, by G. W. Evans: A preliminary report on the mining districts of Idaho, by Thomas Varley and others: U. S. Bureau of Mines Bull. 166, pp. 90-103, **1919.** (Teton County.)*

Coal in eastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 716, **1920.** (Fremont, Teton, Madison, and Bonneville counties.)*

The Horseshoe Basin area of the Teton coal fields in southeastern Idaho, by G. W. Evans: Idaho Bureau of Mines and Geology Pamphlet 10, **1924.***

MONAZITE

The monazite sands, by Waldemar Lindgren: Mining districts of Idaho Basin and Boise Ridge: U. S. Geol. Survey Eighteenth Ann. Rept., pt. 3, pp. 677-679, **1898.***

Useful minerals in the black sands of the Pacific slope, by D. T. Day and R. H. Richards: U. S. Geol. Survey Mineral Resources, **1905**, pp. 1175-1258.*

Monazite in Idaho, by D. B. Sterrett: U. S. Geol. Survey Mineral Resources, **1909**, pt. 2, pp. 898-903.*

An occurrence of monazite in northern Idaho, by F. C. Schrader: U. S. Geol. Survey Bull. 430, pp. 184-191, **1909.***

OIL AND GAS

Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, **1902.***

Notes on geology of southwestern Idaho and southeastern Oregon, by I. C. Russell: U. S Geol. Survey Bull. 217, **1903.***

Gas and oil prospects near Vale, Oregon, and Payette, Idaho, by C. W. Washburne: U. S. Geol. Survey Bull. 431, pp. 26-55, **1909.** (Payette County.)*

A geologic reconnaissance for phosphate and coal in southeastern Idaho and western Wyoming, by A. R. Schultz: U. S. Geol. Survey Bull. 680, pp. 79-81, **1918.** (Teton, Bonneville, and Caribou counties.)‡

Oil shale in western Montana, southeastern Idaho, and adjacent parts of Wyoming and Utah, by D. D. Condit: U. S. Geol. Survey Bull. 711, pp. 15-40, **1920.***

Oil and gas possibilities of eastern Oregon, by J. P. Buwalda: Oregon Bureau of Mines and Geology, vol. 3, No. 2, **1921.** (Southwestern Idaho.)*
Petroleum possibilities of certain anticlines in southeastern Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Bull. 4, **1922.***
Oil in Idaho? by K. C. Heald: Am. Assoc. Petroleum Geologists Bull., vol. 6, No. 5, pp. 472-473, September-October, **1922.**§
Oil shale of the Rocky Mountain region, by D. E. Winchester: U. S. Geol. Survey Bull. 729, **1923.**‡
Notes on the geology of eastern Bear Lake County, Idaho, with reference to oil possibilities, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 7, **1923.***
Geology and water resources of the Goose Creek Basin, Cassia County, Idaho, by A. M. Piper: Idaho Bureau of Mines and Geol. Bull. 6, **1923.***
A preliminary reconnaissance of the gas and oil possibilities of southwestern and south-central Idaho, by J. P. Buwalda: Idaho Bureau of Mines and Geology Pamphlet 5, **1923.***
Possibilities of petroleum in Power and Oneida Counties, Idaho, by A. M. Piper: Idaho Bureau of Mines and Geology Pamphlet 12, **1924.****
Geology and oil possibilities of Bingham, Bonneville, and Caribou counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Bull. 8, **1924.****
Oil possibilities of southeastern Idaho, by V. R. D. Kirkham: Mining and Metallurgy, vol. 6, No. 218, Feb., **1925.**§

PHOSPHATE

(Principal references only)

The Bear River formation and its characteristic fauna, by C. A. White: U. S. Geol. Survey Bull. 128, **1895.***
Phosphate deposits in western United States, by F. B. Weeks and W. F. Ferrier: U. S. Geol. Survey Bull. 315, pp. 449-462, **1907.***
Phosphate deposits in western United States, by F. B. Weeks: U. S. Geol. Survey Bull. 340, pp. 441-447, **1908.***
Preliminary report on the phosphate deposits in southeastern Idaho and adjacent parts of Wyoming and Utah, by H. S. Gale and R. W. Richards: U. S. Geol. Survey Bull. 430, pp. 457-531, **1909.***
The fauna of the phosphate beds of the Park City formation in Idaho, Wyoming and Utah, by G. H. Girty: U. S. Geol. Survey Bull. 436, **1910.**‡
Preliminary reports on a portion of the Idaho phosphate reserve, by R. W. Richards and G. R. Mansfield: U. S. Geol. Survey Bull. 470, pp. 371-439, **1910.***
A geologic reconnaissance in southeastern Idaho, by A. R. Schultz and R. W. Richards: U. S. Geol. Survey Bull. 530, pp. 267-284, **1911.***
Geology of the phosphate deposits northeast of Georgetown, Idaho, by R. W. Richards and G. R. Mansfield: U. S. Geol. Survey Bull. 577, **1914.***
Revision of the Beckwith and Bear River formations of southeastern Idaho, by G. R. Mansfield and P. V. Roundy: U. S. Geol. Survey Prof. Paper 98, pp. 75-84, **1916.***
Phosphate deposits in Idaho, by R. N. Bell: Eng. and Min. Jour., vol. 104, pp. 293-294, Aug. 18, **1917.**§
A geologic reconnaissance for phosphate and coal in southeastern Idaho and western Wyoming, by A. R. Schultz: U. S. Geol. Survey Bull. 680, **1918.**‡
Geography, geology, and mineral resources of the Fort Hall Indian Reservation, Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 713, **1920.**‡
Phosphate mine of Anaconda Copper Company, by C. E. Nighman: Idaho Twenty-fifth Ann. Rept., Min. Industry, **1923.***
Phosphate deposits of Idaho and their relation to the world supply, by V. R. D. Kirkham: Am. Inst. Min. Eng. Trans., vol. 71, pp. 308-338, **1925.**§
Geography, geology, and mineral resources of part of southeastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Prof. Paper 152, **1927.****
The Idaho phosphate field, by G. R. Mansfield: Mining and Metallurgy, vol. 9, No. 253, Jan., **1928.**§

SNAKE RIVER GOLD

Sixth Ann. Rept. U. S. Geol. and Geog. Survey Terr., by F. H. Bradley, p. 266, **1873.***

Eleventh Ann. Rept. U. S. Geol. and Geog. Survey Terr., by Orestes St. John, pt. 1, pp. 321-474, **1883.***

Treatment of the fine gold in the sands of Snake River, Idaho, by Thomas Egleston: Am. Inst. Min. Eng. Trans., vol. 18, pp. 597-609, **1889.**§

Snake River gold fields, by Don Maguire: Mines and Minerals, vol. 20, pp. 56-58, September, **1899.***

Hydraulic pumping plant on the Snake River, Idaho, for power irrigation and treatment of gold sands, by John Birkinbine: Am. Inst. Min. Eng. Trans., vol. 30, p. 518, **1900.**§

Gold dredging on Snake River in Idaho, by F. Powell: Eng. and Min. Jour., vol. 70, pp. 395-396, Oct. 6, **1900.**§

Gold in Snake River gravel bars, by W. H. Washburn: Min. and Sci. Press, vol. 81, p. 610, **1900.***

The gold belt of the Blue Mountains of Oregon, by Waldemar Lindgren: U. S. Geol. Survey Twenty-second Ann. Rept., pt. 2, pp. 759-762, **1901.***

Dredging for fine gold in Idaho, by R. N. Bell: Eng. and Min. Jour., vol. 72, pp. 241-242, **1902.**§

The origin of the fine gold of the Snake, by R. N. Bell: Eng. and Min. Jour., vol. 73, pp. 143-144, **1902.**§

The origin of the fine gold in Snake River, Idaho, by J. H. Shockley: Eng. and Min. Jour., vol. 73, pp. 280-281, **1902.**§

Description of the Nampa quadrangle, by Waldemar Lindgren and N. F. Drake: U. S. Geol. Survey Geol. Atlas, Folio No. 103, **1904.***

Useful minerals in the black sands of the Pacific slope, by D. T. Day and R. H. Richards: U. S. Geol. Survey Mineral Resources, **1905**, pp. 1175-1258.*

Investigation of black sands from placer mines, by D. T. Day and R. H. Richards: U. S. Geol. Survey Bull. 285, pp. 150-164, **1906.***

Gold development in central Uinta County, Wyoming, and at other points on Snake River, by A. R. Schultz: U. S. Geol. Survey Bull. 315, pp. 71-88, **1906.***

The gold of the Snake River, by R. N. Bell: Min. and Sci. Press, vol. 94, p. 542, Apr. 27, **1907.***

Fine gold of Snake River, by C. B. Irvine: Min. World, vol. 29, p. 916, **1908.***

A geologic reconnaissance in southeastern Idaho, by A. R. Schultz and R. W. Richards: U. S. Geol. Survey Bull. 530, pp. 282-283, **1911.***

Geology and geography of a portion of Lincoln County, Wyoming, by A. R. Schultz: U. S. Geol. Survey Bull. 543, pp. 121-129, **1914.***

Notes on the fine gold of Snake River, Idaho, by J. M. Hill: U. S. Geol. Survey Bull. 620, pp. 271-294, **1915.***

A geological reconnaissance for phosphate and coal in southeastern Idaho and western Wyoming, by A. R. Schultz: U. S. Geol. Survey Bull. 680, pp. 78-79, **1918.**‡

Annual reports of the Idaho Inspector of Mines, **1899** to **1919.***

1931 METAL PRODUCTION

The total value of the gold, silver, lead, zinc, and copper produced in Idaho in 1931 was $12,938,621.27, a decrease of $9,319,862.07 as compared with that of 1930, which was $22,258,483.14. The production of gold decreased more than 2,000 ounces and that of the other metals has never been less in 30 years. The low production and the low value of lead, silver, zinc, and copper were caused by the world-wide depression, which greatly decreased metal prices, and which caused many companies to curtail production and others to suspend entirely; while the decline in gold production was caused by the closing of two large producers on account of disastrous fires. Excepting Bonner, Camas, Clearwater, and Elmore counties, every metal-producing county witnessed the lowest production in many years. The increase in these counties, excepting Bonner, was from new gold-mining enterprises. The number of producers increased by 77, all of which, with one exception, were small gold-mining operations. These increases are indicative of an expansion in gold mining and of the attention directed to the gold resources of the State.

Shoshone County continued to maintain its position as the principal mining county in the State. As all other counties suffered a greater decline in proportion to the output, its rank in percentage as compared with the rest of the State was higher than in 1930, being 95.03 per cent in 1931 and 91.82 per cent in 1930. Its total production in 1931 was valued at $12,295,656.42 and $20,438,084.32 in 1930. This county was first in the production of lead, silver, zinc, and copper. Boise County was first in the production of gold. All the copper produced in Shoshone County was derived as a by-product from lead, silver, and zinc ores; while Lemhi was the only county to market any copper ore. The respective rank of the principal mining counties in point of total production was: Shoshone, Boise, Valley, Bonner, Idaho, Lemhi, Owyhee, and Blaine.

Gold

The 1931 output of gold was 19,055.74 ounces, valued at $393,882.15, a decrease of 2,018.78 ounces and $43,030.39, as compared with that of 1930, which was 21,137.52 ounces, valued at $436,912.54. This decrease was not as significant as the figures indicate, as there was a large loss in gold recovered as a by-product from lead, silver, zinc, and copper ores, and a loss caused by the closing of the Belshazzar mine of the Idawa Gold Mining Co., the Gold Hill and Iowa mine of the Talache Mines, Inc., and the suspension of the operations of the Idaho Gold Dredging Corporation, the latter two as the result of fires. This decrease was almost overcome by a substantial increase in production from prospectors, small enterprises, and the new dredge of the Idaho Gold Dredging Co., at Warren, in Idaho County.

The respective rank of the leading mining counties in point of gold production was: Boise, Idaho, Lemhi, Valley, Owyhee, Shoshone, Elmore.

The principal gold-producing companies and their respective ranks were: Talache Mines, Inc., Boise County; Idaho Gold Dredging Co., Idaho County; Idawa Gold Mining Co., Idaho Gold Dredging Corporation, Boise County; Bunker Hill & Sullivan M. & C. Co., Valley County; Goldstone Mines Corporation, Lemhi County; Sherman Howe Mining Co., Idaho County; American Gold Dredging Corporation, Owyhee County; F. O. Miiller, Lone Pine mine, Idaho County; Eldorado Gold Mining Co., Lemhi County.

Silver

The output of silver decreased from 9,032,888.57 ounces, with a value of $3,446,408.32, in 1930, to 7,245,719.07 ounces, with a value of $2,079,521.38, in 1931, a decrease of 1,787,169.50 ounces and a decrease of $1,366,886.94 in value. The large decrease in production was caused by the closing of a large number of mines and curtailment in production by most of the largest producers, although the Sunshine Mining Co. in Shoshone County maintained capacity production and continued to be the largest silver-producing company in the State and the second largest in the United States. The great decrease in value was due to the decrease in the price of silver from 38.154 cents per

ounce in 1930 to 28.70 cents per ounce in 1931. The decrease in production is significant also, as it indicates a decrease in the output of lead, zinc, and copper ores from which approximately 70 per cent of the total production of the State is derived. Excepting Bonner County, which recorded a slight increase, all the other counties had a large decrease.

The 1931 silver production in Shoshone County was 7,029,130.19 ounces, valued at $2,017,360.36, as compared with 8,438,208.56 ounces, valued at $3,219,514.11, in 1930. That of Bonner County for the respective years was 86,563.00 ounces, valued at $24,843.58, in 1931, and 84,357.14 ounces, valued at $32,185.62, in 1930. The production of Shoshone County, which was 97.01 per cent of the total for the State, indicates the importance of mining in the Coeur d'Alene district, particularly as Idaho produces approximately one-third of all the silver of the United States.

The order of prominence of the principal silver-producing counties was: Shoshone, Bonner, Valley, Blaine, Boise, Lemhi, Idaho, Custer.

The largest producers in Shoshone County were: Sunshine Mining Co., Bunker Hill & Sullivan M. & C. Co., Hecla Mining Co., Federal Mining & Smelting Co., Golconda Lead Mines, Dayrock Mining Co., Sherman Lead Co., and Sidney Leasing Co. In the other counties, the most important producers were: Bunker Hill & Sullivan M. & C. Co., Valley County; Whitedelf Mining & Development Co. and Hope Mining Co., Bonner County; lessees at the Independence mine of the Federal Mining & Smelting Co., Blaine County.

Lead

The production of lead decreased from 263,599,300 pounds, valued at $14,542,773.34, in 1930, to 206,443,898 pounds, valued at $8,759,414.58, in 1931, being the lowest production, with the exception of one year, and the lowest in value for more than 30 years. The average price of lead in 1931 was 4.243 cents per pound, while in 1930 it was 5.517 cents per pound, thus accounting in part for the large decrease in value.

Shoshone County furnished 98.40 per cent of the State total with a production of 203,137,254.00 pounds, which was 51,041,391 pounds less than the previous year. The mines in all the other counties, excepting Bonner, reported a large decrease.

The importance of Idaho as a lead-producing State, and particularly Shoshone County, is apparent from the fact that Idaho ranks second in the United States and produces approximately one-fourth of the entire output of the Nation.

The order of prominence of the principal lead-producing counties was: Shoshone, Bonner, Valley, Lemhi, Blaine, Boise, Custer.

The Bunker Hill & Sullivan M. & C. Co. maintained its record as the largest lead-producing company in the State, if not in the United States; the Federal Mining & Smelting Co. was second; and the Hecla Mining Co. was third. The other large lead-producing companies in Shoshone County, in their order of prominence, were: Jack Waite Mining Co., Golconda Lead Mines, Sherman Lead Co., Dayrock Mining Co., Sidney Leasing Co., Sunshine Mining Co., Tamarack & Custer Consolidated Mining Co.

The important lead producers in other counties were: Whitedelf Mining & Development Co., Hope Mining Co., Bonner County; lessees at the P-I, Allie, and Latest Out mines at Gilmore, Lemhi County; Bunker Hill & Sullivan M. & C. Co., Valley County.

Zinc

The 1931 production of recoverable zinc decreased almost one-half from that of 1930 and was approximately one-third of the 1929 production. The total for the year was 43,347,237 pounds, valued at $1,577,839.42, as compared with 75,136,539 pounds, valued at $3,423,220.72, in 1930, a decrease of 31,789,302 pounds and $845,381.30. This large decrease was caused by the low price of the metal, which compelled many producers to suspend and others greatly to curtail production. In 1930 the price of zinc averaged 4.556 cents per pound, as compared with the price of 3.64 cents per pound in 1931.

The electrolytic zinc plant at Kellogg, of the Sullivan Mining Co., was operated on approximately one-third capacity throughout the year, and this curtailment was reflected in the total production of the State. The Anaconda Copper Mining Co., of Anaconda, Montana, and the Sullivan Mining Co. purchased the entire State output of zinc concentrate. The metal produced by the Sullivan Mining Co. is the highest grade zinc ever obtained and is sold at a premium in price over any other zinc metal. This fact was further established by the company obtaining a substantial increase in new sales.

Shoshone and Valley were the only counties that produced a marketable zinc product. The production of Valley County was obtained from the Hall Interstate-Lost Pilgrim mine of the Bunker Hill & Sullivan M. & C. Co.

In Shoshone County the principal zinc-producing companies were: Federal Mining & Smelting Co., Bunker Hill & Sullivan M. & C. Co., Sidney Leasing Co., Golconda Lead Mines, Hecla Mining Co., Sullivan Mining Co., Jack Waite Mining Co.

Copper

The output of copper in 1931 was one-half that of 1930 and the lowest of any year since 1903. In addition to the marked decrease in production there was a great decrease in value, due to the decrease in the price of copper, which was 12.982 cents per pound in 1930, as compared with 8.116 cents per pound in 1931. The 1930 production of copper was 3,151,814 pounds, valued at $409,168.49, as compared with 1,576,685 pounds, valued at $127,963.74, in 1931, a decrease of 1,575,129 pounds and $281,204.75 in value. The decrease in production was due to the idleness of all the copper mines and to a decrease in the output of lead, zinc, and silver ores. The only copper produced was associated with these and gold ores and was recovered by the smelters as a by-product.

The order of prominence of the principal copper-producing counties was: Shoshone, Valley, Lemhi, Custer, Boise, Bonner.

Statistics

The production statistics for 1931 are based upon the net recovered metal content of all ores or bullion produced and sold from Idaho mines. The tabulation constitutes the production as reported to the inspector's office; reports have been verified in every possible manner; and no estimates have been used in the compilation. If any error exists in the totals, it is due to unreported production, and as production statements were furnished by all the large producers, the margin of error is very small. Any unreported production would cause these figures to be larger than the amounts set forth, so this compilation represents, as nearly as possible, the correct minimum production.

The values have been figured from the average price of metals for the year, based on New York and St. Louis quotations, as published in the Engineering & Mining Journal.

1931 METAL PRODUCTION BY COUNTIES

Number of Producers				Value
	ADA COUNTY			
4	Gold	33.59	oz.	$ 694.31
	Silver	8.73	oz.	2.51
				$ 696.82
	BLAINE COUNTY			
7	Gold	26.68	oz.	$ 551.48
	Silver	14,960.26	oz.	4,293.59
	Lead	118,360.00	lbs.	5,022.01
	Copper	1,917.00	lbs.	155.58
				$ 10,022.66
	BOISE COUNTY			
36	Gold	10,234.22	oz.	$ 211,541.33
	Silver	11,018.28	oz.	3,162.25
	Lead	31,991.00	lbs.	1,357.38
	Copper	2,674.00	lbs.	217.02
				$ 216,277.98
	BONNER COUNTY			
2	Gold	0.30	oz.	$ 6.20
	Silver	86,563.00	oz.	24,843.58
	Lead	2,083,046.00	lbs.	88,383.64
	Copper	2,484.00	lbs.	201.60
				$ 113,435.02
	CAMAS COUNTY			
5	Gold	137.48	oz.	$ 2,841.71
	Silver	64.90	oz.	18.63
				$ 2,860.34
	CLEARWATER COUNTY			
9	Gold	68.57	oz.	$ 1,417.34
	Silver	96.38	oz.	27.66
	Lead	466.00	lbs.	19.77
	Copper	126.00	lbs.	10.23
				$ 1,475.00
	CUSTER COUNTY			
9	Gold	64.24	oz.	$ 1,327.84
	Silver	5,002.82	oz.	1,435.81
	Lead	11,760.00	lbs.	498.98
	Copper	3,393.00	lbs.	275.38
				$ 3,538.01
	ELMORE COUNTY			
22	Gold	244.00	oz.	$ 5,043.48
	Silver	93.39	oz.	26.80
				$ 5,070.28
	IDAHO COUNTY			
30	Gold	4,893.56	oz.	$ 101,149.89
	Silver	5,258.07	oz.	1,509.07
	Lead	2,648.00	lbs.	112.35
	Copper	1,058.00	lbs.	85.87
				$ 102,857.18

Number of Producers				Value
	JEROME COUNTY			
4	Gold	45.91 oz.		$ 948.96
	Silver	2.76 oz.		0.79
				$ 949.75
	LEMHI COUNTY			
26	Gold	1,040.84 oz.		$ 21,514.16
	Silver	5,664.42 oz.		1,625.69
	Lead	278,335.00 lbs.		11,809.75
	Copper	29,872.00 lbs.		2,424.41
				$ 37,374.01
	NEZ PERCE COUNTY			
3	Gold	33.17 oz.		$ 685.62
	Silver	4.93 oz.		1.41
				$ 687.03
	OWYHEE COUNTY			
12	Gold	711.34 oz.		$ 14,703.40
	Silver	216.87 oz.		62.24
	Lead	4,676.00 lbs.		198.40
	Copper	1,056.00 lbs.		85.70
				$ 15,049.74
	POWER COUNTY			
3	Gold	4.38 oz.		$ 90.53
	Silver	1.83 oz.		0.53
				$ 91.06
	SHOSHONE COUNTY			
35	Gold	672.72 oz.		$ 13,905.12
	Silver	7,029,130.19 oz.		2,017,360.36
	Lead	203,137,254.00 lbs.		8,619,113.69
	Zinc	41,902,483.00 lbs.		1,525,250.38
	Copper	1,478,892.00 lbs.		120,026.87
				$12,295,656.42
	TWIN FALLS COUNTY			
10	Gold	35.16 oz.		$ 726.76
	Silver	169.96 oz.		48.78
				$ 775.54
	VALLEY COUNTY			
8	Gold	734.36 oz.		$ 15,179.22
	Silver	85,730.23 oz.		24,604.58
	Lead	675,425.00 lbs.		28,658.28
	Zinc	1,444,754.00 lbs.		52,589.04
	Copper	49,168.00 lbs.		3,990.47
				$ 125,021.59
	MISCELLANEOUS COUNTIES			
16	Gold	75.22 oz.		$ 1,554.80
	Silver	1,732.05 oz.		497.10
	Lead	99,937.00 lbs.		4,240.33
	Copper	6,045.00 lbs.		490.61
				$ 6,782.84

Number of Producers	STATE TOTALS		Value
241	Gold	19,055.74 oz.	$ 393,882.15
	Silver	7,245,719.07 oz.	2,079,521.38
	Lead	206,443,898.00 lbs.	8,759,414.58
	Zinc	43,347,237.00 lbs.	1,577,839.42
	Copper	1,576,685.00 lbs.	127,963.74
	TOTAL		$12,938,621.27

MISCELLANEOUS MINERALS			
Manganese	521.10 tons	$	6,252.00
Phosphate	68,451.00 tons		239,578.50
Limestone	32,438.00 tons		13,365.00
Coal	1,900.00 tons		5,700.00
TOTAL		$	264,895.50
GRAND TOTAL			$13,203,516.77

ANNUAL METAL OUTPUT FOR IDAHO SINCE 1903

(Statistics for 1903 to 1920, inclusive, from U. S. Geol. Survey Mineral Resources. Statistics for subsequent years from Annual Reports, Mining Industry of Idaho.)

1903

Gold	65,850 oz.	$	1,361,119
Silver	7,398,970 oz.		3,951,790
Lead	213,143,618 lbs.		9,135,335
Copper	569,484 lbs.		78,589
Total value		$	14,526,833

1904

Gold	82,739 oz.	$	1,710,365
Silver	7,666,382 oz.		4,389,004
Lead	233,096,375 lbs.		10,197,966
Zinc	2,600 lbs.		130
Copper	5,087,518 lbs.		635,940
Total value		$	16,933,405

1905

Gold	52,033 oz.	$	1,075,618
Silver	8,679,093 oz.		5,242,172
Lead	259,812,428 lbs.		12,211,184
Zinc	1,228,449 lbs.		72,479
Copper	7,321,585 lbs.		1,142,167
Total value		$	19,743,620

1906

Gold	55,588 oz.	$	1,149,100
Silver	9,018,815 oz.		6,042,606
Lead	255,014,446 lbs.		14,535,823
Zinc	2,065,597 lbs.		126,001
Copper	9,558,913 lbs.		1,844,870
Total value		$	23,698,400

1907

Gold	60,755	oz.	$ 1,255,911
Silver	8,415,431	oz.	5,554,185
Lead	233,823,854	lbs.	12,392,664
Zinc	6,985,732	lbs.	412,158
Copper	10,890,731	lbs.	2,178,146
Total value			$ 21,793,064

1908

Gold	69,827	oz.	$ 1,443,459
Silver	7,469,981	oz.	3,959,090
Lead	206,827,816	lbs.	8,686,768
Zinc	37,410	lbs.	1,758
Copper	10,041,850	lbs.	1,325,524
Total value			$ 15,416,599

1909

Gold	70,329	oz.	$ 1,453,822
Silver	7,369,742	oz.	3,661,649
Lead	215,986,285	lbs.	9,287,410
Zinc	1,351,010	lbs.	72,954
Copper	9,115,489	lbs.	1,185,014
Total value			$ 15,660,849

1910

Gold	53,060	oz.	$ 1,096,842
Silver	7,369,742	oz.	3,979,661
Lead	228,258,839	lbs.	10,043,389
Zinc	5,603,114	lbs.	302,568
Copper	7,037,292	lbs.	893,736
Total value			$ 16,316,196

1911

Gold	66,389	oz.	$ 1,372,387
Silver	8,196,136	oz.	4,343,952
Lead	272,556,525	lbs.	12,265,044
Zinc	8,340,249	lbs.	475,394
Copper	5,152,937	lbs.	644,117
Total value			$ 19,100,894

1912

Gold	66,816	oz.	$ 1,381,214
Silver	8,294,745	oz.	5,101,268
Lead	284,185,657	lbs.	12,788,355
Zinc	13,905,502	lbs.	959,479
Copper	7,492,152	lbs.	1,236,205
Total value			$ 21,466,521

1913

Gold	65,043	oz.	$ 1,344,559
Silver	9,989,193	oz.	6,033,473
Lead	317,871,945	lbs.	13,986,366
Zinc	23,173,953	lbs.	1,297,741
Copper	9,592,966	lbs.	1,486,910
Total value			$ 24,149,049

1914			
Gold	55,743 oz.	$	1,152,315
Silver	12,479,516 oz.		6,901,172
Lead	348,526,069 lbs.		13,592,517
Zinc	42,012,435 lbs.		2,142,634
Copper	6,445,187 lbs.		857,210
Total value		$	24,645,848
1915			
Gold	57,069 oz.	$	1,179,731
Silver	11,769,128 oz.		5,966,948
Lead	345,999,466 lbs.		16,261,975
Zinc	70,153,234 lbs.		8,699,001
Copper	6,978,713 lbs.		1,221,275
Total value		$	33,328,930
1916			
Gold	53,977 oz.	$	1,115,810
Silver	12,300,873 oz.		8,093,974
Lead	375,081,781 lbs.		25,880,643
Zinc	86,505,219 lbs.		11,591,699
Copper	8,478,281 lbs.		2,085,657
Total value		$	48,767,783
1917			
Gold	38,933 oz.	$	804,809
Silver	12,029,338 oz.		9,912,175
Lead	393,559,521 lbs.		33,846,119
Zinc	79,854,136 lbs.		8,145,122
Copper	7,827,574 lbs.		2,136,928
Total value		$	54,845,153
1918			
Gold	33,999 oz.	$	702,816
Silver	9,172,340 oz.		9,172,340
Lead	294,695,993 lbs.		20,923,416
Zinc	45,161,712 lbs.		4,109,716
Copper	6,533,888 lbs.		1,613,870
Total value		$	36,522,158
1919			
Gold	34,503 oz.	$	713,238
Silver	5,579,056 oz.		6,248,543
Lead	182,341,898 lbs.		9,664,121
Zinc	15,994,229 lbs.		1,167,579
Copper	3,122,763 lbs.		580,834
Total value		$	18,374,315
1920			
Gold	23,490 oz.	$	485,590
Silver	7,326,794 oz.		7,986,205
Lead	249,609,976 lbs.		19,968,798
Zinc	27,932,326 lbs.		2,262,518
Copper	2,538,396 lbs.		467,065
Total value		$	31,170,176

1921

Gold	26,750.76 oz.	$ 552,938
Silver	6,184,989.73 oz.	6,184,989
Lead	210,100,194.00 lbs.	9,559,558
Zinc	1,818,313.00 lbs.	94,006
Copper	1,380,168.00 lbs.	172,521
Total value		$ 16,564,014

1922

Gold	22,178.39 oz.	$ 458,427.32
Silver	6,149,336.15 oz.	6,149,336.15
Lead	205,132,588.00 lbs.	11,762,302.60
Zinc	5,596,514.00 lbs.	394,666.17
Copper	3,225,762.00 lbs.	431,671.47
Total value		$19,196,403.71

1923

Gold	35,506.23 oz.	$ 733,913.78
Silver	7,669,393.43 oz.	6,158,099.48
Lead	255,266,476.00 lbs.	18,550,214.82
Zinc	34,690,620.00 lbs.	2,292,009.26
Copper	4,183,495.00 lbs.	603,303.12
Total value		$28,337,540.46

1924

Gold	26,237.21 oz.	$ 542,323.12
Silver	7,774,747.00 oz.	5,192,053.79
Lead	260,356,490.00 lbs.	21,081,065.00
Zinc	21,310,559.00 lbs.	1,351,941.86
Copper	3,146,997.00 lbs.	409,864.89
Total value		$28,577,248.66

1925

Gold	20,108.41 oz.	$ 415,640.82
Silver	7,708,938.55 oz.	5,324,178.41
Lead	265,302,880.00 lbs.	23,930,319.78
Zinc	37,110,647.00 lbs.	2,828,573.51
Copper	3,370,016.00 lbs.	473,217.65
Total value		$32,971,930.17

1926

Gold	14,754.64 oz.	$ 304,978.39
Silver	7,522,881.88 oz.	4,672,236.26
Lead	283,305,553.00 lbs.	23,845,828.39
Zinc	53,922,120.00 lbs.	3,956,265.95
Copper	1,381,334.00 lbs.	190,555.03
Total value		$32,969,864.02

1927

Gold	15,592.01 oz.	$ 322,286.86
Silver	8,896,293.08 oz.	5,014,840.42
Lead	312,770,885.00 lbs.	21,127,673.28
Zinc	64,479,833.00 lbs.	4,024,831.18
Copper	2,362,863.00 lbs.	305,281.90
Total value		$30,794,913.64

1928

Gold	20,739.95	oz.	$ 428,694.77
Silver	8,987,484.00	oz.	5,228,558.70
Lead	302,590,871.00	lbs.	19,078,354.41
Zinc	74,334,543.00	lbs.	4,480,142.90
Copper	2,644,301.00	lbs.	385,274.66
		Total value	$29,601,025.44

1929

Gold	20,741.62	oz.	$ 428,729.29
Silver	9,446,654.44	oz.	5,006,065.59
Lead	312,151,644.00	lbs.	21,329,321.83
Zinc	110,767,523.00	lbs.	7,212,181.10
Copper	5,736,497.00	lbs.	1,038,707.51
		Total value	$35,016,005.32

1930

Gold	21,137.52	oz.	$ 436,912.54
Silver	9,032,888.57	oz.	3,446,408.32
Lead	263,599,300.00	lbs.	14,542,773.34
Zinc	75,136,539.00	lbs.	3,423,220.72
Copper	3,151,814.00	lbs.	409,168.49
		Total value	$22,258,483.41

1931

Gold	19,055.74	oz.	$ 393,882.15
Silver	7,245,719.07	oz.	2,079,521.38
Lead	206,443,898.00	lbs.	8,759,414.58
Zinc	43,347,237.00	lbs.	1,577,839.42
Copper	1,576,685.00	lbs.	127,963.74
		Total value	$12,938,621.27

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